

Role of Pharmacies in Guiding Safe Over-the-Counter Medication Use- A Survey-based Study in Pune

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Received: 19 November 2025

Revised: 4 December 2025

Accepted: 20 December 2025

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ABSTRACT- The rising trend of tone- drug and the wide vacuity of over-the-counter(OTC) medicines have underlined the critical part of druggists in icing safe and responsible drug use. This study investigates how apothecaries in Pune contribute to guiding consumers in the safe use of OTC specifics. a check- grounded approach was employed, targeting both druggists and consumers, to assess their knowledge, gesture and stations towards OTC medicine use. The findings punctuate that while druggists constantly give advice on lozenge, side goods, and medicine relations, they face challenges similar as time constraints, lack of consumer interest, and nonsupervisory limitations. Consumer responses reveal a general reliance on druggist recommendations, although gaps in mindfulness and occasional unsafe practices like sharing specifics or dragged tone- drug persist. The study underscores the need for enhanced druggist training, public mindfulness enterprise, and stronger nonsupervisory fabrics. Strengthening the part of druggists as frontline healthcare counsels can significantly ameliorate public health issues and promote responsible tone- care practices in civic settings like Pune.

KEYWORDS: Over-the-Counter (OTC) Drugs, Pharmacists, Self-medication, Icing safe

I. INTRODUCTION

Over-the-counter (OTC) specifics have come an essential part of tone- care, allowing individualities to manage common affections similar as headaches, snap, disinclinations, and digestive issues without taking a croaker's tradition. The adding vacuity of OTC medicines in apothecaries and online platforms has significantly bettered access to healthcare, reducing the burden on medical installations and enabling individualities to take charge of their own health. still, this ease of access also brings challenges, including the pitfalls of tone- drug, abuse, medicine relations, and incorrect dosing. druggists play a pivotal part in icing the safe use of OTC specifics by guiding consumers in opting applicable medicines, furnishing comforting on proper lozenge and implicit side

goods, and advising on contraindications. Their moxie helps help adverse medicine responses, drug crimes, and complications arising from the concurrent use of multiple medicines. Despite their vital part, the extent to which druggists in Pune engage in OTC drug safety practices remains underexplored. druggists work in colorful settings, including Community Apothecaries – They apportion both tradition and over-the-counter(OTC) specifics, counsel cases, and promote safe tone- drug practices. Sanitarium Apothecaries – They unite with croakers and nurses to manage case specifics, cover medicine remedy, and help adverse responses. Clinical Apothecaries – They work directly with healthcare brigades, optimizing medicine remedy for individual cases. Industrial & Research druggists – They contribute to medicine development, nonsupervisory affairs, and quality control in pharmaceutical companies. Regulatory & Academic druggists – They oversee medicine programs, conduct exploration, and train future druggists [2][4][6].

Screening and Recommending Appropriate OTC Options Besides counseling, pharmacists screen and refer appropriate OTC products every occasion, depending on their health state. During the first drugstore interview, cases were asked many questions to gather information about their symptoms, once or present ails, or possible disinclinations[7][8]. This process enables one to determine other factors that may contradict the use of OTC products, including gestation, high blood pressure, diabetes, or asthma. Screening also entails studying likely unwanted effects and interactions of the drug with other drugs. As two OTC agents and prescription, medicines may interconnect to render medication inefficiency or toxic side effects, as listed in Table 1, patients consult professional pharmacists. For case, some medicines for common habitual conditions like snap may beget high blood pressure, making it [13] [14].

Infelicitous for hypertension cases, or antacids can hamper the immersion of other specifics; they're applicable when used with other drugs. This unglamorous procedure is critical to avoiding complications and guaranteeing cases the right advice.

Table 1: Common Over-the-Counter (OTC) Products and Their Recommended Usage Guidelines [2][10][12]

Sr no.	OTC Product Category	Prime Use	Potential Drug Interactions	Key Precautions
1	Pain Relief	Pain Management	NSAIDs with blood pressure medications	Avoid excessive use to prevent GI issues
2	Cold & Cough	Cold and flu symptoms	Decongestants with blood pressure specifics.	Not recommended for cases with hypertension
3	Stomach upset	Digestive discomfort	It may reduce the absorption of certain antibiotics.	Follow dosage instructions
4	Allergic	Allergy relief	Sedatives may interact with alcohol	It can cause drowsiness; avoid alcohol
5	Vitamins/Supplements	Nourishment	Possibility a drug has alter effects of another when use.	Dosage of the drug should be Prescribe
6	Skin care product	Protection	Sun and moisture can effect	Patch test should be done before use

II. SIGNIFICANCE OF THE STUDY

This study is significant because it highlights the pivotal part that apothecaries play in icing the safe use of over-the-counter (OTC) specifics. With tone- drug getting decreasingly common in Pune and across India, understanding how druggists guide consumers in making informed choices are essential for public health.

A. Public Health Impact

- Abuse of OTC medicines can lead to serious health pitfalls similar as incorrect dosing, medicine relations, antibiotic resistance, and delayed medical treatment [15].
- By assessing druggist involvement, this study can help ameliorate consumer mindfulness and encourage responsible tone drug practices.

B. Strengthening druggist- Consumer connections

- The findings will exfoliate light on how frequently consumers seek druggist guidance and how well druggists give drug- related advice. [18]
- This will help ground gaps in communication and promote druggists as trusted healthcare counsels, rather than just drug dispensers.

C. Regulatory and Policy Counteraccusations

- The study can give precious perceptivity for health authorities and policymakers to strengthen OTC medicine regulations and druggist- led mindfulness juggernauts [19]
- It can also punctuate the need for better training programs for druggists to enhance their part in consumer education.

D. Profitable and Social Benefits

- Safer OTC drug use can reduce gratuitous healthcare costs caused by drug crimes, overdoses, and complications from indecorous medicine use [20].
- Encouraging druggist discussion can also reduce the burden on healthcare installations by minimizing preventable medicine affiliated health issues.

III. METHOD

A. Type of Research

Applied Research - This is because it aims to address a specific, practical issue—improving pharmacies practice

regarding OTC medication—by gathering data and providing actionable recommendations consumer behavior.

B. Type of Research Design

Descriptive Research Design - It involves collecting and analyzing data to describe the current state of OTC medication and their uses by pharmacist and consumer perceptions regarding these projects.

C. Participants

The study focuses on registered druggists working in colorful drugstore settings in Pune. The named actors, were grounded on the following addition and rejection criteria Inclusion Criteria:

- Licensed druggists laboriously working in retail, sanitarium, or chain apothecaries in Pune.
- Willing to share freely in the study.
- Have at least one year of professional experience in dispensing OTC medications.

D. Exclusion Criteria

- Pharmacists who are not directly involved in OTC medication dispensing.
- Pharmacy assistants or unlicensed individuals.
- Pharmacists unwilling to provide consent for participation.

A sample size of 104 druggists was targeted, to insure statistical significance and a broad representation of perspectives.

E. Data Collection Method

- Questionnaire Development: the questions were designed grounded on reviewed literature and expert recommendations.
- Survey: Study was conducted on ten druggists to insure clarity and trust ability. The questionnaire was distributed through.
 - Physical checks (in- person visits to apothecaries).
 - Online forms (Google Forms or other digital platforms).
- Survey Administration: Respondents were given time to complete the questionnaire.
- Data Recording: Responses were collected in a structured format using Microsoft Excel.

IV. DATA COLLECTION AND ANALYSIS

In all 130 questionnaires were distributed (online) to pharmacists in and around Pune of which 104 pharmacists participated in the study, thus making the response rate of 80%.

A good portion of pharmacists has 1-5 years of experience, indicating early- to mid-career professionals contributed the most. Among the pharmacists with D. Pharma degree, 28% and 53% of B. Pharma degree holders and 4.33% other. Majority of the pharmacists have dispensed OTC medications. Most respondents are from community pharmacies, followed by hospital pharmacies. This suggests sample is grounded in frontline, patient-facing practice (see the below table 2).

Table 2: Demographic survey of Pharmacist in Pune

Demographic	
Gender-Male	76 (75%)
Female	27 (25%)
Age group	
18-25 age	39 (37.5%)
26-35 age	30 (28.85%)
36-45 age	23 (22.12%)
46 & above	11 (11 %)
Educational qualification	
Diploma in pharmacy	29 (28%)
Bachelors in pharmacy	55 (53%)
Masters in pharmacy	4 (4%)
Other graduation	15 (14%)
Years of experience	
Less than 1 year	31 (30%)
1-5 years	21 (20%)
6-10 years	29 (28%)
More than 10 years	17 (22%)

A. Participants Knowledge and Attitudes Regarding OTC Drug Safety

The results showed that most of the participants answered positively and provide advice for OTC medication toward customer like side effects and precautions (44.62%). Dosage instructions (33.85%), Drug Interaction (10.77%), Alternative option (3.08%), Life style and dietary advice (6.15%). Also, consumer is satisfied (54.72%) with the pharmacist advice. The majority of respondents stated that they read the medication leaflets and indicated that they were aware of which drugs required prescriptions.

B. Demographic information Consumer Perceptive

The Questionnaires' circulated among the consumer who stay in Pune. Majority of the consumer where female (58.49%), men (41.51%). Most of the common age 18-25 years old, (79.25%) consumer participated. Having formal educational level- Higher secondary, Graduation, Post-graduate (7.55%, 58.49%, and 33.96% respectively).

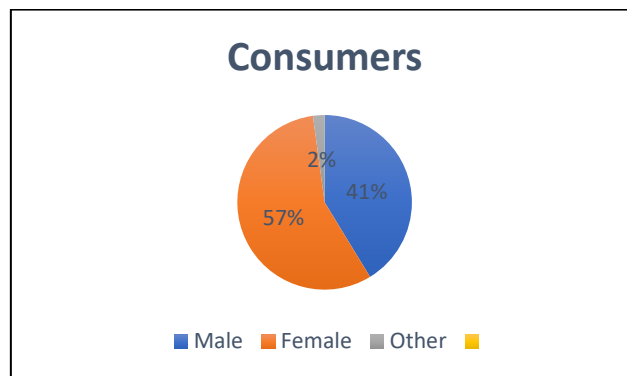


Figure 1: Consumer percentage

In the above figure 1 (pie diagram) it shows that females (57) consume further OTC drugs than males (41) and other genders (2). This advanced consumption among women may be due to their lesser involvement in family health care, more visionary health gesture, and the need to manage conditions like menstrual pain, migraines, or hormonal issues. Women also tend to seek hastily relief for minor symptoms, leading to increased use of OTC products.

C. Consumer Awareness and Behavior

The survey highlights that consumer satisfaction with apothecaries is generally good, particularly with convenience and access. Still, consumers frequently underrate the full part of druggists, seeing them primarily as suppliers of drug rather than integral healthcare providers. While they are open to guidance, there is a need to strengthen mindfulness, communication, and service invention to align with ultramodern prospects. Utmost repliers indicated they buy OTC drug sometimes (50.94), constantly (20.75), and infrequently (24.53). Most constantly reported suggestions for use of OTC, cold & cough (28.57) followed by pain relievers (20.71), and fever (17.14). In the below figure 2, consumer purchasing OTC drugs for self-medication and major decision is taken by Doctor's recommendations (32.22%), pharmacist also play major role in buying decision or suggestion for OTC medicine (30%). Most of the consumer always (56.6%), read the label and instruction before using OTC medication. [1] [3] [5] [11] [17] [21] [23]

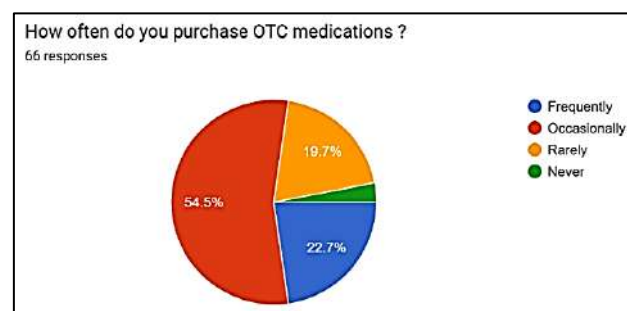


Figure 2: Consumer purchasing OTC medicine

Majorly agree that OTC drugs are safe to recommended dose and never experience any side effects (75.45%). It was reported by (20.75%) consumer that OTC drugs can cause side effects and agree that it is acceptable for them to share an OTC drug that worked for them with their friend. Consumer always (60.38%) consult pharmacist before

purchasing OTC medication. Consumer believe that pharmacist should provide more guidance on OTC medication use (86.79%).

D. Perception of pharmacist on safety of OTC drugs

Pharmacist believed that consumer is somewhat aware about the risks associated with OTC medication (38.46%). Consumer frequently self-medicate without seeking pharmacist advice. But most of the consumer consult pharmacist (26.56%). Major challenges pharmacist feels while counseling customer on OTC medicine is – lack of consumer interest, Lack of time, inefficient training and regulation limitation (44.62%, 23.08%, 18.46%, and 9.23% respectively).

E. Reasons for purchasing OTC drugs for self-medication and conditions OTC drugs are purchased

Most respondents indicated they do not like visiting the hospital, going to hospital wastes their time or lack of time to visit doctor (10.34%) and believe they can take initiative if it is a minor condition according to the convenience (26.44%). Most of the consumer recommend OTC by their previous experience consuming medicine. Some respondent feel OTC medicines are cost-saving (21.84%). Pain and headache were the most frequently reported indications for use of OTC, followed by fever and cough.

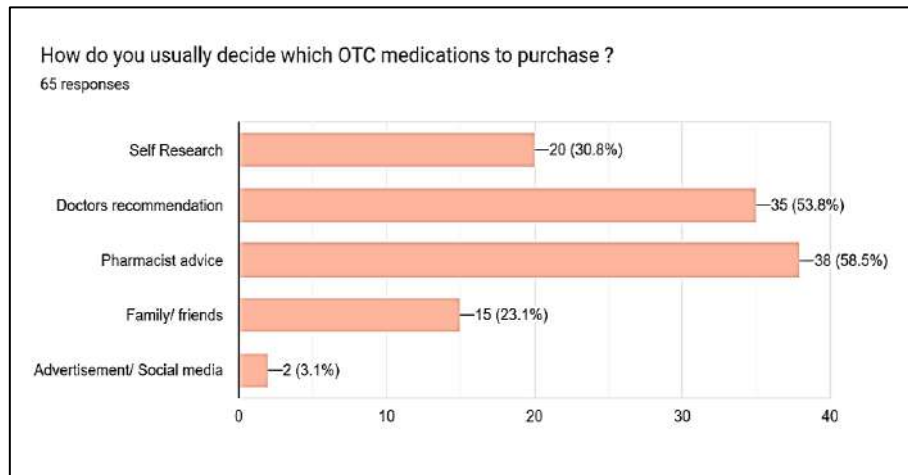


Figure 3: Consumer Decision strategy

In the above figure 3, the majority of consumers calculate on druggist advice (58.5) and croaker recommendations (53.8) when choosing OTC specifics. This indicates a strong preference for professional guidance. About 30.8 conduct tone- exploration, showing a moderate position of independence in decision- timber. Family and musketeers influence 23.1 of consumers, while announcements or social media, suggesting that promotional channels have minimum impact on OTC purchase opinions, guide only 3.1.

The most commonly consumed over-the-counter (OTC) drugs by two distinct groups: consumers and pharmacists. It categorizes the types of OTC products and compares the frequency of their usage within each group. The data reveals that cold and cough specifics are the most constantly used among both consumers and druggists, with slightly advanced consumption reported by consumers. Pain

relievers also show high operation, with druggists reporting hardly more consumption than consumers do.

Interestingly, druggists report significantly advanced use of stomach pain specifics and antacids compared to consumers, which may reflect their lesser mindfulness of digestive health and tone- drug practices. An analogous trend was observed, in the case of antipathetic specifics, where druggists show specially advanced operation than consumers. This, could be attributed to their medical knowledge, capability to tone- diagnose and treat minor antipathetic responses. On the other hand, consumer's parade advanced consumption of vitamin supplements and skincare products than druggists. This trend suggests a growing interest among the public in particular heartiness, appearance, and preventative health. Fever specifics were used in analogous proportions by both groups, indicating common gests with short- term ails similar as the flu or seasonal complications.

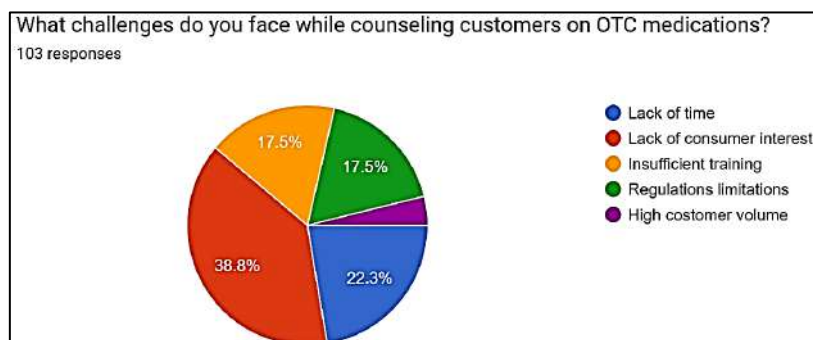


Figure 4: Challenges faced by Pharmacist

In the above figure 4, most significant challenge druggist's face is lack of consumer interest (38.8), which suggests that numerous guests may not be completely engaged or open to entering comforting about OTC medicines. Lack of time (22.3) is another crucial hedge, probably due to high workloads and multitasking in busy drugstore settings. Inadequate training (17.5) and nonsupervisory limitations (17.5) also pose notable challenges, indicating a need for better professional development and further probative legal fabrics for comforting practices. A small chance of druggists mentioned high client volume, suggesting that while it is a concern, it is less pressing compared to other issues.

F. Bivariate Analysis

To perform a bivariate analysis of the relationship between gender and consumer mindfulness, we can examine how consumer gender (male/female) correlates with their position of mindfulness regarding OTC drug safety grounded on the data presented in your design.

- Variables description
 - Independent Variable Gender (manly, womanish)
 - Dependent Variable Consumer mindfulness (grounded on pointers similar as reading markers, consulting druggists, mindfulness of side goods, etc.)
- Extracted Key Data from Your Report:
 - Gender Distribution:
 - Female: 58.49%
 - Male: 41.51%
- Awareness Indicators:
 - Consumers who always read labels before using OTC meds: 56.6%
 - Consumers who always consult a pharmacist: 60.38%
 - Consumers who believe pharmacists should provide more guidance: 86.79%
 - Consumers aware that OTC drugs can cause side effects: 20.75%]
 - Consumers believing OTC meds are safe when taken as recommended: 75.45%

Females (57%) consume more OTC medicines than males (41%). Women also tend to seek quicker relief for minor symptoms, leading to increased use of OTC products.”

- Analysis
 - Consumption vs Awareness: Female consumers not only consume more OTC medications but also demonstrate higher proactive health behavior, such as: [9] [16] [22]
 - Reading labels more frequently
 - Consulting pharmacists more often
 - Taking charge of family health, which may enhance their awareness
- Consultation Rates: With a majority female sample and high consultation rate (60.38%), we can infer a positive relationship between female gender and higher awareness/engagement in safe OTC use.
- Risk Behavior: While both genders show risky behaviors (like sharing medication), the study does not specify which gender is more prone, so gender-specific awareness in that area remains unclear.

• Conclusion of Bivariate Analysis

There appears to be a positive relationship between being female and greater awareness regarding OTC medication safety.

Female consumers:

- Are more likely to purchase OTC drugs
- Seem more engaged in safe medication practices (consulting pharmacists, reading labels)

This implies gender may be a significant factor in predicting consumer awareness, with females being more aware and proactive in ensuring safe OTC medication use.

V. DISCUSSION

Self-medication with OTC drugs is a practice that represents a public health problem worldwide. The prevalence of self-medication varies by country and target population. The prevalence of self-medication in this present survey was 85.4%. The variations in self-medication rates could be related to the study population and sociodemographic characteristics, the country's policies, socioeconomic factors, research methodology, data collection tools and the operative definition of self-medication. Self-medication with OTC drugs, when adopted effectively, can be beneficial as it may relieve acute pain and reduce treatment cost and physician interaction time. However, it can also endanger human health and result in severe health-related complications when used inappropriately. According to the participants, the most common reasons for self-medication with OTC drugs were time-consuming hospital visitations, easy access to the pharmacy and the non-seriousness of the illness. Several studies have reported different reasons for self-medication with OTC drugs, including the non-seriousness of the illness, saving time, ease of accessibility and cost-effectiveness. This also highlights the importance and centrality of community pharmacies and pharmacists, as we can invariably say that most of the respondents would prefer to get treatment at the community pharmacy, as it would be easier and quicker. In the current study, pain, headache, fever, cough and the common cold were the most frequent conditions for which OTC drugs were purchased for self-medication. In terms of consumer's basic knowledge about OTC drugs and their identification, this study found that just about half of the respondents had good knowledge of OTC drugs and the identification of drugs that are classified as OTC. Even though majority of the respondents had good practices in handling OTC drugs. Moreover, about half of the respondents claimed they do not read drug information leaflets before using an OTC drug. A suggestion will be for community pharmacists to make available photocopies of the drug information leaflets for the OTC drugs dispensed outside of the original packs. Overdosing with the intention of improving treatment outcomes and switching to more powerful OTC drugs for symptom alleviation were identified as major risky practices by our study respondents. This finding emphasizes the need for pharmacist counselling and education of consumers about OTC drugs and their potential dangers if used inappropriately. In this study, most of the respondents reported that they always check expiration dates before taking OTC drugs and discard OTC drugs when they notice a change in color or odor. These findings suggest that community pharmacists are probably not engaging/educating consumers when selling

or giving out these OTC drugs. he part of a community druggist cannot be over emphasized in educating and enlightening consumers about OTC regarding OTC specifics, similar as those relating to medicine – medicine and medicine – complaint relations.

VI. CONCLUSION

The findings of this study easily punctuate the vital part that druggists in Pune play in promoting the safe and effective use of over-the-counter (OTC) specifics. With tone- drug practices getting decreasingly current, community druggists are frequently the first point of contact for individualities seeking immediate and affordable healthcare results. The check revealed that while druggists do offer guidance on side goods, lozenge, and medicine relations, challenges similar as time constraints, lack of consumer interest, and inadequate training frequently hamper comprehensive comforting. Consumer responses suggest a mixed position of mindfulness regarding OTC drug safety. numerous calculate on druggists' advice and demonstrate good practices similar as reading markers and checking expiry dates, yet a notable portion still engages in parlous behaviours like sharing specifics and tone- defining without discussion. This study underscores the need for enhanced training programs for druggists, stricter nonsupervisory fabrics, and wide consumer mindfulness enterprise. By empowering both druggists and consumers with the right knowledge and tools, we can foster a safer, more responsible culture around OTC medicine use. In conclusion, apothecaries serve not just as retail outlets but as critical healthcare touchpoints. Strengthening their educational part can significantly contribute to better public health issues and more informed tone- drug practices.

VII. RECOMMENDATIONS

A. Enhance Public Awareness

Launch mindfulness juggernauts to educate consumers on the broader part of druggists, including comforting, preventative care, and health operation.

B. Ameliorate druggist- Consumer Communication

Train druggists to initiate further visionary consultations, especially regarding medicine relations, side goods, and life recommendations.

C. Introduce Affordable Options

Promote the use of cost-effective general druthers, with clear communication on efficacy and safety to reduce reliance on precious brands.

D. Upgrade Pharmacy Services

Consider enforcing e-prescription systems, home delivery, or online discussion features to meet consumer prospects of digital convenience.

E. Figure Consumer Trust

Encourage harmonious, regardful relations and ensure vacuity of essential drugs, creating a positive drugstore experience that builds fidelity.

CONFLICTS OF INTEREST

The authors declare that they have no conflicts of interest.

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