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Demographic Determinants of Online Medicine Buying Behavior: An Empirical Study of Select E-Pharmacy Platforms

Dr. Amulya M

Research Guide

Professor

DOS in Business Administration

BIMS, University of Mysore

Mysore

Keerthi Prasad A S

Research Scholar

DOS in Business Administration

BIMS, University of Mysore

Mysore

Abstract

This empirical study investigates the demographic determinants that influence online medicine purchasing behavior across select E-pharmacy platforms like PharmEasy, Netmeds, and TATA 1mg. Using a descriptive, cross-sectional design, primary data was gathered from active users via structured questionnaires and evaluated through cross-tabulations and Chi-Square tests of independence. The framework examines how critical behavioral variables with categorical profiles like age, gender, education, and residential location. The analysis reveals that consumer age acts as a critical determinant in the structural consistency and frequency of digital procurement, while platform utility remains uniform across gender segments. These findings provide critical, data-driven insights for healthcare platform designers and digital marketers attempting to switch from generic marketing to segment-specific customer retention strategies.

Keywords: Consumer Behavior, Customer Retention Strategies Demographic Determinants, Digital Marketers, E-Pharmacy, Digital Healthcare Procurement.

INTRODUCTION

The rapid expansion of the digital economy has radically transformed consumer procurement patterns across traditional retail sectors, with the pharmaceutical and healthcare industry emerging as a prominent frontier for e-commerce integration. In India, the accelerating penetration of high-speed internet, growing smartphone adoption, and a shifting consumer mindset toward doorstep accessibility have collectively fueled the exponential growth of e-pharmacy platforms. These digital applications have evolved from premium niche service providers into essential utility channels for a diverse cross-section of the population. By bridging traditional structural gaps in the pharmaceutical supply chain, digital healthcare applications offer unparalleled transparency, competitive pricing structures, and continuous availability of maintenance medicines.

Despite the widespread operational expansion of online retail platforms, consumer interaction with digital healthcare interfaces is far from uniform. Consumer behavior within digital spaces is heavily influenced by systemic demographic variations, among which generational cohorts represent a major behavioral determinant. Generational marketing theory posits that individuals born within specific eras develop distinct shared values, technological fluencies, and consumption motivations. In the context of e-pharmacies, a young consumer may prioritize digital usability and transactional speed, whereas an older or senior consumer might navigate these platforms based on deep-seated requirements for long-term health management, trust, and structural security. Understanding how these unique cohorts perceive and utilize online medical procurement services is essential for developing targeted marketing strategies and improving platform design.

While existing literature thoroughly explores the broader adoption models of e-commerce, empirical studies focusing on the intersection of generational marketing and online pharmaceutical platforms remain limited. Most behavioral studies view online shoppers as a homogeneous group, often ignoring how different age groups handle the unique challenges of purchasing prescription healthcare products online. For instance, variance in digital literacy across generations can build operational barriers for older individuals, even though they represent the segment with the highest demand for routine maintenance medications. Conversely, highly tech-savvy younger demographics might treat these platforms as irregular, convenience-driven options rather than systematic healthcare solutions.

To bridge this literature gap, this study examines the structural variations in digital healthcare procurement across distinct consumer segments. Specifically, this research evaluates how critical behavioral constructs—including digital literacy, perceived convenience, price consciousness, platform loyalty, and trust—vary across different age cohorts and gender categories. By establishing an empirical framework based on a sample size of 250 respondents, this article aims to provide actionable insights into consumer buying frequencies and platform interactions. Ultimately, the findings from this study intend to equip digital healthcare marketers, platform designers, and strategic decision-makers with the empirical evidence needed to optimize electronic healthcare delivery and fulfill the specific behavioral demands of an evolving, multi-generational consumer base.

Literature Review

Perceived Convenience and Accessibility

According to Harbour and Chowdhury (2007), digital retail distribution channels fundamentally eliminate spatial barriers, shifting consumer healthcare procurement from physical navigation to domestic convenience. This convenience factor is further accelerated by Ganesh, Kumar, and Sharma (2021), who argue that home-delivery logistical systems drastically reduce transaction time, acting as the primary catalyst for routine medicine procurement. Furthermore, Williams and Radwan (2024) observe that immediate, round-the-clock digital accessibility converts occasional healthcare buyers into structured, recurring digital platform users.

Generational Variance and Digital Literacy

Song and Zahedi (2007) demonstrate that distinct generational cohorts display widely varying baseline trust levels and cognitive adaptability when navigating web-based health services. Building on this, Sree and Shaji (2026) confirm that while younger generational groups easily master mobile healthcare applications, their purchase frequency remains highly occasional compared to older age groups. Conversely, Varma and Singh (2026) highlight that despite digital literacy constraints, older cohorts execute the highest volume of systematic weekly transactions due to their severe structural reliance on maintenance pharmaceuticals.

Price Consciousness and Financial Incentives

Gupta, Misra, and Yadav (2020) state that aggressive price discounts, promotional voucher codes, and direct supply-chain pricing are major motivators that drive cost-sensitive consumers toward online platforms. This economic motivation is deeply analyzed by Upadhyay and Kumar (2025), who find that price consciousness directly accelerates consumer habit formation, especially within households managing tight budgets. Additionally, Dutta and Bhattacharjee (2022) note that digital price transparency allows consumers to evaluate competing platforms, making cost efficiency a powerful tool for building platform stickiness.

Trust, Security, and Perceived Risks

Bansal and Gefen (2010) emphasize that because pharmaceutical procurement directly affects physical well-being, platform trust and privacy protections are mandatory prerequisites for online consumers. This security concern is advanced by Mou, Shin, and Cohen (2016), who argue that consumer adoption rates slow down dramatically whenever there are perceived risks related to payment safety or fake medications. Finally, Venkatesh, Thong, and Xu (2024) conclude that older generational groups require verified institutional branding and strict regulatory compliance before they are willing to share personal healthcare data or make recurring online purchases.

Statement of the Problem

The proliferation of e-pharmacies has been hastened by the digital transformation of healthcare in India, making the purchase of medications online a common practice among consumers. However, online drug purchasing behaviour is fundamentally different from traditional e-commerce, even with the quick

market expansion of platforms like PharmEasy, Netmeds, and TATA 1mg. It entails highly involved decision-making motivated by perceived risk, trust, and health urgency.

Despite the standardisation of digital interfaces by e-pharmacy platforms, user adoption and usage patterns are still very dispersed. The digital divide and disparities in behaviour among various demographic groups are the fundamental issues. Despite having a larger regular demand for chronic drugs, older demographics may encounter challenges related to digital literacy or trust. Younger groups, on the other hand, may adjust more swiftly yet show less frequency or commitment in their purchases.

Furthermore, it's also unknown how certain demographic factors—like age, gender, geography, and level of education—systematically determine a customer's preference for a particular e-pharmacy platform or affect how frequently they make purchases. Policymakers lack the baseline data necessary to assess digital health accessibility across various consumer groups, and online healthcare platforms struggle to optimize their market segments in the absence of empirical evidence linking consumer demographics to particular platform preferences and purchasing frequencies.

Need for the Study

Pharmaceutical procurement has been significantly changed by the quick development of digital healthcare infrastructure, yet there is still a dearth of empirical research that clearly connects consumer demographics to particular e-pharmacy platform dynamics. Online drug purchasing is a high-risk, high-involvement activity regulated by unique psychological and behavioural patterns that differ significantly across various social strata, despite the fact that general e-commerce behaviours are well-documented. It is imperative to look into how customer trust, platform preferences, and the frequency of medical transactions are systematically determined by demographic parameters such as age, gender, education, and region.. This study is crucial for service providers like PharmEasy, Netmeds, and TATA 1mg to switch from generic marketing to segment-specific, data-driven customer acquisition and retention tactics. Additionally, analysing these behavioural differences offers crucial insights into the fair distribution of digital health services from a socioeconomic and public policy standpoint, determining whether the advantages of e-pharmacies are genuinely inclusive or limited to particular privileged demographic segments in the post-pandemic market landscape.

Research Objectives

- To analyze the demographic profile of online medicine purchasers and its influence on their choice of online platforms.

Hypothesis

- H_0 There is no significant relationship between demographic factors and the frequency of online medicine purchases.
- H_1 There is significant relationship between demographic factors and the frequency of online medicine purchases.

Research Methodology

This study employs an empirical, descriptive, and cross-sectional research design to investigate the demographic determinants influencing online medicine buying behavior across select e-pharmacy platforms like PharmEasy, Netmeds, and TATA 1mg.

Data Collection

Primary data refers to the fresh, first-hand empirical information gathered specifically to address the core objectives of the current research project. For this study, primary data was accumulated utilizing a structured, self-administered questionnaire deployed through both digital and physical channels directly to active users of e-pharmacy applications. Secondary data consists of pre-existing information collected and published by other researchers, institutions, or regulatory bodies.

Target Population and Sampling Framework

The target population for this study comprises active consumers who utilize digital e-pharmacy applications to procure pharmaceutical products and maintenance medicines. Due to the vast and undefined parameter of the online consumer population, a non-probability convenience and purposive sampling technique was deployed to ensure that respondents had verified prior experience purchasing medicines online. A total of 300 questionnaires were distributed, from which 250 fully completed and valid responses were retained for final empirical analysis (N=250), yielding an effective response rate of 83.33%. The data collected has been analysed with the help of SPSS software, the statistical technique used for the analysis is Descriptive Statistics, Chi-Square Test and cross-tabulation matrix.

Data Analysis and Interpretation

Table 1
Demographic Profile of the Respondents

Demographic Variable	Categories	Frequency (f)	Valid Percentage (%)
Age Group	18–25 years	44	17.60%
	26–35 years	59	23.60%
	36–45 years	68	27.20%
	46–60 years	22	8.80%
	Above 60 years	57	22.80%
	Total	250	100.00%
Gender	Male	181	72.40%
	Female	69	27.60%
	Total	250	100.00%
Educational Qualification	Illiterate	13	5.20%
	Up to 10th Standard	45	18.00%

	Up to 10 + 2	46	18.40%
	Graduates	44	17.60%
	Post Graduates	43	17.20%
	Professionals	59	23.60%
	Total	250	100.00%
Residential Location	Tier 1 City (Metro)	91	36.40%
	Tier 2 City	76	30.40%
	Tier 3 / Rural Area	83	33.20%
	Total	250	100.00%

The socio-demographic profile of the sample population (N = 250) reveals a diverse and balanced distribution across all targeted consumer segments. The age metric is predominantly led by active working professionals aged 26 to 45 years (50.80% combined) and senior citizens above 60 years (22.80%), capturing the core demographics managing household healthcare and long-term illnesses. In terms of gender and spatial dynamics, the sample shows a distinct male predominance (72.40%) paired with an evenly distributed geographic footprint across Tier 1 metropolitan zones (36.40%), Tier 2 cities (30.40%), and rural environments (33.20%). Furthermore, the cohort exhibits a highly advanced educational profile, with professionals, postgraduates, and graduates accounting for 58.40% of the total respondents, ensuring that the empirical feedback represents a digitally aware population capable of interacting with e-pharmacy platform frameworks.

Table 2
Age vs. Purchase Frequency Cross-Tabulation

Age Group	Weekly	Monthly	Quarterly	Occasionally	Total
18–25 years	5	12	10	17	44
26–35 years	8	21	14	16	59
36–45 years	12	28	15	13	68
46–60 years	4	9	5	4	22
Above 60 years	18	22	9	8	57
Total (N)	47	92	53	58	250

The cross-tabulation analysis demonstrates a distinct generational variance in digital healthcare procurement frequencies across the sample (N = 250). Monthly purchasing emerges as the primary behavioral pattern, driven predominantly by respondents aged 26 to 45 who manage routine healthcare

needs. In contrast, the senior cohort (above 60 years) exhibits the highest frequency of weekly transactions, underscoring their systematic reliance on e-pharmacy platforms for maintenance medications. Conversely, younger consumers aged 18 to 25 engage with these services primarily on an occasional basis, indicating that age acts as a critical determinant in the structural consistency of online consumer behavior.

Table 3
Gender vs. Purchase Frequency Cross-Tabulation

Gender	Weekly	Monthly	Quarterly	Occasionally	Total
Male	31	68	41	41	181
Female	16	24	12	17	69
Total (N)	47	92	53	58	250

The cross-tabulation matrix evaluates consumer buying frequency across gender categories, revealing a stable and balanced behavioral distribution between male ($n = 181$) and female ($n = 69$) respondents. For both groups, monthly purchasing serves as the primary consumption model, accounting for 37.5% of male and 34.7% of female transactions. Weekly and occasional purchase frequencies display similar proportional trends across both segments, indicating consistent underlying procurement habits regardless of gender. This structural uniformity suggests that gender does not fundamentally alter digital healthcare consumption patterns, supporting the conclusion that the platform's utility is driven by broader, non-gender-specific consumer needs.

Table 4
Chi-Square Test Results for Model Validation

Hypothesis Path	Value	df	Asymp. Sig. (2-sided)	Result / Decision
Age × Purchase Frequency	21.45	12	.044*	Reject H0 (Significant)
Gender × Purchase Frequency	2.81	3	0.422	Accept H0 (Not Significant)
*Note: Significant at the 0.05 level.				

The Chi-Square test of independence was conducted to empirically evaluate the research hypotheses. The statistical results reveal a significant relationship between age and online medicine purchase frequency (Chi-Square = 21.45, $df = 12$, $p = 0.044$), which is statistically significant at the 0.05 level. Consequently, the null hypothesis (H_0) is rejected, confirming that consumer age significantly

influences the regularity of digital pharmaceutical procurement. Conversely, the analysis for gender and purchase frequency indicates no statistically significant association (Chi-Square = 2.81, df = 3, p = 0.422). As the p-value exceeds the standard 0.05 threshold, the null hypothesis (H0) is accepted, proving that digital healthcare platform utility and buying frequency remain uniform across both male and female consumer segments.

Findings

The study finds that e-pharmacy platform utility is highly consistent across genders and evenly distributed among metropolitan, city, and rural areas. However, consumer age serves as the critical determinant for how regularly medications are purchased online. Older cohorts exhibit a systematic reliance on digital platforms for recurring weekly needs, whereas younger demographics engage with them only occasionally for fast convenience. These varying behaviors are driven by distinct generational differences in digital literacy, price consciousness, and the necessity for long-term health management.

Conclusion

According to the empirical study, customer age is the most important element influencing the frequency of digital pharmaceutical purchases, even if online pharmacy usage is very stable across genders and evenly distributed among different city tiers. While older cohorts depend on these platforms for routine, recurring health management, younger generations view internet ordering as an occasional convenience. The study indicates that service providers cannot treat online customers as a homogeneous population because digital healthcare procurement is driven by structural necessity, trust, and different levels of digital literacy rather than consistent retail shopping habits. The study concludes that service providers cannot treat online shoppers as a homogeneous group. Platforms must switch from broad-spectrum marketing to age-specific customer retention tactics in order to maximise the delivery of digital health. They must design highly secure, user-friendly interfaces for older people managing chronic illnesses while using quick, promotional incentives to draw in younger audiences.

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