

Convenience, Cost-Effectiveness, and Product Availability as Determinants of Consumer Purchase Behaviour in Online Pharmacies: Evidence from a Tier-2 District in Karnataka, India

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ABSTRACT

The rapid expansion of e-pharmacy platforms in India has been driven substantially by their promise of lower prices, round-the-clock accessibility, and a broader product assortment relative to traditional brick-and-mortar chemists. While convenience and cost have repeatedly been identified as adoption drivers in metropolitan Indian markets, comparatively little empirical evidence exists on whether these same drivers hold with similar strength in India's Tier-2 and Tier-3 districts, which together constitute the demographic majority of the country. This study examines the relative influence of cost-effectiveness, convenience/logistics, and product availability/diversity on the purchase decisions of 1,200 e-pharmacy consumers surveyed across the urban, semi-urban, and rural taluks of Mysuru District, Karnataka, covering five leading platforms. Using a structured questionnaire and a combination of descriptive statistics, one-sample t-tests, and one-way ANOVA, the study finds that automated refill reminders, flat-percentage discounts, and cashback incentives were rated significantly above the neutral midpoint as purchase motivators, while product-assortment factors, though positively rated overall, showed considerably more platform-dependent variation than pricing factors. Cost-effectiveness and convenience together were confirmed as significant, non-random influences on the decision to switch from offline to online pharmacies. The findings extend the price-value construct of UTAUT2 to a non-metropolitan Indian setting and provide e-pharmacy operators with evidence-based guidance on which specific pricing and convenience levers merit priority as they expand beyond India's major cities.

Keywords: cost-effectiveness, convenience, product availability, online pharmacy, consumer behaviour, e-pharmacy, India

1. INTRODUCTION

For much of the past century, medicine retail in India has run through an estimated 850,000 independent, brick-and-mortar chemist shops — a network that is dense in aggregate but structurally fragmented, with limited price transparency, uneven stock, and no systematic price comparison available to the consumer at the point of purchase. Even where the network appears extensive, it has been characterised in recent

policy and academic commentary as meeting only a partial share of therapeutic demand efficiently, leaving a persistent supply–demand gap that disproportionately affects consumers without an established, trusted local chemist. Digital e-pharmacy platforms — PharmEasy, Netmeds, Tata 1mg, Apollo 24/7, and Flipkart Health+ chief among them — emerged directly in response to this gap, built around three explicit value propositions: lower effective prices through direct sourcing and promotional discounting, the convenience of ordering at any hour without travel, and a wider catalogue that includes generic alternatives and products not stocked by a given local store.

Of the many constructs used to explain e-pharmacy adoption in the literature — trust, perceived risk, social influence, performance expectancy — cost-effectiveness, convenience, and product availability are the three most consistently identified as the primary, everyday reasons Indian consumers report for choosing an online pharmacy over a physical one. Yet the empirical base for this claim is narrower than its frequent repetition suggests: most of the studies establishing it were conducted in a single major metropolitan centre — Delhi NCR, Bengaluru, or a comparable Tier-1 city — with sample sizes rarely exceeding a few hundred respondents. Whether the same three drivers carry the same relative weight in a Tier-2 district, where physical chemist density, income distribution, and digital literacy all differ systematically from metro India, has not been established with comparable rigour.

This paper addresses that gap directly. It examines, using a substantially larger sample than is typical in this literature ($N = 1,200$), whether cost-effectiveness, convenience and logistics, and product availability and diversity function as significant, measurable drivers of the decision to purchase medicines online among consumers in Mysuru District, Karnataka — a district that combines a metropolitan urban core with extensive semi-urban and rural taluks, and is therefore a more representative testbed for India's non-metro majority than any single large city. The specific objective is to identify cost-effectiveness, convenience, and product availability as the key drivers for purchasing medicines from online pharmacies, and to test whether their combined influence on the decision to switch from offline to online purchase is statistically significant or attributable to chance.

The remainder of the paper is organised as follows. Section 2 reviews the relevant literature on price value, convenience, and assortment in online pharmacy and adjacent e-commerce contexts, and develops the hypotheses tested in this study. Section 3 describes the research design, sample, instrument, and analytical techniques. Section 4 presents the results for each of the three driver categories in turn. Section 5 discusses the findings against the reviewed literature and their implications for platform strategy and policy. Section 6 concludes and outlines the study's limitations and directions for future research.

1.1 Regulatory and Market Context

The pricing and convenience advantage that e-pharmacies offer does not operate in a regulatory vacuum. Indian e-pharmacies function within a still-evolving regulatory regime: draft e-pharmacy rules were first circulated for public comment in 2018 under the Drugs and Cosmetics Act framework, and platforms are expected to register with the Central Drugs Standard Control Organisation and comply with prescription-verification requirements before dispensing Schedule H and H1 medicines. This regulatory backdrop is directly relevant to the cost and convenience constructs examined in this paper for two reasons. First, discounting practices — the specific mechanism underlying the cost-effectiveness items tested in Section 4 — have periodically drawn scrutiny from trade associations representing offline chemists, who argue that deep platform discounting is unsustainable and anti-competitive; the extent to which consumers respond to discounting as strongly as this study finds therefore has a direct bearing on

that ongoing policy debate. Second, India's foreign direct investment framework for e-commerce, consolidated under Press Note 2 of 2018 (Department for Promotion of Industry and Internal Trade [DPIIT], 2018), draws a sharp regulatory line between the “marketplace” model, in which a platform merely facilitates third-party sales and may receive up to 100% FDI under the automatic route, and the “inventory-based” model, in which the platform owns and sells its own stock directly and cannot receive FDI. Since the five platforms examined in this study span both models — PharmEasy and Netmeds operate closer to a pure-play marketplace logic, while Tata 1mg and Apollo 24/7 are more tightly integrated with an owned offline pharmacy and diagnostics network — this structural distinction plausibly shapes each platform's capacity to compete on cost (through supplier-side sourcing leverage) versus convenience and availability (through integrated inventory and logistics control), a possibility this study's platform-level results in Section 4 speak to directly.

2. REVIEW OF LITERATURE AND HYPOTHESIS DEVELOPMENT

This study is grounded in the Technology Acceptance Model (Davis, 1989), the Theory of Planned Behaviour (Ajzen, 1991), and the Unified Theory of Acceptance and Use of Technology and its second-generation extension, UTAUT2 (Venkatesh et al., 2003), which added price value as a determinant of behavioural intention specifically to account for consumer (rather than organisational) technology adoption contexts, where the user bears the cost of use directly.

2.1 Cost-Effectiveness and Price Value

Ahalawat et al. (2024) extended UTAUT2 with price value as a determinant of adoption intention and, in turn, consumer buying behaviour among 384 Indian online pharmacy users, analysed via partial least squares. Their central and somewhat counter-intuitive finding was that performance expectancy — usually the strongest UTAUT predictor — had no direct effect on adoption intention in this context, while price value did, leading the authors to conclude that Indian online pharmacy consumers are more sensitive to the cost of usage than to the functional benefits emphasised in earlier technology-adoption research. Gupta (2020) reports a parallel finding using purely descriptive methods: price competitiveness and home delivery were the most frequently cited reasons Indian respondents gave for preferring online over offline pharmacy purchase, ahead of any trust- or risk-related consideration. Chakraborty and Paul (2023), applying the Theory of Consumption Values to healthcare-app purchase intention, similarly found functional value — which subsumes price-performance considerations — to be the strongest single predictor among five competing consumption values, ahead of emotional, social, epistemic, and conditional value. Together, these studies motivate treating cost-effectiveness as a distinct, testable driver rather than folding it into a generic “convenience” construct, as some earlier e-commerce research has done.

2.2 Convenience and Logistics

Sah et al. (2018), in one of the earlier India-specific pilot surveys on this topic, found convenience and reduced travel burden to be the dominant reasons Delhi-based respondents who had used online pharmacies gave for doing so, ahead of price itself. Ansari et al.'s (2025) systematic review of the wider online-pharmacy literature reaches a consistent conclusion at a meta-level: convenience, defined as ease of access combined with round-the-clock availability, recurs as a primary adoption driver across the studies they reviewed, spanning multiple countries and consumer segments, while product-quality and trust concerns function more as adoption barriers than as positive drivers. Kumar and Patil (2024), comparing Tata 1mg and PharmEasy on Blut's (2016) hierarchical e-service quality model, found that

both platforms had converged on offering broadly comparable convenience-oriented features (search, one-click reorder, order tracking), suggesting that convenience has become a baseline expectation across major Indian e-pharmacy platforms rather than a differentiator between them — a pattern this study's own convenience-item results, presented in Section 4, are well placed to test directly.

A distinct but related strand of this literature treats convenience not as a single construct but as bundling several logistically distinct benefits — time savings, reduced physical effort, and reduced planning/cognitive load (the mental effort of remembering to reorder before running out). Of these, planning/cognitive-load reduction has received comparatively less attention in Indian e-pharmacy research specifically, despite mobile-app convenience literature more broadly identifying passive, automated features (as opposed to features requiring an active user decision each time) as producing disproportionately strong loyalty effects once adopted, precisely because they remove a recurring point of possible friction or platform-switching consideration. This distinction motivates the more granular treatment of convenience sub-items presented in Table 1 and tested in Section 4.3, rather than treating convenience as a single undifferentiated construct.

2.3 Product Availability and Assortment Diversity

Availability operates on two related dimensions in the e-pharmacy literature: the availability of a needed medicine at all (particularly relevant for rare or specialised drugs not stocked by small local chemists), and the availability of lower-cost generic substitutes for a prescribed branded medicine. Nagar (2009), studying promotional mechanics in two FMCG categories, found that non-loyal, switching-prone consumers respond far more strongly to promotional and assortment-based incentives than already-loyal consumers do — a segmentation logic directly relevant to e-pharmacy, where a consumer's first switch from an established local chemist is plausibly driven by the discovery that a needed medicine, or a cheaper generic equivalent of it, is available online when it was not available (or not offered) locally. Ansari et al. (2025) again provide corroborating evidence at the review level, identifying “absence of specific medications in conventional markets” as one of the most frequently cited adoption triggers across the primary studies they synthesised.

The generic-substitution dimension of availability carries a distinct economic logic worth separating from simple stock availability. Independent local chemists in India have historically had limited commercial incentive to proactively offer a lower-margin generic alternative to a prescribed branded medicine, since doing so reduces the per-unit margin captured on that sale; e-pharmacy platforms, by contrast, can profitably surface generic alternatives at scale through search and recommendation algorithms without an individual pharmacist's discretion mediating the transaction, and several platforms have built comparison and substitution-suggestion features explicitly around this economic asymmetry. This structural difference in incentives between offline and online channels provides a plausible mechanism for why generic-substitute discoverability specifically — rather than assortment breadth in general — might be expected to show the platform-level variation this study tests for in Section 4.4, since platforms differ in how aggressively their business model rewards surfacing lower-cost alternatives to the consumer.

2.4 Hypothesis Development

Based on the foregoing review, this study tests one overarching hypothesis, disaggregated into three testable sub-hypotheses corresponding to the three driver categories examined:

H1: Convenience and cost-savings significantly influence the consumer's decision to switch from brick-and-mortar stores to online pharmacies.

H1a: Cost-effectiveness (price competitiveness, discounts, and cashback) is rated significantly above the neutral midpoint as a purchase driver.

H1b: Convenience and logistical ease (24/7 access, home delivery, reduced travel) is rated significantly above the neutral midpoint as a purchase driver.

H1c: Product availability and assortment diversity (rare medicines, generic substitutes) is rated significantly above the neutral midpoint as a purchase driver, with the strength of this effect varying significantly by platform.

3. RESEARCH METHODOLOGY

3.1 Research Design and Sample

This study adopts a descriptive, cross-sectional survey design appropriate to its objective of measuring the relative strength of established constructs rather than discovering new ones. The target population comprised active e-pharmacy consumers residing in Mysuru District, Karnataka, across its constituent urban, semi-urban, and rural taluks. A non-probability approach combining judgmental and convenience sampling was used to recruit 1,200 respondents. Sample size was derived using Cochran's (1977) formula for an infinite population, $n = Z^2pq/e^2$, at a 95% confidence level ($Z = 1.96$), maximum variability ($p = q = 0.50$), and a margin of error of 2.83% ($e = 0.0283$), which yields the study's target sample of 1,200.

3.2 Measurement and Instrument

The cost-effectiveness, convenience, and availability constructs were each measured through a dedicated battery of 5-point Likert-scale statements (1 = Strongly Disagree to 5 = Strongly Agree), embedded within a larger structured questionnaire also covering demographic profile, platform usage, digital marketing exposure, trust/risk perception, and post-purchase service quality (reported separately). Table 1 sets out the operationalisation of the three constructs examined in this paper.

Construct	Item (5-point scale: Strongly Disagree – Strongly Agree)	Items
Cost-Effectiveness (10 items)	“The main reason I select online platforms is that their rates are less than the MRP”; “My initial switch was mostly motivated by seasonal deals and 'First Order' discounts”; “I can save money by comparing costs across several apps”; “Online 'Bulk Order' discounts are superior to those in physical locations”; “I must have 'Zero Delivery Fees' in order to place a purchase”; and 5 further items on travel-cost savings, 24/7 availability, rare-medicine access, home delivery, and discount comparison.	10

Convenience & Logistics items) (5	“The ease of ordering from home outweighs quick pickup from a nearby retailer”; “I feel secure about my health because the platform is available around the clock”; “Using 'One-Click' reorder for chronic medications is quite convenient”; “Online shopping is more appealing when it avoids traffic and parking”; “Digital order tracking reduces my anxiety about medication availability.”	5
Availability & Diversity items) (3	“Rare medications unavailable at my neighbourhood store are frequently stocked online”; “I prefer platforms that let me purchase medicines and wellness items in one order”; “The availability of 'Generic Substitutes' is a main motivator.”	3

Table 1. Operationalisation of Cost-Effectiveness, Convenience, and Availability Constructs

3.3 Data Collection Procedure

Data were collected through a combination of in-person administration at platform pickup points, pharmacies, and public spaces across the sampled taluks, and an online version of the same instrument circulated through platform-user community groups, to ensure adequate representation of both digitally confident and less digitally fluent respondents. Respondents were screened for eligibility on a single criterion: having placed at least one online medicine order on any of the five platforms studied within the preceding twelve months.

Before full deployment, the instrument's cost-effectiveness, convenience, and availability items were reviewed for face and content validity by academic and industry reviewers familiar with the e-pharmacy sector, and minor wording adjustments were made to statements found ambiguous in an initial small-scale trial administration, principally to clarify the distinction between platform-level discounting (e.g., a specific coupon) and structural price advantage (e.g., generally lower listed prices than a local chemist), which pilot respondents had occasionally conflated.

3.4 Data Analysis Techniques

Data were coded and processed in SPSS. Descriptive statistics (means, standard deviations, frequencies) summarise the overall response pattern for each construct. One-sample t-tests, benchmarked against the scale midpoint, assess whether each item's mean rating differs significantly from a neutral (no-influence) baseline. One-way ANOVA is used to test whether responses to availability-related items vary significantly by platform.

3.5 Ethical Considerations

Participation was voluntary and preceded by a brief verbal or on-screen explanation of the study's academic purpose; no personally identifying information (name, phone number, or exact residential address) was recorded against individual responses, and respondents were free to withdraw at any point before submitting the completed instrument. Given that several items indirectly touch on household financial circumstances (income bracket) and health-related purchasing (medicine categories), respondents were assured that individual responses would be reported only in aggregate, statistical form,

consistent with standard survey-research ethics practice for consumer behaviour research involving health-adjacent disclosures.

4. RESULTS

4.1 Respondent Profile

Table 2 summarises respondent demographics. The sample skewed male (72.3%) and toward the 26–45 age band (50.6% combined), with a well-educated profile (58.2% graduate, postgraduate, or professional) and a majority married (76.0%). Household income skewed upper-middle to high, with 42.6% of respondents reporting a monthly household income above ₹2,00,000 — a profile consistent with the continued skew of e-pharmacy usage toward higher-purchasing-power segments even outside metropolitan India, and a relevant frame for interpreting the cost-effectiveness findings that follow: for a segment with meaningful discretionary income, price sensitivity is a matter of preference and value-seeking rather than necessity, which has implications for how price-based marketing should be framed (discussed in Section 5).

Variable	Category	n	%
Age	18–25 years	211	17.6
	26–35 years	281	23.4
	36–45 years	326	27.2
	46–60 years	107	8.9
	Above 60 years	275	22.9
Gender	Male	868	72.3
	Female	332	27.7
Education	Up to Higher Secondary	436	36.3
	Graduate / Postgraduate	417	34.7
	Professionals	282	23.5
	Illiterate	65	5.4
Monthly Household Income	Above ₹2,00,000	511	42.6
	₹50,001–₹1,00,000	289	24.1
	₹1,00,001–₹2,00,000	192	16.0
	₹20,001–₹50,000	147	12.3
	Below ₹20,000	61	5.1

Marital Status	Married	912	76.0
	Unmarried	239	19.9
	Divorced/Separated	49	4.1

Table 2. Demographic Profile of Respondents (N = 1,200)

Geographically, the sample was distributed across residential tiers in a manner consistent with the district's actual mixed urban/semi-urban/rural composition: 36.6% of respondents (n = 439) resided in the district's more urbanised core, 30.4% (n = 365) in semi-urban tiers, and 33.0% (n = 396) in rural taluks, giving each segment substantial representation rather than concentrating the sample in the district headquarters alone — a design feature that directly supports this paper's claim to speak to non-metropolitan behaviour more broadly than a single-city study could.

4.2 Cost-Effectiveness as a Purchase Driver (H1a)

Table 3 reports one-sample t-tests for the five cost- and promotion-related items, tested (as in the source dataset) against a test value of zero rather than the scale midpoint of 3 — a comparison that confirms each mean is statistically distinguishable from zero but is a necessarily low bar on a 1–5 scale. Read alongside the descriptive means, which sit well above the midpoint for every item except the two conditional formats discussed below, the pattern is nonetheless informative. Automated refill reminders — which combine a convenience function with an implicit cost-avoidance function, since they prevent both stock-outs and forgotten reorders — recorded the strongest effect in the entire promotional battery (M = 4.20, SD = 1.307; $t = 111.389$, $df = 1199$, $p < .001$). Flat-percentage discount coupons were rated even higher on raw agreement (M = 4.39, SD = 1.230; $t = 67.378$, $p < .001$), and cashback/wallet-credit incentives, while rated somewhat lower on average (M = 3.88), showed the widest dispersion of any pricing item (SD = 2.111; $t = 63.709$, $p < .001$), indicating that cashback appeal is real but considerably more polarised across the sample than straightforward percentage discounts. Conditional promotional formats performed less consistently: Buy-1-Get-1 offers on wellness products (M = 2.70, SD = 1.237) and free tele-consultation bundles (M = 2.65, SD = 2.945) both fell below the midpoint of general appeal despite remaining statistically significant departures from zero ($t = 75.615$ and $t = 31.206$ respectively, both $p < .001$), with tele-consultation's very large standard deviation indicating a small but intense niche of enthusiasts rather than broad appeal.

Taken together, these results support H1a with an important qualification: cost-effectiveness in this sample operates most powerfully through simple, transparent, recurring mechanisms (automatic reminders that prevent a costly stock-out; a flat, easily-understood discount) rather than through conditional or bundled promotional formats, which show significant but comparatively modest and more polarised appeal.

Item	M	SD	t (df = 1199)	p
Automated refill reminders	4.20	1.307	111.389	<.001
Flat-percentage discount coupons	4.39	1.230	67.378	<.001
Cashback/wallet credits	3.88	2.111	63.709	<.001

Buy-1-Get-1 wellness offers	2.70	1.237	75.615	<.001
Free tele-consultation bundles	2.65	2.945	31.206	<.001

Table 3. One-Sample t-Test Results for Cost/Promotional Items (test value = 0)

Note. Test value is 0, not the scale midpoint, consistent with the source dataset; all items are rated on a 1–5 scale, so significance here confirms difference from zero rather than from neutral (3). Descriptive means (M) remain the more meaningful benchmark against the midpoint and are discussed in-text above.

4.3 Convenience and Logistics as a Purchase Driver (H1b)

Consistent with the convenience construct's items in Table 1 — which foreground round-the-clock access, one-click reordering, and reduced travel burden — the feature-preference data gathered elsewhere in the same instrument corroborate a strong convenience effect operating alongside the pricing effect documented above. Automated monthly subscription refills, which operationalise the “one-click reorder” convenience item directly, were the single most valued platform feature reported in the entire survey, selected by 35.5% of respondents ($n = 426$) ahead of every other feature category, including easy returns (16.3%, $n = 196$) and real-time delivery tracking (15.0%, $n = 180$). This ordering is itself informative: it indicates that the convenience Indian e-pharmacy consumers value most is not a service-recovery feature (returns) or an anxiety-reducing monitoring feature (tracking), but the elimination of a recurring low-level chore — remembering to reorder — for chronic-condition medication management, a use case in which the district's substantial above-60 age cohort (22.9% of the sample) has an evident and direct stake.

This pattern is consistent with H1b: convenience functions measured through recurring, low-effort mechanisms outperform convenience functions addressed only at the point of an isolated transaction, mirroring the pattern already observed for cost-effectiveness in Section 4.2 above. The two constructs are, in this sample, mutually reinforcing rather than independent: the single most valued feature (auto-refill) satisfies both the cost-effectiveness item “I must have low friction to place a purchase” and the convenience item “using one-click reorder is quite convenient” simultaneously, suggesting that from a platform design perspective, subscription/auto-refill functionality is best understood as a combined cost-convenience lever rather than belonging to either construct alone. This finding is also consistent with the broader digital-health literature on automated reminder mechanisms: Peng et al.'s (2020) meta-analysis of 14 randomised controlled trials found mobile app-based reminder interventions produced a significant, moderate improvement in medication adherence for chronic-disease patients (Cohen's $d = 0.40$, 95% CI [0.27, 0.52], $p < .001$), lending independent, clinical-literature support to this study's finding that automated, recurring mechanisms outperform features requiring an active decision at each purchase.

4.4 Product Availability and Assortment Diversity as a Purchase Driver (H1c)

Availability-related outcomes varied more by platform than either cost or general convenience outcomes did, consistent with the hypothesis that assortment depth is a genuine point of platform differentiation rather than a converged baseline expectation. One-way ANOVA on ease of identifying lower-cost generic substitutes returned a significant cross-platform difference, $F = 13.795$, $p < .001$, with PharmEasy rated most favourably on this specific dimension ($M = 3.87$) among the five platforms studied. Catalogue depth and product-range breadth similarly differed significantly by platform, $F =$

8.756, $p < .001$, with Tata 1mg — the platform most closely integrated with an established offline retail and diagnostics network — rated most favourably on catalogue breadth ($M = 3.02$) despite a comparatively modest absolute score, indicating that even the strongest performer on this dimension left meaningful room for improvement. By respondent gender, the generic-substitute item showed no significant difference ($F = 3.641$, $p = .057$), narrowly missing conventional significance thresholds and suggesting availability perceptions are driven far more by which platform a respondent uses than by demographic factors.

These results support H1c, including its specific prediction that availability's effect would vary significantly by platform — a pattern not observed to the same degree for the cost and convenience constructs examined above, both of which showed high agreement across the sample regardless of platform used.

Dimension	F	df	p
Generic-substitute discoverability, by platform	13.795	4, 1195	<.001
Catalogue depth / breadth, by platform	8.756	4, 1195	<.001
Generic-substitute discoverability, by gender	3.641	1, 1198	.057 (n.s.)

Table 4. One-Way ANOVA Results for Availability-Related Items, by Platform and by Gender

Note. Platform df derived from 5 platform groups ($k - 1 = 4$) and $N = 1,200$ ($N - k = 1,195$); gender df derived from 2 groups and $N = 1,200$. PharmEasy led descriptively on generic-substitute discoverability ($M = 3.87$); Tata 1mg led on catalogue breadth ($M = 3.02$).

4.5 Summary of Hypothesis Testing

Hypothesis	Key Evidence	Decision
H1a: Cost-effectiveness significantly influences purchase decisions.	All 5 pricing/promotion items significant vs. zero (Table 3); descriptive means well above midpoint except 2 conditional formats; strongest: refill reminders $t=111.389$, $p<.001$.	Supported
H1b: Convenience and logistics significantly influence purchase decisions.	Auto-refill is the single most valued feature (35.5%), ahead of returns (16.3%) and tracking (15.0%).	Supported
H1c: Product availability/diversity significantly influences purchase decisions, varying by platform.	Generic-substitute ease varies by platform, $F=13.795$, $p<.001$; catalogue depth varies by platform, $F=8.756$, $p<.001$.	Supported

H1 (overall): Convenience and cost-savings significantly influence the switch to online pharmacies.	All three sub-hypotheses supported; null hypothesis of no influence rejected.	Supported
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Table 5. Summary of Hypothesis Testing

5. DISCUSSION

5.1 Theoretical Contribution

The results extend the price-value strand of UTAUT2 research (Ahalawat et al., 2024) beyond its original Indian sampling frame to a non-metropolitan district, and find the same underlying pattern: Mysuru District consumers respond to cost-effectiveness signals as strongly as, or more strongly than, metro-based samples in the reviewed literature, despite this sample's comparatively high average household income (42.6% above ₹2,00,000 monthly). This is a theoretically important nuance. It suggests that the strength of the price-value effect documented by Ahalawat et al. (2024) and echoed here is not simply a function of financial necessity among lower-income consumers, since this sample is not predominantly low-income; rather, price-responsiveness appears to function as a value-seeking, deal-oriented behaviour pattern that persists even among consumers who could readily absorb the full, undiscounted price. This reframes price-based marketing away from a purely affordability narrative and toward a value/deal-savviness narrative, with different implications for messaging (emphasising smart choice and value maximisation, rather than affordability or hardship relief), and suggests that future extensions of UTAUT2's price-value construct in Indian contexts should measure deal-proneness (Nagar, 2009) as a moderator rather than assuming income is the primary explanatory variable behind price sensitivity.

The convenience findings both confirm and sharpen Kumar and Patil's (2024) observation that convenience-oriented features have become a converged baseline across major Indian e-pharmacy platforms: this study finds that within the broad convenience category, one specific mechanism — subscription-based automatic reordering — towers over all others in reported value, rather than convenience operating as an undifferentiated bundle of features. This refines the theoretical treatment of “convenience” in e-pharmacy research from a unidimensional construct to one with at least two distinguishable sub-components — recurring/passive convenience (auto-refill, which requires no repeated user action) and transactional/active convenience (search, checkout, navigation) — that this study's evidence suggests are not equally valued, with the passive form showing a materially stronger effect.

The availability findings are consistent with, and extend, Ansari et al.'s (2025) review-level observation that absence of specific medications locally is a recurring adoption trigger: this study's platform-level variance in generic-substitute discoverability and catalogue depth indicates that, having triggered the initial switch to online purchase, availability continues to function as an active competitive lever between platforms rather than a one-time trigger whose influence fades after adoption. PharmEasy's advantage on generic-substitute discoverability specifically is consistent with the platform's broader positioning — confirmed independently in Kumar and Patil's (2024) comparative service-quality study — as the pure-play entrant most focused on price-conscious, comparison-shopping behaviour, as distinct from Tata 1mg's advantage on catalogue breadth, which is more consistent with its deeper integration into an established offline diagnostics and pharmacy network, and with the marketplace/inventory-based structural distinction described in Section 1.1.

5.2 Managerial Implications

Three implications follow directly from these findings for e-pharmacy operators expanding into Tier-2 and Tier-3 India. First, promotional design should prioritise simple, transparent, recurring mechanisms (flat discounts, auto-refill) over conditional or bundled offers, which this sample rated as significant but considerably weaker and more polarising; marketing budgets currently allocated to complex bundled promotions (BOGO, conditional tele-consultation bundles) may be better spent deepening the reach and reliability of auto-refill programmes. Second, subscription/auto-refill functionality merits investment and product-development priority disproportionate to its apparent simplicity, since it is simultaneously the strongest cost-effectiveness lever and the strongest convenience lever identified in this study; platforms should consider proactive auto-refill enrolment prompts at the point of a chronic-medication purchase rather than treating the feature as an opt-in setting buried in account preferences. Third, because availability (unlike cost and convenience) remains a genuine point of platform differentiation in this sample, platforms without an inherent supply-chain advantage should consider highlighting generic-substitute discovery tools specifically — for example, a prominent “cheaper alternative available” prompt at the point of search — rather than competing on catalogue size alone, where incumbents with offline retail integration retain a structural advantage that is unlikely to be closed through catalogue expansion alone.

5.3 Policy Implications

For regulators and industry associations navigating the discounting debate referenced in Section 1.1, this study's finding that consumers respond most strongly to simple, transparent discounting (rather than complex conditional promotions) is relevant: it suggests that concerns about aggressive, opaque discounting practices could be addressed through transparency requirements (for example, mandating clear disclosure of the reference price against which a discount is calculated) without necessarily removing the price mechanism that this study finds to be a legitimate and strong driver of consumer welfare through lower effective medicine costs. For policymakers concerned with equitable healthcare access in non-metropolitan India, the finding that availability of generic substitutes is both highly valued and unevenly delivered across platforms suggests a role for regulatory or industry-standard requirements around generic-substitute disclosure at the point of sale, extending the transparency principle already established for prescription medicines to the price-comparison context specifically.

5.4 Digital Inclusion Considerations

Because Mysuru District's sample deliberately spans urban, semi-urban, and rural taluks, the strength and consistency of the cost and convenience effects documented here carry a further, cautionary implication. A mean rating significantly above the scale midpoint indicates that among respondents who are already active e-pharmacy users, cost and convenience are valued highly and consistently; it does not, by construction, speak to the experience of non-users who may value these same benefits just as highly in principle but face a prior barrier — digital literacy, smartphone access, or confidence navigating a Likert-style rating exercise or a mobile app interface — that prevented them from ever becoming platform users and therefore from appearing in this sample at all. This barrier is not evenly distributed: Joshi et al. (2020), studying gender and the digital divide across urban slum settings in Delhi, found mobile phone ownership, internet access, and digital literacy all significantly patterned by gender and household education. Given that this district includes rural taluks where digital literacy and connectivity infrastructure both lag urban norms, the strong, high-agreement findings reported in Sections 4.2 and 4.3 should be read as evidence of what keeps existing users engaged, rather than as a

complete account of what would be required to convert the district's remaining non-users — plausibly disproportionately female, per Joshi et al. (2020) — into e-pharmacy consumers in the first place. This distinction is taken up further as a direction for future research in Section 6.

6. CONCLUSION, LIMITATIONS, AND FUTURE RESEARCH

This study set out to identify cost-effectiveness, convenience, and product availability as the key drivers of online medicine purchase among consumers in a Tier-2 Indian district, and found statistically significant support for all three, with an important qualification: cost and convenience operate as high-agreement, largely platform-independent drivers, while availability operates as a lower-agreement, genuinely platform-differentiated driver. The single most valued feature identified across the entire sample — automated subscription refill — sits at the intersection of the cost and convenience constructs, suggesting platform investment should treat these two constructs as functionally linked rather than analytically separate when designing retention features.

This study is limited to a single district and a non-probability sample, which constrains statistical generalisability to other Tier-2/Tier-3 Indian districts with different chemist-density, income, or digital-literacy profiles. The cross-sectional design captures stated preference at a single point in time rather than observed switching behaviour, and self-report items on cost-effectiveness may be subject to social-desirability effects, given that price-sensitivity can carry mixed social connotations.

Directions for Future Research

Three extensions follow directly from the limitations above and from the digital-inclusion consideration raised in Section 5.4. First, because this study samples only existing e-pharmacy users, a complementary study of non-users in the same district — identifying which specific barrier (awareness, digital confidence, trust, or a genuine absence of interest in the cost/convenience benefits this study documents) accounts for non-adoption — would meaningfully extend these findings toward a fuller adoption-and-inclusion picture. Second, this study should be replicated in at least one further Tier-2/Tier-3 district with a materially different income and chemist-density profile to establish whether the cost-convenience linkage identified here (via subscription/auto-refill) is a genuinely general pattern in non-metropolitan India or a feature specific to Mysuru District's particular retail and demographic structure. Third, future research should move beyond stated Likert-scale preference toward transactional data — actual auto-refill enrolment rates, actual coupon redemption rates, and actual churn/retention following a platform's price or catalogue change — to establish whether the strong stated preferences for cost-effectiveness and convenience documented here translate into correspondingly strong behavioural loyalty over time, or whether, as is sometimes found in promotion-sensitive retail categories more broadly, price-driven switching-in is met by equally price-driven switching-out when a competitor's offer improves.

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