SHORT RESEARCH ARTICLE

Online Drug Purchasing in India: Community Pharmacists Perceptions and Attitudes

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DOI: 10.55489/njcm.160720255314

ABSTRACT

Background: In India, online pharmacies have gained significant popularity and are reshaping the way in which pharmaceutical services are provided. With community pharmacist serving as an integral part of public health, promoting the safe and effective use of medicines, this study aimed to evaluate their perceptions of online pharmacies.

Methods: A cross-sectional study was conducted in Bangalore, Karnataka India. An electronic survey was developed and distributed to pharmacists across Bangalore through email and the collected data was analyzed using descriptive statistics.

Results: A total of 122 pharmacists participated in the study, and more than half of the participants agreed that they purchase medicines from online pharmacies, with approximately 19% doing it frequently and 52% making occasional purchases for their personal or family use**.** Half of the respondents (50.81%) believe that online pharmacies can be a source of counterfeit and substandard medicines and raised their concern over their safety. Participants suggested mandatory (47.54%) prescription verification, stringent regulatory measures, and accreditation processes for online pharmacies.

Conclusion: Online pharmacies have the potential to further expand access to medications but must be introduced into the healthcare system in a balanced approach that does not compromise either patient safety or the traditional roles of pharmacies.

Keywords: Online pharmacy, Community Pharmacist, Counterfeit medicines, Regulation

ARTICLE INFO

Financial Support: None declared

Conflict of Interest: The authors have declared that no conflict of interests exists.

Received: 11-03-2025, **Accepted**: 14-06-2025, **Published**: 01-07-2025

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How to cite this article: Satheesh SS, Viswanatham Sai Lakshmi V, Sigma S, Shreyas PR. Online Drug Purchasing in India: Community Pharmacists Perceptions and Attitudes. Natl J Community Med 2025;16(7):716-719. DOI: 10.55489/njcm.160720255314

www.njcmindia.com | pISSN: 0976-3325 | eISSN: 2229-6816 | Published by Medsci Publications

INTRODUCTION

A web-based pharmacy is an online platform that enables users to order prescription medications and electronic services, enabling them to quickly receive their medications and services in the convenience of their own homes.[1] Drugstore.com, introduced in 1999, was the first internet retailer of health and beauty care products. although it wasn't the first online pharmacy, it was the first to provide customers with a safe and secure service.[2] Following suit, other pharmacies started to find websites, both trustworthy and untrustworthy.

The digital pharmacy market is growing rapidly, with an annual growth rate of 14.42% predicted. By 2026, the market could reach a volume of approximately $35.33 billion. This growth reflects the pharmacy industry's increasing reliance on digital technologies and their potential.[3] Online pharmacies are reshaping the delivery of pharmaceutical services in India. Currently, there are over 300 online drugstores in the country, and the revenue from online pharmacies is expected to reach US$1.11 billion by 2025.[4] COVID -19 made people more reliant on online services.

Online pharmacies offer convenience, privacy, and cost comparison benefits. However, if not operating legally, they pose significant risks, including poor medication quality, safety concerns, financial risks, availability of counterfeit drugs, and lack of accountability.[5] According to the World Health Organization, 50% of medicines that are obtained from online pharmacies that hide their physical address are counterfeit drugs.[6] Online pharmacies face several challenges, including inadequate logistics, absence of a regulatory framework, lack of barcoding systems, interstate drug sales, drug addiction concerns, and the sale of Schedule H and X medications.[7]

A community pharmacy, also known as a retail pharmacy or drug outlet, is a place where prescription drugs are supplied, dispensed, and stored. The general public commonly refers to community pharmacies as "medical stores.[8] Research has shown that awareness of online pharmacy services and the perceptions of health professionals and the public can either promote or hinder their use. Few studies have evaluated pharmacists' perceptions of online pharmacy services, and this evidence remains limited in many countries. This study aims to assess the perceptions of pharmacists regarding online pharmacy services in Bangalore.

METHODOLOGY

This cross-sectional study was conducted in Bangalore, Karnataka, India, from July to September 2024. The study setting was purposively selected based on access to relevant contacts and pharmacies that enabled participant engagement. Ethical approval was obtained from the Institutional Review Board of IIHMR Bangalore (IIHMR/IRB/2024/05). Community pharmacists were purposively sampled from a list of registered pharmacies across the city, and their perceptions of online pharmacies were assessed using a validated questionnaire.

A literature search was conducted to identify validated instruments assessing community pharmacists' perceptions of online pharmacies. Two field experts reviewed the questionnaire and made necessary modifications to ensure its relevance to the study context. Face validation was performed by the experts, followed by pilot testing among pharmacists. Based on feedback, minor revisions were made. The final validated instrument included sections on demographics, practical convenience, internet usage, regulatory awareness, and perceptions and concerns about online pharmacy services.

Pharmacists from 70 selected pharmacies were contacted via the pharmacy contact numbers, informed about the study's purpose, and invited to participate. Of the 210 pharmacists contacted, 122 agreed to participate and completed the questionnaire. An electronic link to the Google Forms survey was shared through email and WhatsApp after obtaining their consent. A 3-point Likert scale was used to assess the pharmacists' perceptions. Survey responses from fully completed questionnaires were cleaned, coded, and analyzed using SPSS version 26. Frequencies and percentages were used to present the data.

Approval of Institutional Ethical Review Board: IIHMR Bangalore, IIHMR/IRB/2024/05

RESULTS

The response rate was 58.1 percent. The mean age of the pharmacists was within range, about 98% of the participants were aged under 45 years. Table 1 shows the demographics for the study sample.

The study found that most pharmacists in the selected pharmacies were male (55.76%) and held a bachelor's degree in pharmacy (63.93%). A majority (54.91%) had 3 to 10 years of experience and reported having internet access and using it during their professional practice. More than half of the participants reported purchasing medicines from online pharmacies,

Table 1: Characteristics of participants

Variable	Pharmacists (%)
Gender	
Male	68 (55.76)
Female	54(44.24)
Highest Level of Education	
Diploma in Pharmacy	24(19.67)
Bachelor of Pharmacy	78(63.93)
Masters in pharmacy	14(11.47)
Doctor of Pharmacy	04(3.27)
Other	02(1.63)
Length of pharmacy practice experience(years)	
Less than 3 years	46(37.70)
3- 10 years	67 (54.91)
>10	9(7.37)

Table 2: Perceptions and Attitudes Toward Online Pharmacies

ITEM	Participants(%)
Buying medicines from online pharmacies	
Often	23(18.85)
Sometimes/Rarely	63(51.63)
Won't buy	36(29.50)
Primary consideration regarding the choice of websites while purchasing medicines.	
Popularity of the website	23(18.84)
Discounted prices and promotions.	69(56.55)
Reliability of the online pharmacy.	21(17.21)
User interface and ease of navigation.	8(7.37)
Reliability of online pharmacy services compared to traditional pharmacies	
More reliable.	32(26.22)
Equally reliable.	21(17.21)
Less reliable	67(54.91)
Perception of customer service offered by online pharmacy in comparison to traditional pharmacies.	
Better	29(23.77)
Similar	28(22.95)
Worse/Unsure.	65(53.27)

Table 3: Challenges and Limitations of Online Pharmacy Services

Item	Participants(%)
Limitations of online pharmacy services	
Lack of face-to-face interaction with pharmacists.	38(31.14)
Concerns about medication safety.	10(8.19)
Potential for counterfeit medications.	12(9.83)
All the above.	62(50.81)
Regulatory measures required for the safety and efficacy of online pharmacy services.	
Mandatory verification of prescriptions.	35(28.68)
Accreditation of online pharmacies.	13(10.65)
Regular audits of online pharmacies.	10(8.19)
All of the above.	58(47.54)
Impact of online pharmacies on patient-pharmacist interactions and relationships.	
Enhances communication and accessibili	23(18.85)
Diminishes personal connections.	71(58.19)
No significant impact.	28(22.95)

Table 4: Impact on Pharmacists and Patient Outcomes

ITEM	Participants(%)
Impact of online pharmacy services on medication adherence	
Improves medication adherence.	35(28.68)
No significant impact.	53(43.44)
Decreases medication adherence.	34(27.86)
Future of online pharmacy services in the next 5-10 years.	
Continued growth and expansion.	73(59.83)
Increased regulation and oversight.	40(32.78)
Decline in popularity.	09(0.73)
Changes in online pharmacy services to better serve the needs of pharmacists and patients	
Improved medication verification processes.	33(26.96)
Enhanced patient education resources.	15(12.29)
Better integration with electronic health records.	5(4.00)
All the above	69(56.55)

Almost 19% doing it frequently and 52% occasionally for personal or family use. Discounts and promotions (56.55%) were the main attraction. However, over half viewed online pharmacies as less reliable (54.91%), and many expressed uncertainties (53.27%) about the services provided (table 2).

Half of the respondents (50.81%) viewed online pharmacies as a potential source of counterfeit and substandard medicines, raising concerns about safety. About 30% highlighted the lack of face-to-face interaction as a key drawback. Participants recommended mandatory prescription verification (47.54%), stricter regulations, and an accreditation process for online pharmacies. A majority (58.19%) felt that online pharmacies weaken the personal connection between pharmacists and patients (table 3).

Nearly half of the participants (43.44%) felt that online pharmacies would have little impact on patient medication adherence. However, most believed these platforms have strong growth potential, while emphasizing the need for better patient education and stronger medication verification processes (table 4).

A majority of participants (58.19%) viewed online pharmacies as a potential threat to traditional pharmacies, citing concerns about privacy, security, and medication adherence. Key issues raised included the risk of counterfeit or substandard medicines and incorrect doses or dosage forms. Additionally, 44.26% felt that online pharmacies could negatively impact the healthcare system (table 5).

DISCUSSION

This study is the first to explore community pharmacists' perceptions of online pharmacies in India. Participants were aware and generally positive, believing online pharmacies will thrive. However, they stressed the importance of direct interaction for proper medication use and care. In contrast, a study among doctors found them less supportive, emphasizing the need for direct communication to ensure proper treatment.[9]

Despite a decade of online pharmacy operations in India, the lack of clear guidelines raises concerns about medicine quality and authenticity. Participants highlighted the need for stronger prescription verification and an accreditation process to ensure online pharmacies operate in a safer, more trusted environment.[7,10,11] These measures align with other study recommendations and this might reduce the perception that medicine sold through online channels is counterfeit, guaranteeing better quality medication, and establishing trust in these pharmacy services.

A major concern is the risk to privacy and confidentiality, as online pharmacies handle sensitive medical and financial data. Inadequate security measures can lead to data breaches and privacy violations.[12–14]

Table 5: Concerns with Service

ITEM	Participants(%)
Concerns regarding the rise of online pharmacy services.	
Medication adherence issues.	15(12.29)
Privacy and security concerns.	24(19.68)
Impact on local pharmacies.	33(27.04)
All of the above.	50(40.98)
Online pharmacy services pose a threat to the sustainability of traditional pharmacies.	
Yes	71(58.19)
No	25(20.49)
Unsure	26(21.31)
Concerns regarding the quality of medications provided by online pharmacies.	
Counterfeit medications.	21 (17.21)
Substandard quality.	15(12.29)
Incorrect dosage or formulation.	28(22.95)
All of the above.	58(47.54)
Impact of Online pharmacies on the overall healthcare system.	
Positive impact.	43(35.24)
Negative impact.	54(44.26)
No significant impact/unsure	25(20.49)

Moreover, nearly half of the participants were worried that online pharmacies would affect the overall healthcare system in a negative way, whereas traditional pharmacies would be affected and, in turn, disrupt the relationship between the pharmacist and the patient.[15] Moreover, if there is a decline in traditional pharmacies, it may lead to accessibility issues during emergencies.

This study has several limitations affecting the generalizability of its findings. It relied on a small, self-reported sample, may be subject to recall and social desirability biases. Geographical limitations also restricted the diversity of perspectives across India. Future research should include physicians, patients, policymakers, and online pharmacy representatives to capture a broader view. Comparing traditional and online pharmacies could further highlight differences in patient safety, adherence and access.

Conclusion

Online pharmacies have the potential to enhance access to and affordability of medicines. By leveraging technology, patients can compare prices, explore different products, and access detailed medication information to aid in decision-making. While online pharmacies offer numerous benefits, concerns such as the absence of proper operational guidelines, regulatory frameworks, counterfeit medicines, and disruption of the pharmacist-patient relationship must be addressed. Despite their potential to improve healthcare accessibility and convenience, a well-regulated framework is essential for responsible growth of e-pharmacies without compromising patient safety.

Authors contribution: SSS was responsible for conceptualization, manuscript development, and data analysis; **VS** contributed to tool development, data collection, and data analysis; **SS** assisted with tool development and data collection; and **SPR** was involved in tool development and data collection.

References

1. Dcruz AC, Mokashi VN, Pai SR, Sreedhar D. The rise of E-pharmacy in India: Benefits, challenges, and the road ahead. Indian J Pharmacol. 2022 Jul-Aug;54(4):282-291. Doi: https://doi.org/10.4103/ijp.ijp_445_21 PMid:36204812
2. Drugstore.com. Available at: https://en.wikipedia.org/w/ index.php?title=Drugstore.com&oldid=1071374634. Accessed Jan 4th,, 2025.
3. Almeman A. The digital transformation in pharmacy: embracing online platforms and the cosmeceutical paradigm shift. J Health Popul Nutr. 2024 May 8;43(1):60. Doi: https://doi.org/10.1186/s41043-024-00550-2
4. Online Pharmacy - India. Available at: https://www.statista.com/outlook/hmo/digital-health/digital-treatment-care/ digital-care-management/online-pharmacy/india. Accessed Jan 25th, 2025.
5. Oriakhi OJ, Almomani H, Patel N, Donyai P. The characteristics and operations of "online pharmacies" investigated in relation to medicines popularised during the coronavirus pandemic: a cross-sectional study. Front Pharmacol. 2024 Feb 20;15: 1346604. Doi: https://doi.org/10.3389/fphar.2024.1346604
6. Merrills J, Fisher J. Pharmacy Law and Practice, Chapter 25 - The Pharmacy Profession. 5th ed. Academic Press; 2013. p. 363-83. Doi: https://doi.org/10.1016/B978-0-12-394289-0.00025-4
7. Miller R, Wafula F, Onoka CA, Saligram P, Musiega A, Ogira D, Okpani I, Ejughemre U, Murthy S, Garimella S, Sanderson M, Ettelt S, Allen P, Nambiar D, Salam A, Kweyu E, Hanson K, Goodman C. When technology precedes regulation: the challenges and opportunities of e-pharmacy in low-income and middle-income countries. BMJ Glob Health. 2021 May;6(5): e005405. Doi: https://doi.org/10.1136/bmjgh-2021-005405
8. Basak SC, Sathyanarayana D. Community pharmacy practice in India: past, present and future. South Med Rev. 2009 Apr; 2(1):11-4. Epub 2009 Apr 16. PMID: 23093872.
9. Yadav AK, Pichholiya M, Sheth H, Gupta S, Choudhary S. Knowledge and attitude toward e-pharmacy among the physicians of south rajasthan, india: a pilot survey. Asian J Pharm and Clin Res. 2020; 13(9): 157-60. Doi: https://doi.org/10.22159/ajpcr.2020.v13i9.38862
10. Satheesh G, Puthean S, Chaudhary V. E-pharmacies in India: Can they improve the pharmaceutical service delivery? J Glob Health. 2019 Jun;10(1):010301. Doi: https://doi.org/10.7189/jogh.10.010302 PMid:32082543 PMCid:PMC7007514
11. Online pharmacies - Best practices. Available at: https://www.wtwco.com/en-us/insights/2024/08/online-pharmacies-best-practice. Accessed Jan 4th, 2025.
12. Long CS, Kumaran H, Goh KW, Bakrin FS, Ming LC, Rehman IU, Dhaliwal JS, Hadi MA, Sim YW, Tan CS. Online Pharmacies Selling Prescription Drugs: Systematic Review. Pharmacy (Basel). 2022 Apr 1;10(2):42. Doi: https://doi.org/10.3390/ pharmacy10020042 PMid:35448701 PMCid:PMC9031186
13. Rauti S, Carlsson R, Mickelsson S, Mäkilä T, Heino T, Pirjatanniemi E. Analyzing third-party data leaks on online pharmacy websites. Health Technol. 2024 Mar 1;14(2):375-92. Doi: https://doi.org/10.1007/s12553-024-00819-w
14. The operation of e-Pharmacies and Data Privacy Risks. India Corporate Law. 2023. Available at: https://corporate.cyrilamarchandblogs.com/2023/06/the-operation-of-e-pharmacies-and-data-privacy-risks/. Accessed Jan 4th, 2025.
15. Eab-Aggrey N, Khan S. Prospects and challenges of online pharmacy in post-Covid world: A qualitative study of pharmacists' experiences in Ghana. Explor Res Clin Soc Pharm. 2023 Dec 12;13:100395. Doi: https://doi.org/10.1016/j.rcsop.2023.100395