

Impact Of Digital Marketing In Selling Over-The-Counter (Otc) Pharmaceutical Products In India: Emerging Trends, Challenges, And The Road Ahead



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Abstract

Purpose

India's pharmaceutical sector is expanding rapidly, with Over-the-Counter (OTC) products playing a growing role in healthcare access. This paper examines how digital marketing is shaping the promotion, awareness, and use of OTC medicines in India.

Design/methodology/approach

Digital platforms such as social media, e-commerce, influencer marketing, search engines, and health apps are evaluated. Emerging trends—including AI personalization, regional language content, telehealth integration, and gamification—are discussed alongside challenges such as regulatory gaps, ethical issues, misinformation, digital literacy, and the prescription-OTC divide. A Google survey of 92 participants provided insights into consumer behavior, trust, and responses to digital promotions.

Findings

Digital marketing has broadened awareness and supported consumer decision-making, but trust remains anchored in pharmacists and doctors. Survey results show digital strategies influence purchase intent, yet credibility and transparency are critical for lasting confidence.

Social implications

Strengthening health literacy, ensuring equitable access, and promoting ethical digital practices are essential to protect consumers and enhance public health outcomes.

Originality/value

By combining secondary analysis with primary survey data, this study offers a comprehensive perspective on India's OTC market. It highlights the need for responsible, consumer-centric digital innovation that balances business growth with public wellbeing.

Keywords: OTC medicines, Pharmaceutical marketing, Digital marketing, India,, Consumer behavior, Social media marketing

Introduction

India's pharmaceutical landscape has expanded dramatically in recent years, with Over-the-Counter (OTC) medications carving out a notably fast-growing niche. These readily available remedies—used to address everyday issues like colds, fevers, aches, allergies, and digestive discomfort—have surged in popularity thanks to heightened health consciousness, greater willingness to self-treat, and easy access. Across the globe, rates of self-medication vary widely—from roughly 11% up to nearly 94%, depending on the demographic(1, 2). While in India's lower- and middle-income brackets, figures range between about 8.3% and 92%. Convenience plays a major role: many find it far simpler to drop by their neighbourhood chemist than to navigate a hospital appointment. Rising healthcare expenses, instant online health information, and targeted social media and messaging campaigns further fuel this trend, making self-care with OTC products not only

feasible but often the first choice for minor ailments(3).

India's pharmaceutical industry has experienced a digital overhaul, and with over 800 million internet users, India now ranks among the world's largest online consumer markets(4). Digital marketing—spanning social media platforms, search engines, mobile health apps, and e-commerce marketplaces—has become an indispensable way to engage today's tech-savvy audiences(5). In a sector long defined by strict advertising regulations and cautious messaging, OTC brands are now tapping into these channels to educate consumers, answer common questions, and forge direct connections(6). But there are some worries about the fast growth of digital marketing for over-the-counter drugs. Digital platforms that promote health information may make it too simple, encourage people to treat themselves, and make it hard to tell the difference between responsible

awareness and commercial persuasion. Without clear rules for advertising over-the-counter drugs in India, these kinds of ads can be dangerous for both consumers and public health. The COVID-19 pandemic sped up the use of the internet for healthcare information, virtual consultations, and e-pharmacy purchases to levels never seen before. In response, pharmaceutical companies have launched a number of new digital projects, such as working with trusted influencers, creating content in local languages, and using AI-powered personalization engines, all in an effort to build trust, increase product awareness, and gain market share in the OTC segment.(7).

This study provides a timely examination of the ways in which digital marketing is transforming India's OTC landscape, weighing its significant potential against the challenges that are arising. Online platforms have the best reach, the best ability to target specific audiences, and the best analytics that can be used to make decisions. However, they also raise important questions about following the law, communicating ethically, and the risk of making false claims. This paper offers a pragmatic framework for responsible and effective digital strategies within India's evolving OTC pharmaceutical sector by examining current market dynamics, digital innovations, and potential challenges.

The digital aspect of over-the-counter (OTC) medications is frequently disregarded, despite the fact that there is a wealth of research on the marketing of prescription medications. This is a serious oversight, especially in India where it can be difficult to distinguish between aggressive sales tactics and useful information. It's time to examine how these online advertisements affect consumer behavior and make sure that moral healthcare isn't being sacrificed for financial gain.

INDIAN OTC PHARMACEUTICAL MARKET

Market Size and Growth Trends

India's Over-the-Counter (OTC) pharmaceutical sector has grown into a pivotal part of the nation's healthcare and consumer landscape. In 2024, the OTC market was valued at approximately \$10.2 billion, with projections suggesting an increase to nearly \$31 billion by 2033, supported by annual compound growth rates nearing 12–14%. This rapid expansion reflects a confluence of social and economic trends: rising awareness of preventive healthcare, a growing emphasis on self-medication, and improvements in both urban and rural access to pharmaceutical products(8). Several factors contribute to this growth.

Urbanization creating larger middle- and upper-income segments with greater health literacy and willingness to spend on wellness. Additionally, internet and smartphone penetration have enabled many consumers to access health information, price comparisons, and direct online purchases, leading to a more informed and self-directed consumer base(9, 10).

The COVID-19 pandemic fundamentally altered consumer behavior, accelerating an already strong trend toward digital health adoption(11). As movement restrictions and concerns about in-person consultations rose, households increasingly turned to OTC drugs—not only for common complaints like coughs and headaches but for preventative measures, including immunity-boosting supplements and herbal products. Boosted by government messaging and the normalization of e-pharmacy platforms, this period saw an unprecedented surge in first-time digital health product users. Analysts agree that these shifts have resulted in long-lasting changes to the market's structure and consumer expectations(12, 13).

Consumer Behavior and Purchasing Patterns

Indian consumers are increasingly adopting self-medication for common health conditions like fever, dyspepsia, pains, and skin irritations. Surveys repeatedly show that ease of access, convenience, and cost-effectiveness top the list of reasons people reach for OTC options(14). Younger urban consumers are shifting toward omnichannel purchasing, even though local chemists continue to be the market's traditional backbone. Brand reputation and cultural trust are now more powerful motivators in the evolving digital environment than straightforward price competition(15). Informative content from both companies and independent sources, coupled with peer recommendations and digital reviews, now heavily steers consumer choices. Pharmaceutical firms that prioritize health education—offering straightforward usage guides and transparent ingredient information—tend to cultivate the strongest loyalty.

Digital marketing has become an important factor in shaping these purchase journeys. Highly targeted ads, collaborations with relatable influencers, mobile-focused campaigns, and content in regional languages have expanded the reach of OTC brands and improved access to health-related information(16). Many shoppers begin their search online—even if they ultimately buy in an offline store—highlighting just how critical a digital presence is for OTC products(17). E-

pharmacy platforms further add value by product comparisons, offering home delivery and pricing transparency. While this shift has been most intense in Tier 1 and Tier 2 cities, it's steadily trickling into smaller towns as internet infrastructure deepens and smartphone penetration(18, 19).

Key Players and Popular OTC Categories

The Indian Pharmaceutical OTC market includes both domestic and multinational companies. Established domestic players like Dabur, Himalaya, Cipla and Sun Pharma coexist with international players like GlaxoSmithKline

Consumer Healthcare and Abbott(20-22). OTC offerings span familiar categories—analgesics and antipyretics like paracetamol and ibuprofen; cough and cold remedies; gastrointestinal aids such as antacids and laxatives; and topical skincare treatments—alongside growing segments in vitamins, dietary supplements, and an ever-expanding array of herbal and Ayurvedic formulations. This surge in natural-product demand reflects both India's cultural heritage and a broader consumer shift toward "clean label" wellness(23, 24). Table 1 summarizes major OTC categories, common examples, and Therapeutic roles.

Table 1: Overview of OTC categories in India

Category	Common Examples	Therapeutic Role / Use Case
Analgesics	Paracetamol, Ibuprofen	Pain relief, fever management
Antacids	Eno, Digene	Relief from acidity, indigestion
Cough & Cold	Vicks, D-Cold	Symptom relief from cough, cold, flu
Vitamins & Supplements	Becosules, Revital	Nutritional support, immunity boosting
Topical Creams	Moov, Volini	Relief from muscle pain, sprains

These categories represent the most commonly used OTC products and highlight the diversity of consumer health needs in the Indian market.

Regulatory Framework

Role of CDSCO

The Central Drugs Standard Control Organization (CDSCO), the country's principal authority for drug quality, safety, and efficacy, is primarily responsible for overseeing India's pharmaceutical regulatory framework. Import controls, pharmaceutical product licensing, and new drug approvals are among the crucial tasks that CDSCO oversees. In contrast to the US or Europe, India does not yet have a well-defined legal category for over-the-counter drugs. But things are moving forward; the Drugs Technical Advisory Board (DTAB) is putting forward new rules to formalize over-the-counter product lists and establish advertising standards. If these suggestions are implemented, the OTC market would have more defined boundaries and be encouraged to innovate responsibly(25-27).

Guidelines by ASCI and other bodies

The Drugs and Magic Remedies (Objectionable Advertisements) Act, the Drugs and Cosmetics Act and Rules, and the Consumer Protection Act are some of the laws that regulate pharmaceutical advertising in India. Codes of conduct specifically pertaining to "responsible advertising"—that is, making sure that claims are accurate, not deceptive, and do not promote risky self-medication—are enforced by the Advertising Standards Council of India (ASCI). Despite being purely voluntary, ASCI's standards are widely used in the industry and often influence influencer-based and digital best practices(27, 28).

Additionally, the Uniform Code of Pharmaceutical Marketing Practices (UCPMP) guides how companies interact directly with consumers, describing permissible approaches for digital media, influencer outreach, and consumer education. In effect, the overlap of statutory law and industry codes seeks to balance business growth with public health priorities(29).

Distribution and Accessibility

The distribution of over-the-counter medications in India is a result of both rapid modernization and long-standing customs. Traditional outlets—local chemist shops,

independent pharmacies, supermarkets, and general stores—continue to form the foundation of everyday sales, particularly in rural and semi-urban areas. However, the fast expansion of online pharmacies has significantly changed the

scene. The way that consumers get over-the-counter medications has changed as a result of platforms like 1mg, Netmeds, Apollo Pharmacy, and Amazon Pharmacy expanding their reach into both urban and rural areas(30-32).

A wide selection of products, home delivery services, clear pricing, real customer reviews, digital consultations, and reminder tools are just a few benefits offered by these online pharmacies. Several government-led programs, such as the Pradhan Mantri Bhartiya Janaushadhi Pariyojana, aim to further improve accessibility and affordability by providing generic medications at a lower cost and using websites and mobile apps to reach underserved or remote communities. As consumers continue to demand both the convenience of online ordering and information and the assurance of in-person pharmacist interaction, hybrid models that combine digital and physical access, sometimes referred to as "phygital" approaches, are likely to take the lead(33).

The role of digital marketing in influencing consumer decision-making is further enhanced by the growing availability of over-the-counter medications through both physical and digital channels.

Digital Marketing Channels for OTC Products

The digitalization of healthcare in India has significantly changed how the people discover and buy OTC pharmaceutical products. But with prescription drugs, advertising regulations are tightly controlled, but OTC products can be promoted directly. As a result, pharmaceutical companies increasingly invest in digital channels such as websites, social media platforms, and mobile applications to engage with consumers and influence purchasing decisions. "Large pharmaceutical companies already spend a major portion of their promotional budgets on digital channels," industry analysts claim(34, 35). The following subsections discuss the key digital marketing channels used in the promotion of OTC medicines.

Social Media Platforms

In India, social media platforms like Facebook, Instagram, and YouTube have taken center stage in the promotion of over-the-counter medications due to their wide audience reach and highly adaptable advertising choices(36). These websites let marketers to experiment with more interactive content, such as short-form reels, animated pictures, video tutorials, and interactive polls, in place of straightforward and static marketing. Additionally, companies

frequently run paid advertising that targets certain customer demographics by category, such as age, geography, language, and interest in health(35, 36).

Influencer-driven content has strengthened the role of social media in the OTC product marketing. Campaigns often feature medical experts, health bloggers, and even "mom influencers" who share authentic, relatable stories that enhance product trustworthiness and consumer confidence. Additionally, online parenting groups and wellness forums serve as key centers where consumers exchange firsthand experiences, product reviews, and practical health advice. While these discussions promote valuable knowledge sharing, they also carry risks, especially the spread of unverified or exaggerated claims when individual experiences are mistaken for professional medical guidance(37).

E-commerce Platforms

E-commerce has revolutionized the accessibility and prominence of OTC products in India. Leading online platforms such as 1mg, Netmeds, PharmEasy, and Amazon Pharmacy acts as online marketplaces and allows consumers to explore a number of medicinal products, compare the prices, consumers reviews, provide detailed description of the products, and home delivery services making them better alternate choice over traditional retail pharmacies(36, 38). Furthermore, e-commerce sites offer shoppers valuable features including star ratings, discount schemes, personalized recommendation that influence purchasing decisions. Consumers ratings and reviews often generate more trust than traditional advertisements. Many of these platforms also collaborate with brands to run health awareness campaigns, seasonal promotions like winter cold relief packs, and personalized product suggestions based on browsing habits. This combined role as both a marketplace and marketing channel positions e-commerce as a crucial platform for OTC drug adoption, especially in metropolitan and Tier 2 urban centers(38, 39).

Influencer Marketing

Influencer marketing has become an effective way to shape consumer perceptions of OTC products. By partnering with online influencers, including fitness trainers and nutritionists, dermatologists, yoga instructors, and wellness bloggers, brands present their products in authentic, relatable contexts. As the influencers maintains close engagements with their audience, their recommendations feels more trustworthy and authentic for the audience than the traditional advertisements (6, 37).

These promotions typically take the form of

product reviews, sponsored posts, educational live sessions, or personal testimonials, making health products more approachable and credible for consumers. However, this approach does raise ethical concerns. The absence of strict regulatory oversight can lead to biased endorsements, nondisclosure of paid sponsorships, or the spread of inaccurate information. While influencer marketing significantly boosts brand visibility and consumer engagement, its effectiveness ultimately depends on transparency and factual accuracy to maintain trustworthiness(40).

Mobile Applications and Health Blogs

Mobile apps and digital health platforms have become important source of health education for the consumers. There are many applications and websites maintained by the pharmaceuticals companies that provides health related information like common health condition, OTC products, preventions, drug interaction and dosage guidance. Some of these also includes functions like, symptoms checker, medication reminder, which can also guide the consumer choices(41).

Just like that, some health portals and health blogs publishes articles, reviews, descriptive product information and educational contents. It improves public awareness about the health condition and their management. This content marketing approach not only educates consumers but also positions the brand as a trusted source of health information. However, these also impose risks and challenges. Sometimes it creates confusion amongst the consumers whether it is an independent medical advice or promotional material. Therefore maintaining transparency and ethical communication standard remains critical for consumers safety(42).

Search Engine Optimization (SEO) and

Google Ads

Search engines play a crucial role in shaping consumers information on health and OTC medication online. Many consumers begin their healthcare journey by searching online for symptoms or remedies. Through Search Engine Optimization (SEO) and Search Engine Marketing (SEM), brands can capture this intent-driven audience by ensuring their products appear prominently in search results(43, 44).

By combining targeted keywords and paid advertisements companies can prominently place their OTC products in search results, increasing the consumer engagements and purchase. However, these content may also change the perception of the consumers, specially promotional messages seems as medical advices and not advertisement(44, 45).

Email Marketing and Retargeting

Pharmaceutical companies and e-pharmacy platforms use Email marketing and digital retargeting for continuous engagement with consumers. By using email newsletters and promotional messages companies share product updates, health tips, discount offers and tips for preventions from seasonal health issues. These communications help strengthen brand awareness and encourage repeat purchase(46, 47).

Meanwhile, retargeting further strengthen this approach by displaying personalized advertisements based on the previous searches of the user. Although these strategies increase consumer engagement and marketing effectiveness, they may also promote impulsive buying or frequent use of over-the-counter products without sufficient expert advice(47, 48). The major digital marketing channels used in the promotion of OTC pharmaceutical products are summarized in Figure 1.



Figure 1. Key digital marketing channels used in the promotion of OTC pharmaceutical products

Emerging Trends in OTC Digital Marketing

Digital technologies are evolving rapidly and changing continuously. Beyond the established digital channels, new and emerging channels like Artificial intelligence, localized content strategy are video-based communication are changing the consumers reach and engagement. These new channels allows companies to interact with divers group of consumers with more personalized and interactive health related information. However, they come with new challenges related to ethical advertisement, accurate information and responsible self-medication. The following subsections highlight key emerging trends that are influencing the future of digital marketing in the OTC pharmaceutical sector(41, 49).

AI-driven Personalization and Predictive Analytics

By enabling highly tailored, data-driven customer engagement, artificial intelligence (AI) is progressively revolutionizing digital marketing for India's over-the-counter pharmaceutical industry. AI enables businesses to examine enormous information, including browsing histories, purchasing history, search queries, and geolocation, to customize product suggestions for specific customers, in contrast to traditional marketing strategies that depend on broad demographic groups. To increase the likelihood of a purchase, an online pharmacy might, for instance, utilize AI algorithms to recommend vitamin supplements or digestive assistance to a consumer who has previously looked for similar wellness products. AI-

powered chatbots and virtual assistants also offer 24/7 assistance, providing product information, dosing guidelines, and tailored recommendations depending on user inquiries. This enhances customer satisfaction while lowering the need for human assistance for common concerns(50).

Additionally, using AI predictive analytics allows companies to predict consumer needs before they clearly express it. AI algorithms can detect seasonal demand patterns, such as higher demand for antipyretics during flu epidemics or increased purchasing of cough syrup during monsoon seasons, by merging past sales data with current search trends. These data enable businesses to optimize inventory management for over-the-counter products and execute marketing campaigns on time(51).

Adoption of AI in pharmaceutical marketing in India confronts obstacles despite its potential, such as high implementation costs, a lack of digital infrastructure in rural and semi-urban areas, and worries about data security and privacy(52).

Vernacular Content and Hyperlocal Engagement

Focusing on vernacular content and hyperlocal engagement has been one of the most important changes within Indian digital market and OTC pharmaceutical industries. The predominance of English-centric marketing is rapidly diminishing in India, where there are over 800 million internet users, many of whom use digital platforms in regional languages such as Hindi, Tamil, Telugu, Bengali, and Marathi. This strategy makes health-related information more

accessible to consumers who don't speak English well and helps marketers reach audiences outside of big cities(53, 54).

By customizing OTC advertising campaigns to the cultural, geographic, and seasonal features of particular places, hyperlocal involvement enhances vernacular marketing even more. Campaigns are more pertinent to local health issues when, for example, they highlight insect repellents and antipyretics in monsoon-prone areas or promote oral rehydration salts during summer heatwaves. Pharmaceutical businesses can interact with groups that mainstream advertising might otherwise neglect by using such specialized techniques. Vernacular and hyperlocal marketing can also assist close the digital literacy gap and raise consumer knowledge of prevalent health issues by presenting health information in easily understood languages and culturally appropriate circumstances. Nonetheless, it is still crucial to translate medical information accurately because confusion or improper self-medication might result from oversimplified or inaccurate interpretations(55, 56).

Telehealth and E-Consultation Integration

The healthcare industry in India is undergoing a radical transformation thanks to the merging of OTC promotion with telehealth and online consultation platforms. OTC drugs can now be positioned as convenient, first-line remedies for common ailments thanks to the rise in telemedicine usage during and after COVID-19, which standardized virtual doctor appointments. For instance, telehealth platforms frequently suggest or cross-sell appropriate over-the-counter remedies in addition to prescribed medications when people see doctors online for conditions like seasonal flu, acidity, or minor headaches. By connecting marketing initiatives to medical consultations, this coordinated approach not only increases consumer access to self-care but also gives them legitimacy(57).

Leading platforms such as Practo, 1mg, and Apollo 24/7 exemplify this convergence by offering seamless experiences that integrate diagnosis with immediate product purchase. Many telehealth providers collaborate directly with OTC brands to develop co-branded health campaigns, providing bundled offers that include consultations plus the necessary OTC treatments. This model strengthens consumer trust by framing OTC products as integral parts of comprehensive healthcare, rather than standalone commercial items(58).

However, integrating OTC marketing into telehealth raises ethical and regulatory concerns, including the risk of over-promotion, blurring lines between medical advice and advertising,

and potentially compromising clinical judgment for commercial gain. Moreover, despite rapid telehealth growth in urban and semi-urban areas, limited internet access and infrastructure gaps in rural regions constrain its nationwide reach. Still, with strong government support and private sector investment fueling digital health expansion, the fusion of telehealth and OTC marketing is poised to become a cornerstone of India's future consumer health engagement.

Gamification and Interactive Health Tools

Gamification and interactive health platforms are emerging as powerful tools to boost consumer engagement in India's OTC pharmaceutical market. By blending elements of fun, competition, and interactivity with health education, these approaches make often-overlooked aspects of self-care more appealing and engaging. Given India's widespread smartphone use and the central role of digital media in daily life, gamified health campaigns resonate particularly well with younger audiences, helping sustain their interest and involvement in managing their health effectively(59).

Reward-based systems on e-pharmacy platforms as Tata 1mg and PharmEasy, where customers receive points or discounts for making purchases, finishing health examinations, or engaging in wellness activities, are examples of gamification. Personalized health suggestions, self-assessment tests, and symptom checks are examples of interactive health tools that help customers find suitable over-the-counter remedies for common ailments. Concerns about the simplifying of medical knowledge, the misuse of health data, and privacy hazards linked with digital health platforms persist despite the fact that these tactics can increase customer awareness and product adherence(60, 61).

Challenges and Ethical Concerns

While digital marketing has unlocked immense opportunities for India's OTC pharmaceutical brands, it also introduces complex challenges and ethical dilemmas. The very features that make digital channels attractive—speed, broad reach, personalization, and interactivity—can also pose risks if misused. Key concerns include unclear regulations, misleading claims, and the spread of consumer misinformation. Additionally, broader societal issues such as limited digital literacy and consumers' blurred understanding of the difference between prescription and OTC medicines further complicate the landscape. Addressing these challenges is critical not only to protect consumers but also to maintain the credibility of

the OTC market and ensure that digital innovation aligns with public health goals(41).

Regulatory Ambiguity and Legal Boundaries

One of the most urgent challenges in India's digital marketing of OTC pharmaceuticals is the absence of clear, unified regulatory guidelines. Unlike traditional media like television and print with well-established frameworks, the fast-evolving digital landscape outpaces regulatory adaptation, creating uncertainty for both marketers and consumers about what is permissible and what falls into regulatory gray areas(62).

This complexity is heightened by overlapping jurisdictions of several regulatory bodies. The Central Drugs Standard Control Organization (CDSCO) oversees the pharmaceutical industry but exercises minimal control over online promotion of OTC products. The Advertising Standards Council of India (ASCI) provides a code of responsible advertising, yet its guidelines function largely as self-regulation with limited enforcement. Additionally, the Consumer Protection Act (2019) and Information Technology Act (2000) cover deceptive online practices but are not specifically tailored to health-related advertising.

This lack of coordinated regulation leaves companies uncertain about the claims they can make online, especially when engaging directly with consumers via platforms like Instagram, YouTube, or e-commerce sites(27).

Regulatory ambiguity is further complicated by the unclear delineation between OTC and prescription-only drugs in India. Unlike countries such as the U.S. or U.K., India does not have a formally published OTC drug list. Many products labeled OTC are, in fact, prescription-only but are widely available without prescriptions. This situation exposes online marketers to legal risks for promoting products without clarity on classification, which can provoke regulatory action or allegations of unethical marketing. Moreover, the internet's borderless nature means campaigns broadcast in India can reach consumers in countries with stricter controls, risking international criticism. Influencer partnerships and vernacular platform engagements add another layer of complexity, as unofficial promotions often slip under regulatory radar, making oversight even more challenging(63). Table 2 Outlines the Regulatory Bodies and Their Influence on OTC Digital Marketing in India.

Table No. 2: Regulatory Bodies and Their Influence on OTC Digital Marketing in India

Regulatory Body	Role	Limitations in Digital OTC Marketing
Central Drugs Standard Control Organization (CDSCO)	Regulates pharmaceutical drugs, approvals, and safety	Limited oversight on online promotion and advertising
Advertising Standards Council of India (ASCI)	Enforces responsible advertising standards	Self-regulatory with weak enforcement, especially online
Consumer Protection Act (2019)	Protects consumers against deceptive advertising	Not specifically designed for pharmaceutical digital ads
Information Technology Act (2000)	Governs electronic information, data privacy, and online content	Lacks pharma-specific guidelines and enforcement mechanisms
State Drug Control Authorities	Implement drug regulations at state level	Fragmented across states, inconsistent enforcement online

Ethical Dilemmas in Health Advertising

Advertising in the pharmaceutical sector carries

heightened responsibility, especially when it comes to online marketing of OTC drugs. Unlike fashion or packaged foods, OTC medications

directly affect individual health, making the line between persuasive marketing and deceptive communication very thin. In today's fast-paced digital environment, where brands compete for fleeting attention, there's a temptation to oversimplify complex medical information or exaggerate benefits. For example, antacids or cold medicines promoted through brief Instagram reels or YouTube shorts often highlight "instant relief" or "permanent solutions" without adequately addressing limitations, side effects, or correct usage. Such messaging can mislead consumers with low health literacy, encouraging unrealistic expectations or misuse(64).

Another ethical challenge involves the growing reliance on influencers and celebrities as key promoters. Celebrities endorsing immunity boosters or "momfluencers" discussing cough syrups often appear trustworthy despite lacking medical expertise. The problem worsens when sponsorships or paid promotions go undisclosed, leading consumers to mistake endorsements for personal recommendations. This creates a dangerous gap where trust is built on incomplete knowledge, driving consumers to decisions without full awareness of risks or alternatives. Precision targeting in digital marketing also raises concerns; while it enhances effectiveness, it can veer into exploitation—such as targeting weight-loss pills towards vulnerable adolescents or pushing immunity supplements during public health crises. Here, the line between meeting consumer needs and manipulating fears grows perilously thin(65).

Omission of critical information is yet another vital issue. Unlike traditional pharma ads, which usually include disclaimers and warnings, digital media's emphasis on brevity results in short clips or banners lacking dosage details, contraindications, or interaction warnings. While this benefits brands by keeping messaging concise, it deprives consumers of essential information. Ethically, responsibility goes beyond meeting minimal regulatory standards; brands must ensure consumers are well-informed and shielded from deceptive or biased messages that could promote unhealthy behavior. Over time, honest, balanced advertising fosters stronger consumer loyalty and trust, whereas manipulative tactics may damage brand reputation and provoke regulatory backlash(66).

Risk of Misinformation and Self-Medication

One of the gravest risks posed by online marketing of OTC drugs is the rise of misinformation and the culture of uninformed self-medication it fosters. On social media,

misleading medical information often spreads faster than fact-checkers can counter it, with sensational but inaccurate claims gaining far more visibility than nuanced, accurate explanations. For instance, a wellness influencer might promote an OTC painkiller as "completely safe for daily use" without highlighting dosage limits, or a viral WhatsApp message could falsely claim that a particular vitamin supplement "treats" seasonal flu. For ordinary consumers, especially those without medical knowledge, distinguishing genuine advice from exaggerated marketing or outright falsehoods is extremely challenging. This misinformation not only risks wasting money but also heightens the potential for serious health complications stemming from ill-informed decisions(67, 68).

Self-medication has not been a new issue in India, but online promotion has magnified it on scales never seen before. Unrestricted use of online pharmacies, along with informative campaigns and consumer reviews, usually makes individuals skip medical consultation altogether. A user suffering from repeated acidity, for example, would continue to order antacids advertised in banner ads or "recommended for you" on online shopping websites, rather than visiting a physician to diagnose an underlying condition such as GERD or ulcers. A user with chronic headache would also overconsume OTC painkillers, guided by ads showing them as safe, quick solutions, without having knowledge of the dependency or organ damage due to long-term consumption. These trends illustrate the way in which influential online content, as it increases product availability, also unintentionally normalizes the premise that minor conditions can always be treated without expertise(69).

The larger social issue is that misinformation doesn't exist alone—it feeds on cultural trends such as belief in word-of-mouth and growing demand for convenience. In India, where pharmacy consultations are increasingly replaced by the doc's visit and image forwards on WhatsApp are regarded as trustworthy "tips," online misinformation has fertile soil. This dynamic creates a harmful cycle where individuals, influenced by online content, engage in self-medication and then share their "success stories" in community groups, unintentionally spreading the same incomplete or inaccurate information. Breaking this cycle requires more than just regulation; it calls for a collective commitment from brands, digital platforms, and healthcare professionals to prioritize transparent, evidence-based communication. Without such collaboration, the promise of digital innovation in OTC marketing risks being

overshadowed by its role in encouraging unhealthy—and sometimes dangerous—self-care practices(67).

Digital Literacy and Accessibility Divide

A significant yet often overlooked challenge in India's digital marketing of OTC medicines is the wide disparity in digital literacy and access. While urban, English-speaking consumers increasingly navigate online pharmacies, QR codes, and branded apps with ease, a large portion of the population—particularly the elderly, rural residents, and those with limited education—struggle with basic digital tasks. For these groups, the flood of online offers can be confusing or misleading. For example, an English animated video promoting a skin cream may be meaningless to a Bhojpuri-speaking villager in Bihar, who might instead encounter misinterpreted or out-of-context information through local Facebook or WhatsApp content. Such disparities not only hinder responsible health communication but also create vulnerable pockets where misinformation can thrive unchecked(70).

Digital accessibility challenges go beyond literacy to encompass infrastructure limitations. Despite India's rapid digital growth, inconsistent internet connectivity, limited smartphone ownership, and high data costs restrict many from fully benefiting from digital health initiatives. This dual challenge means that while some consumers remain unreachable online, those who are online may misinterpret information, leading to misuse or undue reliance on digital advice. For instance, a novice internet user might perceive personalized online product recommendations—like “Top Picks for You” vitamins—as official medical endorsements. Consequently, marketers bear heightened ethical responsibility to develop accessible, understandable, and context-sensitive content rather than uniform messaging(71).

Addressing this divide requires more than translating advertisements into regional languages. True inclusivity demands content tailored to diverse digital literacy levels, clear warnings and disclaimers, and complementary offline efforts such as pharmacist-led education and community health worker outreach. Failure to bridge this gap risks deepening health inequities, granting digitally literate consumers reliable resources while leaving vulnerable populations exposed to confusion, exploitation, or misinformation. For the OTC pharmaceutical industry, overcoming the digital divide is not only an ethical obligation but a strategic necessity for building sustainable consumer trust across India's diverse demographic landscape(72).

Grey Zone: Prescription vs. Non-prescription Drugs

India's OTC pharmaceutical sector faces a uniquely challenging issue: the blurred distinction between prescription-only and over-the-counter medications. Unlike Western countries that maintain official, clearly defined OTC drug lists, India operates via exclusion—drugs not classified under specific prescription schedules (H, H1, X) are effectively treated as OTC. This regulatory ambiguity creates a gray zone complicating both consumer behavior and marketing approaches. Medications requiring prescriptions, such as certain antibiotics, steroids, or analgesics, are often freely accessible without prescriptions, especially at neighborhood chemists, and this risk intensifies when these drugs are marketed and sold online(45).

For online marketers, this uncertainty is a double-edged sword. While it allows broader promotion of products that might otherwise face stringent restrictions in other countries, it also exposes brands to regulatory scrutiny amid growing public concern over issues like antibiotic resistance and misuse. For example, an analgesic requiring medical supervision might be casually promoted like a vitamin supplement, misleading consumers into self-medicating under the false impression of safety. This not only endangers consumer health but also damages public trust in the pharmaceutical industry(73).

Pharmacists, often the frontline healthcare advisors in India, find themselves in a difficult position. They frequently dispense medicines over the counter, filling critical healthcare gaps in rural and underserved areas but inadvertently legitimizing the informal sale of borderline prescription drugs. The rise of online marketing further normalizes the perception that these drugs are “safe enough” simply because they appear alongside legitimate OTC products on websites and social media. Without a standardized OTC drug list and stronger regulatory enforcement, this blurred boundary will persist, raising ethical dilemmas, increasing health risks, and fostering inconsistent, potentially harmful marketing practices. Solving this dilemma will mean policymakers, regulators, and industry players collaborating to establish a formalized OTC category and labeling as well as promotional guidelines. In the meantime, marketers have to be careful, avoiding the temptation to take advantage of the regulatory void for quick fixes(74). Careful messaging, disclosure of product classification, and teamwork with healthcare professionals can minimize misuse while protecting consumer

health as well as industry reputation.

Survey Findings and Market Case Studies

Consumer Survey Insights

To gain direct insights into consumer attitudes and behaviors toward digital marketing of OTC pharmaceuticals, a Google-based consumer survey was undertaken involving 92

participants from various regions of India. Almost all the respondents (over 80%) were aged 18–34 years, and there was a higher ratio of males (63%) than females (30%). This young and tech-savvy audience represents the target audience most exposed to, and affected by, digital marketing efforts for OTC drugs. The demographic distribution of survey participants is illustrated in Figure 2

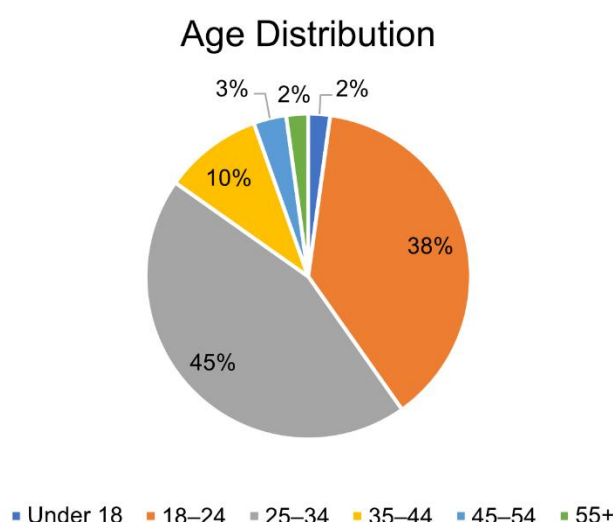


Figure 2. Age distribution of survey respondents participating in the consumer survey (n = 92).

When questioned regarding their shopping behavior, approximately 44% said they purchased OTC drugs every now and then (a few times per annum), and 33% said they purchased OTC drugs frequently (on a monthly or more frequent basis). A mere 4% replied that they never buy OTC drugs. Even with increased usage of the internet, the local chemist shop or pharmacy store still continues to be the top point of purchase (94%), followed by supermarkets and even online chemists at a mere negligible percentage. This reflects the enduring strength of traditional offline retailing, even as it is increasingly influenced by digital marketing in driving awareness and purchasing decisions. The frequency of OTC medicine purchases among respondents is shown in Figure 3.

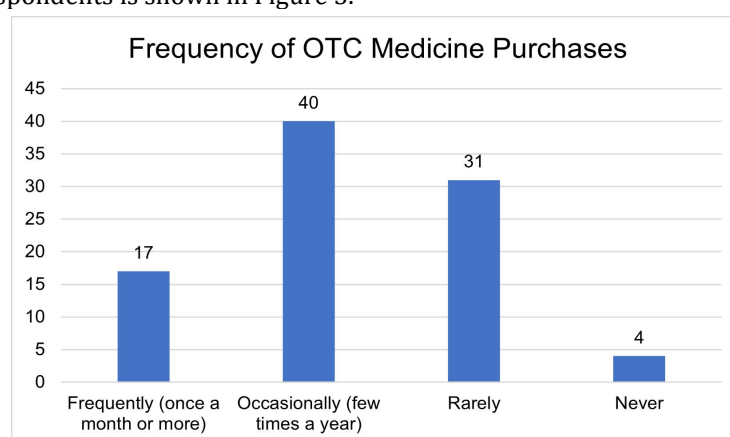


Figure 3. Frequency of OTC medicine purchases among survey respondents (n = 92).

Surprisingly, over 80% of the respondents indicated that they "always" or "sometimes" look up information or reviews online prior to purchasing OTC drugs. This pattern of online information-seeking behavior is illustrated in Figure 4. This indicates that online content—in the form of brand sites, e-commerce sites, or social media—is already part of the consumer decision-making process. Nevertheless, the most powerful sources are doctor and pharmacist recommendations (40 responses), followed by

word of mouth among friends and relatives. Online ratings and reviews are growing in importance as complements to conventional advice but do not yet replace it for most consumers. Regarding direct influence from online advertising, a majority of 59% reported never purchasing an OTC product because of such ads, while 19% said they had, and 22% responded "maybe." This suggests that while digital ads and influencer partnerships generate awareness, they rarely drive purchases without additional reassurance. Most respondents either did not notice OTC advertisements online (29 responses) or saw them mainly on e-commerce platforms, YouTube, and Instagram, reflecting the challenge health-related advertising faces in standing out within a crowded digital space.

Influence of Online Advertising

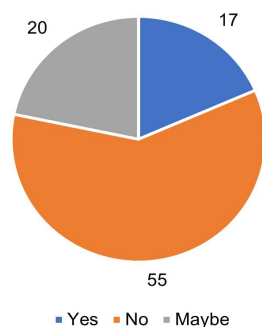


Figure 4. Online information search behavior before purchasing OTC medicines

Trust in online OTC claims was mixed: about 40 respondents were neutral, 29 somewhat trusted, and only 13 strongly trusted these assertions, with relatively few expressing distrust. This ambivalence indicates that while online marketing shows potential, consumer confidence depends heavily on endorsements from credible or influential sources. The main concerns around online OTC purchases centered on product authenticity and misinformation, with privacy and payment issues being less prominent.

Despite these reservations, the survey found that over 75% of respondents believe online marketing has at least somewhat facilitated easier and more informed OTC buying decisions, with 38% describing the impact as substantial. This underscores that although digital campaigns cannot fully replace trusted traditional sources like pharmacists and doctors, they increasingly influence consumer awareness, product comparison, and final purchase decisions.

The Road Ahead

As India's OTC pharma market keeps growing, the future of digital marketing in this industry will be defined by two over-riding themes: responsible innovation and inclusive growth.

Responsible Innovation

In the coming years, businesses must move beyond aggressive promotion and focus on strategies that build transparency, honesty, and consumer trust. The future of marketing will be defined by AI-driven personalized campaigns, regionally tailored content that resonates with

local populations, and deeper integration with telemedicine services, creating a more ethical and effective approach to engaging consumers in India's OTC pharmaceutical market. Parallel to this, regulatory guidance by authorities like CDSCO and ASCI will also become critical to restrain false information, prevent abuse of border-line drugs, and guard consumers. Responsible innovation will thus entail leveraging digital technologies not only for reach but for credibility and sustained relationships.

Inclusive Growth

Digital marketing of OTC products will also have to overcome India's glaring digital divide. As urban, digitally literate youth are the first to adopt e-commerce sites and influencer-driven campaigns, a significant segment continues to be under-served because of paucity of literacy, connectivity, or trust in online media. The way forward is closing this gap by creating campaigns that are accessible, understandable, and culturally appropriate, and also supplementing online efforts with pharmacist-led activities and community health initiatives. Inclusive growth will make digital marketing available to all consumers, rather than just the digitally literate.

Conclusion

Digital marketing is no longer a supplementary vehicle for OTC pharma in India; it is now at the core of the way consumers find, consider, and buy day-to-day health products. This paper highlights how tactics that span social media interaction to AI-enabled personalization are

transforming consumer behavior, backed by data from a consumer survey that captures both opportunities and concerns. However, the path forward is not without hiccups. Regulatory uncertainty, moral hazards, disinformation, and the nation's uneven digital literacy continue to be major impediments to be overcome in order to achieve responsible and secure growth.

The evidence indicates that the future of OTC advertising will be based on two pillars: responsible innovation and balanced growth. Responsible innovation calls for brands to prioritize transparency, honesty, and consumer well-being over short-term gains, aligning digital marketing efforts with ethical standards and clearer regulatory frameworks. Inclusive growth focuses on bridging the digital divide through vernacular language content, accessible messaging, and blended offline-online approaches to reach India's diverse populations equitably. Embracing these principles will enable digital marketing not only to improve consumer access to safe, reliable OTC medicines but also to play a meaningful role in strengthening India's broader public health infrastructure.

CONFLICT OF INTEREST

The authors declare no conflict of interest, financial or otherwise.

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Declared none.

AI Declaration

AI language models have been used in the manuscript for English language and Grammatical correction for better understanding of the readers.

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