

**E-COMMERCE 2.0 AND DIGITAL TRANSFORMATION IN PHARMACEUTICAL TRADE:  
A STUDY OF CONSUMER BEHAVIOR ABOUT ONLINE AND OFFLINE BUYING OF MEDICINES  
IN MUMBAI CITY**

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**Abstract:**

*The future of commerce and global trade is changing fast because of digital technology, online payments, and advanced supply systems. In India, the pharmaceutical retail sector has also changed a lot due to the growth of online pharmacies and mobile apps that deliver medicines at home. This change has become faster because of E-Commerce 2.0, social media influence, digital payment methods, and the increasing use of Artificial Intelligence (AI) to improve customer services. This research paper focuses on understanding consumer behaviour towards buying medicines online and offline in Mumbai City. The study mainly examines how aware consumers are about both modes and what factors affect their buying decision, such as price, convenience, trust, delivery speed, and customer service. It also highlights the problems faced by consumers while purchasing medicines online as well as offline. The study also connects online medicine buying with important topics like ethical use of AI, digital trade rules, fintech growth, and strong supply chain systems. Primary data was collected through a structured questionnaire and analysed by comparing online and offline purchasing patterns. The findings show that many consumers prefer online platforms because they provide home delivery, discounts, and easy digital payments. However, offline medical stores are still trusted more because medicines are available immediately and consumers can take advice directly from the pharmacist. The study concludes that the future of medicine trade will depend on strong digital rules, safe online payment systems, better digital awareness among consumers, and efficient supply chain management.*

**Keywords:** *E-Commerce 2.0, Online Pharmacy, Consumer Perception, Fintech, Ethical AI, Digital Trade, Medicine*

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**Introduction:**

Commerce and global trade are changing very fast because of new technology, digital services, and the growing need for convenience among consumers. Nowadays, people prefer faster and easier ways of buying products, especially through online platforms. In the last few years, the Indian pharmaceutical industry has also seen major changes in the way medicines are sold and purchased. Earlier, consumers mostly depended on offline medical stores for buying medicines. Visiting the pharmacy, showing prescription, and purchasing medicines directly was the most common method. However, with the introduction of online medicine platforms like PharmEasy,

Tata 1mg, Netmeds, Apollo 24/7 and many other apps, the buying pattern of consumers has started changing. Many consumers now prefer ordering medicines online because it saves time, provides discounts, and delivers medicines at home.

Mumbai City is one of the biggest metropolitan cities in India and is known as the financial capital of the country. The city has a large population, high smartphone usage, and strong internet connectivity. Because of this, people in Mumbai are adopting digital services quickly. Online payments and app-based services have become common in daily life, which has also increased the trend of purchasing medicines online. At the same time, offline pharmacies still play an important role in the healthcare system. Many consumers continue to prefer offline medical stores because they get medicines immediately, can personally check the product, and can also take guidance from pharmacists. Therefore, studying consumer perception and comparing online and offline medicine purchase becomes important to understand future business opportunities and the growth of pharmaceutical trade.

#### **E-Commerce 2.0 and Social Commerce in Pharmaceutical Trade:**

E-Commerce 2.0 refers to the advanced stage of online commerce where buying and selling is mostly done through mobile applications and digital platforms. It includes features like quick order systems, online reviews, subscription services, and digital tracking. Online medicine purchase is a good example of E-Commerce 2.0 because it provides many modern facilities such as:

- uploading prescriptions digitally,
- tracking delivery through mobile apps,
- reading customer feedback and ratings,
- online doctor consultation support,
- reminders for regular medicine purchase.

#### **Fintech Disruption in MSMEs**

Financial technology (Fintech) has played an important role in boosting online commerce. Today, online medicine platforms provide many easy payment options such as:

- UPI payments,
- credit and debit cards,
- EMI facility,
- cashback offers,
- digital wallets.

Due to these digital payment systems, purchasing medicines has become more convenient. Fintech has also helped small medical shops and local pharmacies (MSMEs) to connect with online delivery platforms, which increases their sales and improves their business reach.

#### **Human Capital and Digital Literacy:**

Digital literacy plays a major role in influencing consumer preference for online medicine purchase. Consumers who are comfortable with smartphones, internet usage, and digital payments are more likely to buy medicines online. People who are not familiar with apps or online payment systems, especially senior citizens, may prefer

offline pharmacies. Therefore, improving digital literacy and awareness is necessary for the growth of digital commerce in the healthcare sector

### **Research Methodology:**

#### **Research Design:**

This research is descriptive and comparative in nature. It focuses on understanding and comparing consumer perception towards online and offline purchase of medicines.

#### **Objectives of the Study:**

1. To study the awareness of consumers towards online and offline purchase of medicine.
2. To compare consumer perceptions of offline versus online medicine purchases in Mumbai City.
3. To compare key factors influencing consumers' choice between online and offline purchase options.
4. To assess the challenges faced by consumers in both purchasing modes.
5. To examine the role of fintech, ethical AI, and digital literacy in shaping consumer perception.

#### **Hypothesis:**

**H0 (Null Hypothesis):** There is no significant difference in consumer perception towards online and offline purchase of medicines in Mumbai City.

**H1 (Alternative Hypothesis):** There is a significant difference in consumer perception towards online and offline purchase of medicines in Mumbai City.

**H0:** Delivery time and availability of medicines do not affect consumer preference towards online medicine purchase.

**H1:** Delivery time and availability of medicines significantly affect consumer preference towards online medicine purchase.

#### **Data Collection Method:**

The study is based on both primary and secondary data. Primary data was collected using a structured questionnaire from consumers in Mumbai City. Secondary data was collected from journals, reports, articles and websites related to e-commerce and pharmaceutical trade.

#### **Sample Size:**

A total of 100 respondents were selected for the study.

#### **Sampling Method:**

Convenience sampling method was used as respondents were selected based on availability and willingness.

#### **Research Area:**

The study was conducted in Mumbai City.

#### **Research Tool:**

A structured questionnaire was designed using a 5-point Likert scale. 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree

#### **Data Analysis Method:**

The collected data was analyzed using percentage method, tables, and comparative interpretation.

**Review of Literature:**

According to Statista (2024), the Indian e-pharmacy market is expected to reach USD 5.36 billion by 2026. Consumers are drawn to online platforms for their time-saving benefits and competitive pricing.

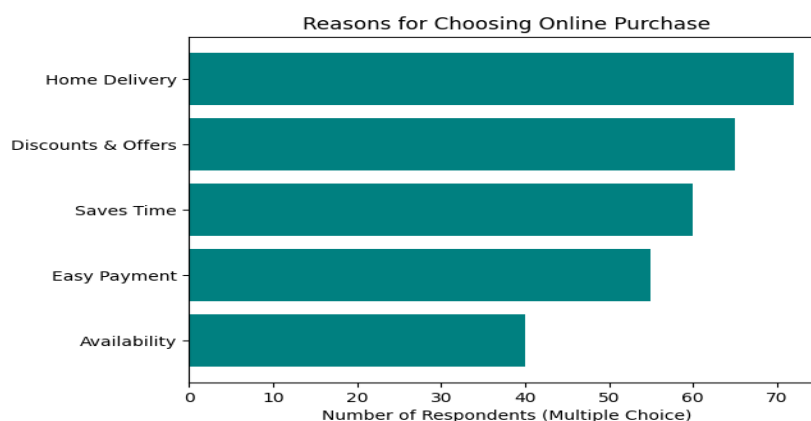
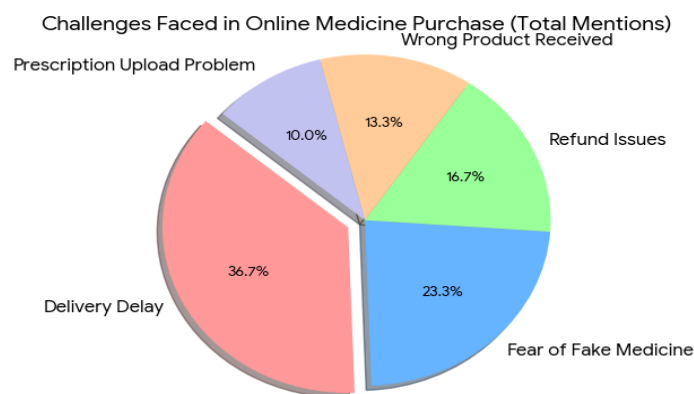
According to Kotler and Keller (2022), price promotions and discounts significantly affect consumer decision-making by creating a sense of urgency and higher perceived value. In the context of online pharmacies, consumers often compare prices before making a purchase, and discounts become a key differentiating factor.

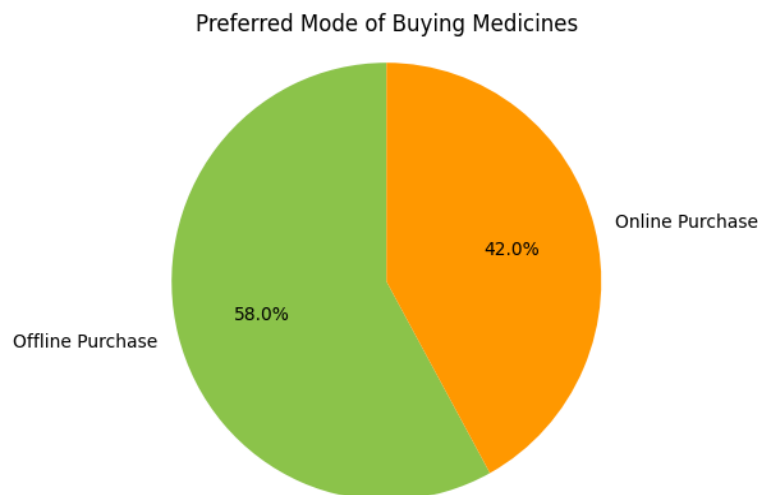
**Theoretical Background Technology Acceptance Model (TAM) by Davis (1989)** states that perceived usefulness and ease of use determine adoption. In this case, discounts increase perceived usefulness by offering cost savings.

**Diffusion of Innovation Theory by Rogers (2003)** explains that relative advantage and trialability influence adoption of new technologies. Discounts make online medicine buying more trialable and appealing to first-time users.

**Zeithaml (2022) Perceived Trust and Risk** Consumers perceive medicines as high-risk products due to potential issues of counterfeit drugs, delivery errors, or expired medicines noted that perceived value depends not only on price but also on quality and trust. Excessive discounts may raise suspicion regarding product authenticity.

**Data Interpretation:**





#### Findings:

**Demographic Profile:** The typical medicine consumer in Mumbai is a young working professional, with the **26–35 age group** being the most active in making purchase decisions.

**High Market Awareness:** There is a very high penetration of digital pharmacy awareness, with **88%** of respondents being familiar with online medicine applications.

**Offline Dominance via Trust:** Traditional offline pharmacies still lead the market primarily due to **immediate availability** and a higher level of **perceived trust** compared to digital platforms.

**Online Drivers:** The shift toward online purchasing is fueled by the convenience of **Home Delivery** and the financial incentive of **Discounts and Offers**

**Logistical Barriers:** The biggest hurdle for the e-pharmacy sector is reliability; **55% of users** cite delivery delays as a major challenge, and only **32%** believe online delivery is consistently fast.

**The "Emergency" Factor:** Offline stores hold a "monopoly" on urgent needs, with **78%** of consumers relying on them for emergency purchases where online delivery times are non-viable.

#### Recommendations:

Based on the study, the following suggestions are recommended:

1. Online pharmacy platforms should improve delivery speed, especially for emergency medicines.
2. Government should strengthen regulation to prevent counterfeit medicine trade.
3. Offline pharmacies should adopt digital payment and online order booking to remain competitive.
4. AI-driven systems must be transparent and ethical to maintain consumer trust.
5. Sustainable packaging should be encouraged to reduce environmental impact.

#### Conclusion:

The way people in Mumbai buy their medicine is changing, but the local chemist isn't going anywhere just yet. This study shows that while we love the big discounts and the "doorstep delivery" convenience of online apps, we still don't fully trust them when things get urgent.

When it's an emergency or we need a professional's advice, most of us still head to the physical medical store because of the immediate availability and the face-to-face trust we have with our local pharmacist. The digital world is great for saving money on monthly prescriptions, but the "human touch" and speed of the offline store remain its biggest strengths.

Looking ahead, it isn't a battle of one vs. the other. Instead, we are moving toward a "hybrid" future. Success for pharmacy businesses will mean combining the best of both worlds—using technology to make things easier while maintaining the trust and quick service that only a physical presence can provide.

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