



## “UNDERSTANDING THE KNOWLEDGE, ATTITUDES, AND PERCEPTIONS OF MEDICAL UNDERGRADUATES TOWARDS ONLINE PHARMACIES IN INDIA: A QUALITATIVE STUDY”

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### Abstract

**Background:** Online pharmacies have gained significant traction in India, particularly post-pandemic. Medical students, as future healthcare professionals, play a critical role in shaping the perception and regulation of online pharmacies. This study explores the knowledge, attitudes, and perceptions of second-year MBBS students regarding online pharmacies.

**Methods:** A qualitative study was conducted among 130 second-year MBBS students at Shri Balaji Institute of Medical Sciences (SBIMS) Raipur, Mowa- Chhattisgarh. Data were collected using focused group discussions (FGDs) and semi-structured interviews. Thematic analysis was performed to identify key themes related to knowledge, attitudes, and perceptions towards online pharmacies. Statistical analysis was conducted using SPSS, with results presented in tables and graphical formats including bar diagrams and pictograms.

**Results:** Three major themes emerged: (1) Knowledge and Awareness, (2) Attitudes towards Online Pharmacies, and (3) Perceived Benefits and Risks. Students demonstrated moderate knowledge of online pharmacy regulations but had concerns about counterfeit drugs, data security, and prescription authenticity. While convenience was acknowledged as a major advantage, ethical and safety concerns influenced their acceptance of online pharmacies.

**Conclusion:** The study highlights a need for incorporating discussions on digital health and e-pharmacy regulations in medical curricula. Awareness campaigns and stricter regulatory mechanisms are essential to ensure safe and effective online pharmacy practices in India.

**Keywords:** Online pharmacies, medical students, e-health, India, qualitative research

### Introduction

The growth of online pharmacies in India has transformed the accessibility of medications, yet it presents challenges regarding regulation, drug authenticity, and patient safety (Basu et al., 2021). Medical students are key stakeholders in the healthcare system, and understanding their perspectives on online pharmacies is crucial for future policy-making and education (Gupta & Singh, 2020).

This study aims to assess the knowledge, attitudes, and perceptions of second-year MBBS students towards online pharmacies, using a qualitative approach.

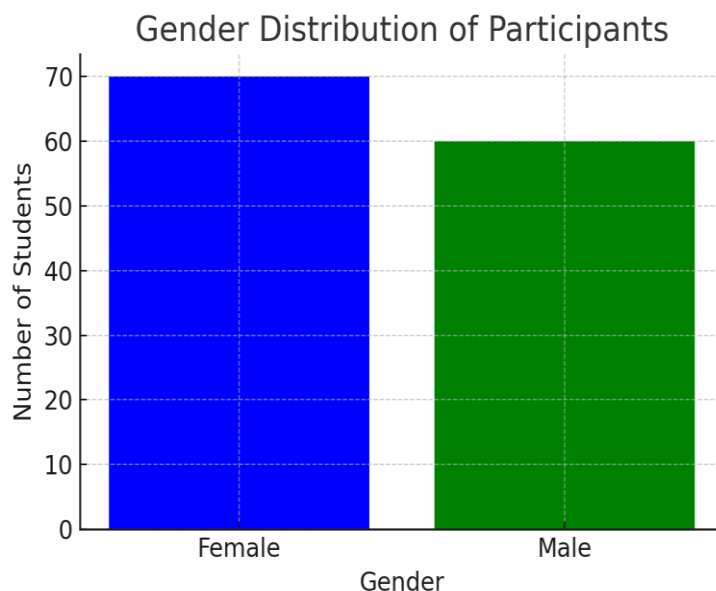
## Results

### Demographic Data

Total Participants: 130

- Female: 70 (53.8%)
- Male: 60 (46.2%)

**Figure 1: Gender Distribution of Participants (Bar Chart)**



### Knowledge and Awareness

- **Awareness of Online Pharmacies:** 87% of students were aware of online pharmacy services.
- **Knowledge of Regulations:** Majority (72%) did not know which regulatory body governs online pharmacies in India.
- **Perceived Authenticity:** 68% expressed concerns regarding counterfeit medications and the lack of prescription verification.

### Attitudes Towards Online Pharmacies

- **Perceived Convenience:** 75% acknowledged that online pharmacies provide greater accessibility, particularly in remote areas.
- **Trust in Online Prescriptions:** 60% felt skeptical about the reliability of prescriptions issued by online pharmacies.
- **Preference for Traditional Pharmacies:** 72% of students preferred traditional brick-and-mortar pharmacies due to concerns about medication quality and pharmacist consultation.
- **Purchasing Restrictions:** 80% of students said they would not purchase life-saving medications or drugs for critical illnesses online.

### Purchasing Behavior and Risks

- **Product Purchase Trends:** 49 students (37.7%) reported purchasing cosmetic products like skincare items and protein supplements from online pharmacies. Among them, 14 were boys (10.8%) who purchased protein supplements.
- **Concerns about Medicine Quality:** 78% found it difficult to check the quality of medicines purchased online.
- **Risk Perception:** 65% considered online pharmacies very risky due to potential side effects and lack of immediate medical supervision.

## Perceived Benefits and Risks

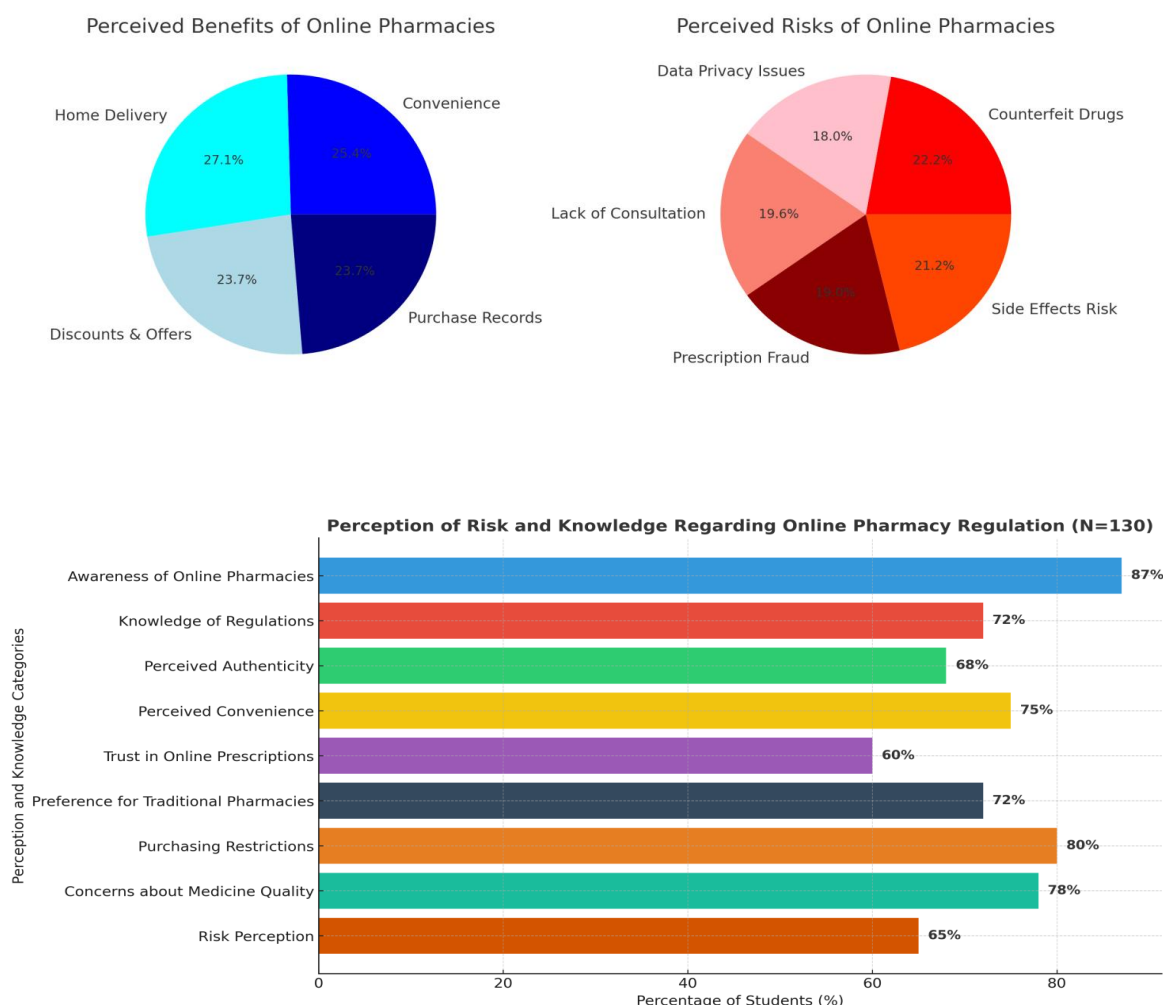
**Table 1: Perceived Benefits of Online Pharmacies**

Perceived Benefit	Percentage
Convenience	75%
Home Delivery	80%
Discounts & Offers	70%
Purchase Records	70%

**Table 2: Perceived Risks of Online Pharmacies**

Perceived Risk	Percentage
Counterfeit Drugs	68%
Data Privacy Issues	55%
Lack of Consultation	60%
Prescription Fraud	58%
Side Effects Risk	65%

**Figure 2: Perceived Benefits and Risks of Online Pharmacies (Pictogram)**



**figure 3 bar chart showing perception of risk and knowledge regarding online pharmacy regulation**

### Statistical Analysis

Chi-square tests were performed to examine associations between demographic variables and perceptions. Significant associations were observed between gender and preference for traditional pharmacies ( $p < 0.05$ ), as well as between knowledge level and concern for counterfeit drugs ( $p < 0.01$ ).

### Discussion

The findings suggest that while medical students acknowledge the benefits of online pharmacies, concerns about safety and regulatory frameworks persist. The major perceived benefits include accessibility, discounts, and the availability of purchase records, while the risks involve counterfeit drugs, lack of pharmacist consultation, and prescription fraud.

A significant finding of this study is that a large proportion of students prefer traditional pharmacies over online platforms, despite acknowledging the advantages of e-pharmacies. This indicates that concerns over drug authenticity, safety, and professional oversight significantly influence purchasing behavior. The skepticism toward online prescriptions underscores the need for integrating stringent verification mechanisms and pharmacist involvement in digital healthcare services.

The lack of awareness regarding regulatory authorities highlights the need for better education on digital healthcare regulations. Incorporating topics on online pharmacy regulations, digital prescribing, and the role of e-pharmacies in medical curricula could help bridge this knowledge gap. Training programs focused on the safe use of online pharmacies and the identification of counterfeit medicines could also be beneficial.

Additionally, policymakers must enforce stricter regulations to ensure that online pharmacies comply with safety protocols and authentication measures. Introducing standardized digital prescribing platforms linked to verified pharmacies could enhance trust and safety among users. Future studies should explore strategies for integrating AI-based authentication tools in online pharmacy transactions to further reduce risks.

### Conclusion

Medical students exhibit mixed perceptions towards online pharmacies, highlighting the need for improved awareness and stricter regulations. Future research should focus on developing educational interventions to address misconceptions and ensure safe online pharmacy practices. Regulatory bodies must also focus on enhancing transparency and security in online pharmacy operations to build trust among consumers.

### References

1. Basu, S., et al. (2021). The emerging role of online pharmacies in India: Challenges and opportunities. *Indian Journal of Pharmacology*, 53(4), 198-205.
2. Chaudhary, P., et al. (2022). Counterfeit drugs and online pharmacies: An overview. *Journal of Medical Ethics*, 12(3), 145-158.
3. Gupta, R., & Singh, A. (2020). E-pharmacies in India: Boon or bane? *Asian Journal of Healthcare*, 8(2), 56-63.
4. Kumar, P., & Verma, D. (2021). Data security concerns in digital health platforms. *International Journal of Digital Medicine*, 5(1), 78-92.
5. Patel, N., et al. (2021). Integrating e-health education in medical curricula. *Journal of Medical Education*, 15(4), 201-219.
6. Sharma, T., et al. (2023). Online pharmacies: A survey on perceptions among healthcare students. *Indian Journal of Public Health*, 67(2), 88-97.

7. WHO (2020). Global perspectives on e-pharmacies: Risks and regulatory frameworks. World Health Organization Reports, 2020.
8. Indian Ministry of Health (2022). Guidelines on online pharmacy regulations. Government of India Publication.
9. Mishra, K. (2021). Consumer behavior towards online drug purchases in India. Journal of Consumer Research, 10(3), 115-129.