



E-pharmacy: A view of aspiring doctors - A Questionnaire-based study amongst undergraduate medical students

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Citation this Article: Dr. Pranali Naresh Chavarkar, Dr. Ujwala P. Gawali, Dr. Chandrakant S Waghmare, Dr. Fehmi. M. Mukadam, Dr. Dilara P. Ali, Dr. Sanjivani K. Nagothkar, “E-pharmacy: A view of aspiring doctors - A Questionnaire-based study amongst undergraduate medical students”, IJMSIR- January - 2024, Vol – 9, Issue - 1, P. No. 01 – 05.

Type of Publication: Original Research Article

Conflicts of Interest: Nil

Abstract

Background: The internet has revolutionized the world, allowing online medication sales and purchases. E-pharmacies operate under various Indian laws, including the Drugs and Cosmetics Act, 1940 and Information Technology Act, 2000. The World Health Organization recognizes the benefits and challenges of E-Pharmacy, urging member states to review existing legislation and develop strategies for monitoring and enforcement. This study aims to assess medical students' awareness, attitude, and practice towards E-pharmacy.

Material and method: The study is a cross-sectional, questionnaire-based study conducted in June 2022, involving 2nd year undergraduate medical students at DR.V.M.G.M.C, Solapur. The questionnaire included demographic data, E-pharmacy awareness, drug class, recommendations, and rules. Results were analyzed using Microsoft Excel Office 2019.

Observation: Approximately 82.7% (124) of the 200 students who answered the questionnaire were aware of e-pharmacy. Of the 200 students that responded, 76 (50.67%) were female and 74 (49.33%) were male. The students were in the 18–25 age bracket, with a mean age

of 20.92±1.63 years. In my study it was found out that the most common reason of not using E-pharmacy was lack of interaction with the pharmacists (43.5%) followed by non-reliability on the quality of medications (38.6%) followed by drug abuse & drug -drug interaction (27.1%).

Conclusion: The study highlights a knowledge deficit regarding E-Pharmacy rules and regulations, particularly for Scheduled-H and Schedule-X drugs. Despite attractive prices, discounts, and 24-hour delivery, factors like lack of interaction with pharmacists, poor quality, drug abuse risk, and self-medication promotion hinder willingness to purchase medications. Creating appropriate rules and regulations is crucial for overcoming drawbacks.

Keywords: E-pharmacy, Internet, Medicines, Physicians, Prescription.

Introduction

Internet has revolutionized the world by offering a platform to sell and purchase various products, including medication online. E-Pharmacy is a digital platform that has revolutionized patient care by offering convenient and accessible options. In majority cases, e-pharmacy

medicines are dispensed to those consumers who have obtained a prescription from the doctor and submitted it to online pharmacy. [1]

E-pharmacy offers convenience for consumers, but it also poses significant health risks, including easy access to illegal or unapproved drugs and medications without a prescription. The World Health Organization has highlighted these risks, but despite these, e-pharmacy has led to increased global demand for medicines due to its ease of purchase.

The rise in counterfeit medicines from illegitimate online pharmacies has led to potential side effects on patients. Despite several nations implementing warnings, consumer protection acts, and federal or state laws to control e-pharmacy usage, Indian pharmacy laws remain unchanged for both online and offline pharmacy. This presents unique ethical, legal, and quality challenges for consumers, physicians, and regulators, as the marketing of drugs over the internet is an inevitable outcome of the booming e-economy. The Indian drug market, estimated at US\$ 41 billion in 2021, is predicted to reach US\$ 65 billion by 2024 due to factors such as a growing population, persistent infections, and expanding healthcare.[2]

E-pharmacy gained popularity during the COVID-19 pandemic, enabling the healthcare system to deliver quality healthcare at affordable rates. It helps bridge the gap by making medications more accessible and affordable for all age groups, particularly for chronic elderly patients and those without access to a pharmacy. This study aims to assess the awareness, attitude, and practice of medical students towards e-pharmacies, focusing on their advantages, concerns regarding regulations, patient privacy, telemedicine integration, and their impact on the healthcare landscape. E-pharmacies have proven to be essential tools for providing better

healthcare in the COVID-19 era, and understanding these aspects will provide a comprehensive understanding of their evolving role in the healthcare landscape.

Material And Methods

Present study is a Cross-sectional, questionnaire-based study. All the 2nd year undergraduate medical students who were willing to participate in the study were included. Students who were not willing were excluded. The study was carried out in the month of June 2022. A validated structured questionnaire, containing closed ended questions were given to the 2nd year undergraduate medical students of DR.V.M.G.M.C, Solapur. This questionnaire included questions/information of basic demography data (age, gender, academic year), prevalence of use, awareness about E-pharmacy, class of drug, reasons for recommendations, knowledge about its rules and regulations were analysed. The results were calculated in proportion and the data was analysed using Microsoft Excel Office 2019.

Results

Out of 200 questionnaire 150 responses were collected and 50 were excluded of which 76(50.67%) were females and 74(49.33%) were males belonging to age group 18-25 years, with mean age of 20.92 ± 1.63 years, around 82.7% (124) were aware about E-Pharmacy.



Awareness about the rules and regulations for E-Pharmacy is recorded by 145 responses among which 66(44.90%) were aware about the rules and regulations

for E-Pharmacy whereas, 81(55.10%) were not aware about rules and regulations.

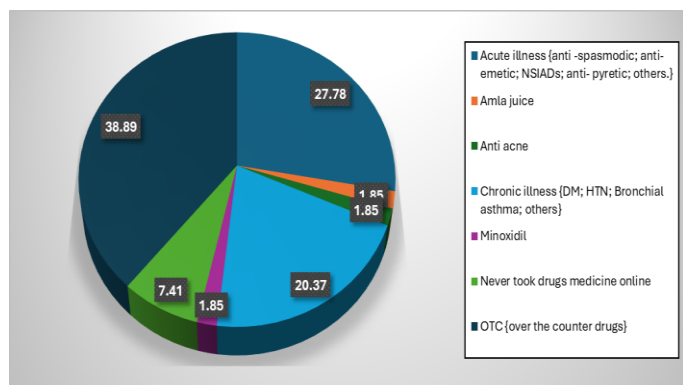
Reasons to not use E-pharmacy

Reasons to use E-pharmacy	No.	Percentage
Affordable price and discounts	56	76.71%
Easy availability	47	64.38%
Open 24*7	42	57.53%
Return Policy	16	21.92%
Time Saving	29	39.73%
Door Step delivery	49	67.12%
Convenient	38	52.05%
No	1	1.37%

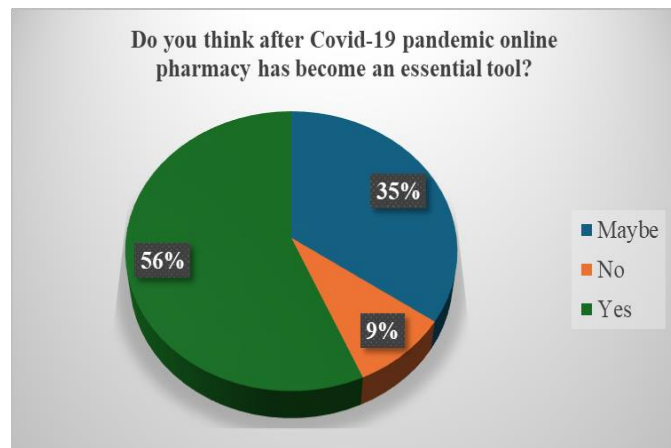
Reasons to not use E-pharmacy

Reasons to not use E-pharmacy:	No.	Percentage
Lack of interaction with the pharmacist	37	43.5%
Not reliable on the quality and purity of the drug	33	38.8%
Chances of drug abuse.	23	27.1%
Electronic health record security issue	10	11.8%
Access to online pharmacy was difficult	8	9.4%
Affects the business of offline sellers.	6	7.1%
Others	27	31.8%

Class of drug preferred to place online order:



Do you think after Covid-19 pandemic online pharmacy has become an essential tool?



Discussion

Internet has revolutionized the world by offering a platform to sell and purchase various products including medications online. Electronic pharmacy (e-pharmacy) system is a web-based application of technology and internet in the health sector as mentioned earlier.

It mainly aims at reducing paper work and providing door-step delivery of medicines to the users; saving money, time, and efforts.[3] Few online pharmacies offer e-prescriptions too, sometimes without any physical examination or doctor’s visit. [4]

This is a first of a kind of study which has been conducted among medical students in our college. The result of our study showed unawareness of rules and regulations about E-Pharmacy in India, among the undergraduate medical students.

In our study, out of 200 questionnaire 150 responses were collected and 50 were excluded of which 76(50.67%) were females and 74(49.33%) were males belonging to age group 18-25 years, with mean age of 20.92±1.63 years, around 82.7% (124) were aware about E-Pharmacy.

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In my study it was found out that the most common reason of not using E-pharmacy was lack of interaction with the pharmacists (43.5%) followed by non-reliability on the quality of medications (38.6%) followed by drug abuse & drug -drug interaction (27.1%).

Online medications may lead to drug-drug interaction and adverse effects, about which patients may have no or inadequate warning. E-Pharmacy also promotes self-medication which further complicates the situation.[5]

While the study conducted by Priyanka VP, et al showed that in absence of clear rules and regulations it is difficult for regulatory authorities to control, monitor and track sell of medications through E-pharmacy [6].

Nonetheless many were in favour of buying medications through E-pharmacy where the most common indication was due to attractive price & discounts on different drugs.

Similar study like that of Desai et al, cited that online pharmacies have gained popularity due to better pricing offers than offline stores, as well as door -step delivery for the consumers, etc. [7]

In this digital age, the numbers of internet users have risen very much. It is probably due to easy availability of internet services as well as products on online platforms with offers to lure the public.

An increasing number of internet and smartphone users also prove that India has a bright future of online pharmacy, although this shall bring quite a few challenges along with opportunities.[6]

Conclusion

The present study draws attention on the fact that overall, there was knowledge deficit amongst respondents regarding concrete rules and regulations about E-Pharmacy. The students need to be educated about the

Scheduled-H and Schedule-X drugs. Though the driving forces for the popularity of E-Pharmacy are attractive prices and discounts, door step delivery and open 24*7 but the willingness to purchase medications via E-Pharmacy seems to be hindered by factors such as lack of interaction with the pharmacist, less reliability on quality of medications and chances of drug abuse, drug resistance, promotion of self-medications, etc. However, after witnessing COVID-19 pandemic E-Pharmacy had become an essential tool, therefore appropriate rules and regulations need to be formulated and its awareness should be created, so that the drawbacks can be overcome and benefits can be reaped by all.

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