

IRRATIONAL USE OF EAR DROPS

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Abstract:

Introduction: Self-medication is a growing public health concern, particularly in developing countries where individuals frequently use medications without medical supervision. The widespread availability of over-the-counter ear drops has led to their irrational use, posing potential risks such as drug resistance, misdiagnosis and adverse effects. This study aimed to evaluate the prevalence and factors influencing self-medication with ear drops in India. **Methods:** This cross-sectional study included 300 patients from the general population in the Department of ENT in a tertiary care Centre for 1 month. Data were collected using a structured questionnaire covering demographics, self-medication history, sources of information, types of ear drops used, and adverse effects. **Results:** The prevalence of self-medication with ear drops was 63.7%. The most commonly reported symptoms leading to self-medication were ear blockage (39.8%), itching (28.3%), and pain (19.9%). The sources of medication information included previous prescription (27.2%), pharmacists (26.2%), and family or friends (25.7%). Antibiotics (27.3%) and wax dissolvers (26.3%) were the most commonly used ear drops. Adverse effects were reported by 78.9% of users, including irritation (31.3%), allergic reactions (25%), and hearing impairment (21%). Participants suggested awareness programs (34.3%), stricter regulations (33%), and improved access to ENT specialists (32.7%) as measures to control self-medication. **Conclusion:** Self-medication for ear conditions is driven by convenience and easy access, often leading to inappropriate use influenced by non-medical sources. Reported adverse effects highlight the risks of unsupervised ear drop use, emphasizing the need for awareness and regulation.

Keywords: Self-medication, ear drops, irrational drug use, over-the-counter medication, public health, antibiotic misuse.

INTRODUCTION

Self-medication is described as the habit of people administering drugs to self-medicate for self-diagnosed disorders or symptoms or sustained consumption of a formerly prescribed drug in the absence of a physician. This phenomenon represents a serious public health issue owing to the risks of negative health consequences, such as drug resistance, misdiagnosis, and inappropriate treatment with a potential for threatening patient safety.¹ Self-medication has been broadly acknowledged as a developing trend, especially in developing nations; under these conditions, people tend to turn to self-medication as a result of restricted access to healthcare services, high prices of professional medical services, and inadequate knowledge regarding the risks of self-medication.²

Self-medication habits are particularly common in India. It is estimated that 50-80% of the population practices some type of self-medication, with different rates found in different regions and populations.³ The reasons for this practice are cultural beliefs that support home remedies, a lack of access to healthcare, and greater availability of over-the-counter drugs, such as topical ear drops, which are commonly used without adequate advice from healthcare providers. Particularly, the application of ear drops for conditions like ear infection or pain raises questions regarding the drivers

and motivations behind this behaviour, such as personal experience and societal factors.⁴

The major promoters of self-medication with over-the-counter ear drops in India are their easy availability, which is a major contributor to their irrational use. Most consumers think that they can successfully treat their minor conditions without seeking the advice of a healthcare practitioner, resulting in inappropriate use due to insufficient education on the right use of such drugs.⁵ The regulatory mechanism for the dispensation of drugs is usually not strong, providing easy access to potentially dangerous chemicals without proper checks. This scenario is worsened by misinformation coming from multiple sources, like the internet, family recommendations, and past prescriptions without a good understanding of the medications' side effects or their indications.⁶

The possible hazards associated with self-treatment using ear drops are immense. They comprise adverse effects, drug resistance, and masking of serious underlying conditions needing expert care.⁷ There have been several reported cases detailing the serious medical implications of misusing ear drops, and campaigns to educate the public about them and reduce such hazards are thus essential.⁸

In terms of epidemiological considerations, self-medication with ear drops in India is associated with demographic factors. Younger age groups, especially adolescents and young adults, tend to self-medicate without supervision. Gender, education level, and socioeconomic status are all important factors in determining self-medication behaviour; e.g., lower socioeconomic status tends to be associated with increased rates of self-medication as a result of reduced access to formal healthcare.³ Symptoms that necessitate self-medication behaviour include ear pain, discomfort, and infection, which patients may misidentify as insignificant and therefore treat using ear drops easily available from local pharmacies.⁴

Cultural beliefs have a huge influence on patterns of self-medication in India, dominant beliefs in indigenous remedies and traditional medicine tend to promote self-medication before attending formal health care. Moreover, cultural stigma regarding visits to a healthcare provider for minor ailments motivates people against professional consultations.⁹ Pharmacy control or lack thereof adds to the complexity of the situation, since lax policies allow individuals to buy ear drops over the counter, thus heightening the chances of abuse and contributing to public health issues.³ Moreover, misinformation based on untrustworthy sources tends to amplify the situation, with medical practitioners rarely included in the learning process of drug use, driving individuals to self-diagnosis and treatment.⁶

Prevention and policy interventions include regulating the use and sale of over-the-counter ear drops to reduce the risk of misuse. Priority should be given to public health campaigns that raise awareness of self-medication risks and educate the population about the consequences of inappropriate use of ear drops. Health practitioners can step in and save the day against self-medication trends by actively engaging with the public to enhance health literacy and promote proper

medication use.¹⁰ Current policies require greater focus on controlled dispensation and consumer awareness to check the widespread practice of self-medication, thus strengthening the overall Indian public health. This study aimed to determine the prevalence and irrational use of ear drops in the south Indian general population.

MATERIAL AND METHODS

This cross-sectional study included 300 patients from the general population in Department of ENT in a tertiary care Centre, Chennai, India for 1 month. Written informed consent was obtained from each participant or their next of kin, following the guidelines established by the Local Ethics Committee.

Inclusion and exclusion criteria

Individuals aged 18-80 years, parents of paediatric age groups, both males and females were included and who were < 18 years of age, healthcare and medical professionals, and individuals actively using ear drops prescribed by ENT doctors were excluded.

Methods

Data were collected using a structured questionnaire designed to assess irrational ear drop use. The questionnaire included sections on demographics, self-medication history, reasons for use, sources of information, and types of ear drops. Participants completed the questionnaire either through self-administration or through interviews conducted by trained data collectors. The completed questionnaires were reviewed for completeness and consistency. The data were then entered into a spreadsheet or statistical software for analysis. Any discrepancies or missing responses were addressed through verification with the participants, if possible. All the data are presented in frequencies and percentages.

RESULTS AND OBSERVATIONS:

The average age was 41.28 ± 4.32 years. By sex, 159 (53%) were female and 141 (47%) were male. Regarding education level, 74 (24.7%) had completed secondary school, 62 (20.7%) had primary school education, 59 (19.7%) held a postgraduate degree, 54 (18%) had no formal education, and 51 (17%) had attended college/university. In terms of occupation, 82 (27.3%) were retired, 77 (25.7%) were employed, 75 (25%) were unemployed, and 66 (22%) were students. The distribution of residence showed that 159 (53%) participants lived in urban areas, while 141 (47%) resided in rural areas (Table 1) (Figure 1).

Among the participants, 191 (63.7%) reported using medication without a doctor's prescription, while 109 (36.3%) did not. The most commonly reported symptom was ear blockage 76 (39.8%), followed by itching 54 (28.3%), ear pain 38 (19.9%), and ear discharge 23 (12%). Regarding the source of medication, 52 (27.2%) relied on online, TV, or advertisements; 50 (26.2%) obtained it from a pharmacist or medical shop; 49 (25.7%) relied on family or friends; and 40 (20.9%) used a previous prescription. When asked about their perception of medication safety, 136 (45.3%) believed it was safe, 99 (33%) thought it was unsafe, and 65 (21.7%) were unsure (Table 2).

Table 1: Demographic characteristics

		N (%)
Gender	Female	159 (53%)
	Male	141 (47%)
Education level	Primary school	62 (20.7%)
	Secondary school	74 (24.7%)
	Postgraduate	59 (19.7%)
	No formal education	54 (18%)
	College/University	51 (17%)
Occupation	Retired	82 (27.3%)
	Employed	77 (25.7%)
	Unemployed	75 (25%)
	Student	66 (22%)
Residence	Urban	159 (53%)
	Rural	141 (47%)

Figure 1 :Demographic characteristics

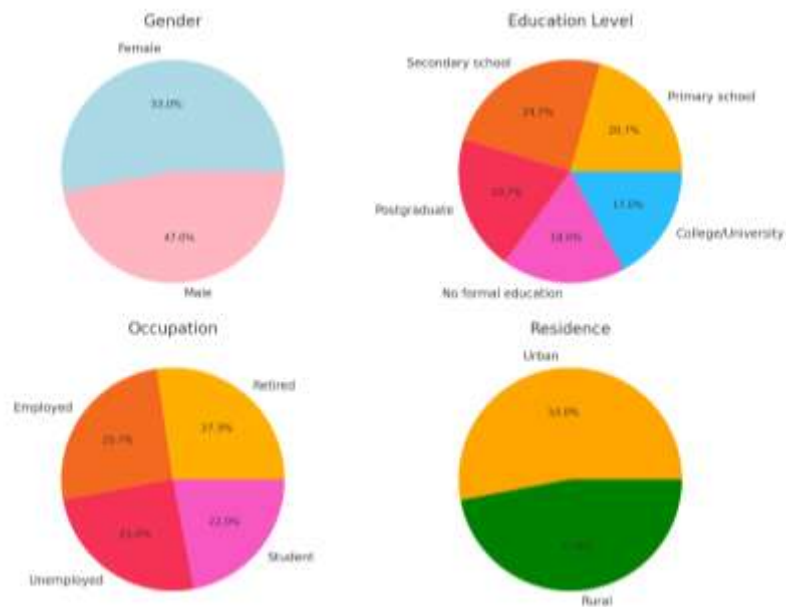
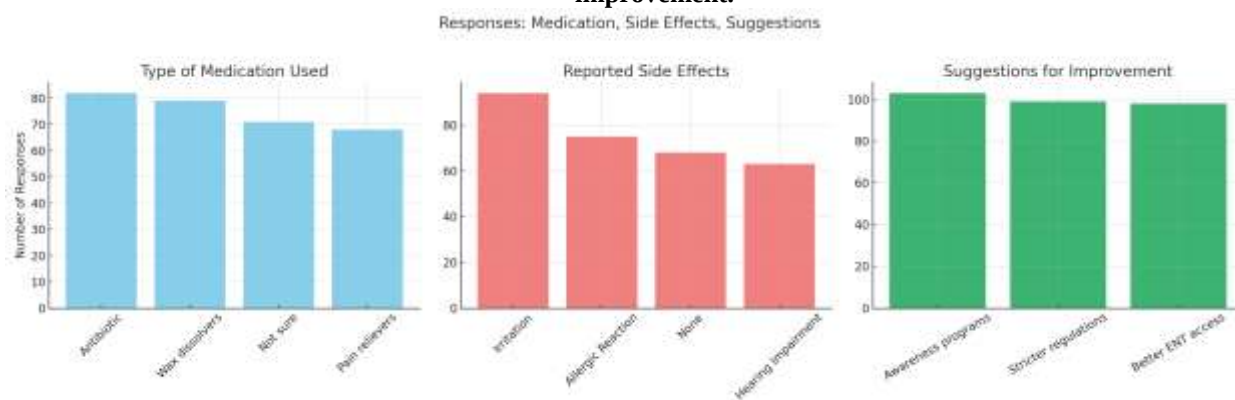


Table 2: Medication use, symptoms, and perception of safety

		N (%)
Used medication without a doctor's prescription	No	109 (36.3%)
	Yes	191 (63.7%)
Symptom	Itching	54 (28.3%)
	Ear pain	38 (19.9%)
	Ear blockage	76 (39.8%)
	Ear discharge	23 (12%)
Source	Online/TV/Advertisement	52 (27.2%)
	Pharmacist/Medical shop	50 (26.2%)
	Family/Friends	49 (25.7%)
	Previous prescription	40 (20.9%)
Perception about safety	Not Sure	65 (21.7%)
	No	99 (33%)
	Yes	136 (45.3%)

Among the participants, 82 (27.3%) reported using antibiotics, 79 (26.3%) used wax dissolvers, 71 (23.7%) were unsure about the medication they used, and 68 (22.7%) took pain relievers. Regarding side effects, 94 (31.3%) experienced irritation, 75 (25%) reported an allergic reaction, 68 (22.7%) had no side effects, and 63 (21%) reported hearing impairment. When asked about suggestions for improvement, 103 (34.3%) recommended awareness programs, 99 (33%) supported stricter regulations on medication sales, and 98 (32.7%) suggested better access to ENT specialists (Table 3) (Figure 2).

Figure2: Bar charts representing the type of medication used, reported side effects, and suggestions for improvement.



DISCUSSION

In our study, the prevalence of self-medication was found to be 63.7%, which is comparable to the findings of Anaba et al., who reported a prevalence of 63.7%.¹¹ However, it is lower than the prevalence reported by Gyawali et al. at 82% and Al Rasheed et al. at 78.7%, while being higher than that reported by Mangal et al. at 59% and Marak et al. at 55%. The variation in prevalence across studies may be attributed to differences in the study populations, with some focusing on medical students, urban slum dwellers, or the general population.¹²⁻¹⁶

We found that the reasons for self-medication, including over-the-counter availability of medications, belief in self-treatment, lack of awareness about risks, and avoidance of healthcare visits due to cost and accessibility, were consistent with those in previous studies. Hasan et al. similarly identified cost, convenience, and the perception of minor illness as key drivers of self-medication,¹⁶ while Anaba et al. emphasised easy accessibility (54%) and difficulty accessing healthcare (16.8%) as contributing factors.¹¹ In our study, the symptoms leading to self-medication were primarily ear-related complaints, with ear blockage (39.8%), itching (28.3%), and pain (19.9%) being the most common. This differs from the findings of Mangal et al., where fever (25%), headache (23.3%), and cough/cold (17.2%) were the leading symptoms.¹⁴ AlQahtani et al., where toothache (56.5%) was the primary concern, and these differences suggest that self-medication practices are often condition-specific and influenced by the predominant health concerns of the study population.¹⁷

Our study found that online sources (27.2%), pharmacists (26.2%), and family and friends (25.7%)

played major roles. Similar findings were observed by Prabhune et al., where 35.5% of respondents relied on the Internet for self-medication decisions,¹⁸ and Yunus et al., who reported that pharmacies were the most common source of information.¹⁹ Gyawali et al. reported previous prescriptions as a source of self-medication information, where 54% of respondents cited prior experience with medications.¹²

Our study found that antibiotics (27.3%), wax dissolvers (26.3%), and pain relievers (22.7%) were the most commonly used drugs in the field. This aligns with Al Rasheed et al., where antibiotic self-medication was highly prevalent (78.7%) with amoxicillin (22.3%) being the most frequently used.¹³ Gyawali et al. also reported painkillers (73.2%), antipyretics (68.8%), and antimicrobials (56.2%) as the most commonly self-medicated drugs.¹² Shanmukananda et al. specifically emphasised analgesic use among medical students, with 90% reporting self-medication with pain relievers.²⁰ The unique aspect of our study is the high prevalence of self-medication with wax dissolvers, which has not been a focus in previous research.

In our study, the adverse effects reported included irritation (31.3%), allergic reactions (25%), and hearing impairment (21%), indicating the potential risks associated with self-medication for ENT conditions. Other studies have similarly highlighted the risks of self-medication, with Hasan et al. (2016) cautioning that inappropriate self-medication could compromise patient outcomes.¹⁶ Nakakande et al. found that Internet-enabled self-medication was associated with various household and healthcare system factors, emphasising the need for regulatory measures,²¹ The identification of hearing impairment in our study suggests a specific risk associated with self-medication for ear-related conditions.

Our study emphasised the need for awareness programs (34.3%), stricter regulations on medication sales (33%), and improved access to ENT specialists (32.7%). Similar recommendations have been made in previous studies, such as Mangal et al., who called for community-specific strategies and stringent legal measures to curb self-medication,¹⁴ and Hasan et al., who stressed the role of pharmacists in educating the public.¹⁶ AlQahtani et al. also emphasised the need for health education to address the risks associated with self-medication.¹⁷ These findings show that while self-medication is a widespread phenomenon, targeted interventions focusing on public awareness, regulatory measures, and accessibility to professional healthcare are necessary to mitigate its risks.

Our study contributes to the existing literature by providing insights into self-medication practices specific to ear-related conditions, a domain that has not been widely explored in prior studies. These findings support the broader trend of self-medication being influenced by factors such as accessibility, perceived severity of illness, and sources of information. However, our study emphasises the need for more focused interventions in the domain of ENT self-medication, given the potential risks associated with the unsupervised use of OTC medications.

CONCLUSION

Our study findings show that individuals commonly resort to self-medication due to factors such as convenience, perceived mildness of symptoms, and easy availability of medications without a prescription. The most frequently reported symptoms leading to self-medication included ear blockage, itching, and pain, with antibiotics and wax dissolvers being the most commonly used medications. Various non-medical sources, including pharmacists, online platforms, and family members, influence medication choices, often leading to inappropriate use. Adverse effects, such as irritation, allergic reactions, and hearing disturbances, have been frequently reported, emphasising the risks associated with unsupervised ear drop use. These findings emphasise the need for greater public awareness, stricter regulations on over-the-counter sales, and improved access to professional medical guidance to reduce the irrational use of ear drops and prevent associated complications.

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