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Original Research Article

Prevalence of self-medication practices in the Maharashtra population: a cross-sectional study

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ABSTRACT

Background: Self-medication is a significant issue in public health, with varying global prevalence. It is one of the major causes of the emergence of antibiotic resistance in India. The study's objective was to identify the pattern, cause, and adverse events of self-medication in Maharashtra's urban and rural areas.
Methods: A cross-sectional survey was conducted using a pre-populated questionnaire; including information on age (18-85 years), non-prescription and prescription medication use. Age, gender, past medical and medication history, social history, and self-medication pattern, frequency, reason, source of information, and adverse events noticed as a result of self-medication are all sociodemographic questions on the questionnaire. A percentage analysis was used to examine the data.
Results: Study states that out of 400 sample, 76% of the individuals self-medicate, with painkillers (49.4%), antacids (23.7%), antibiotics (15.3%), being the most often used drugs for ailments like headache, fever, bodily pain, and acidity. The top most medications taken for self-medication are paracetamol (53.1%), pantoprazole (30.43%), ondansetron (13.62%), and azithromycin (12.46%); 66.07% usage of prescription drugs as self-medication was found. The most frequent causes of self-medication were discovered to be mild illnesses, the easy accessibility of medications, and chemist recommendations, 8% of those surveyed had adverse events, and sources of information were chemists, past prescriptions, family members, and acquaintances.
Conclusions: In Maharashtra, self-medication is a prevalent practice that primarily utilizes over-the-counter (OTC) drugs. As a result, consumers should be made aware of the hazards of antibiotic resistance and other pharmaceuticals.

Keywords: OTC, World health organization, Self-medication, Adverse events

INTRODUCTION

The World Health Organization, also known as WHO, defines self-medication as an individual's ability to manage their own health, prevent disease, encourage health, and cope with illness and disability, either on their own or in conjunction with a healthcare provider. Additionally, it can be utilized for symptoms or chronic illnesses.[1] It also goes by the name OTC medicine.[2] The practice of self-medication is common in many countries. But in underdeveloped countries like India, where drugs are freely available and healthcare services are inadequate, self-medication is increasingly common. Families, friends, neighbors, chemists, previously prescribed medications, and newspaper advertisements are popular sources of self-medication.[3,4]

Some governments promote self-medication for minor illnesses since it can cut down on the cost of care, travel time, and consultation time. Self-medication is highly

prevalent, and there are many possible causes. The need to look after oneself, sympathy for unwell family members, lack of time, financial limitations, misinformation, erroneous views, and drug availability.[5]

Numerous elements, including family, legislation, culture, education, the availability of medicines, and advertising, have an impact on self-medication. As an example, chlorpheniramine maleate, dextromethorphan hydrobromide and diphenhydramine are used as self-medication for colds and coughs; aspirin and paracetamol are used as painkillers; paracetamol, ibuprofen and aceclofenac are used as antipyretics; chlorhexidine and iodine are used as antiseptics; and ciprofloxacin, amoxicillin, and azithromycin are used as antibiotics. These medications are used for self-medication.[6,7]

Self-medication wastes resources, makes infections more resistant, and can lead to serious health issues like uncomfortable side effects and prolonged suffering.[8] Globally, resistance to antimicrobial medications is currently a problem, especially in underdeveloped countries where antibiotics are freely available. As a result, it is essential to utilize these medications with a doctor's professional consultation. It could result in incorrect self-diagnosis, a failure to detect interactions, warnings, and precautions, as well as a failure to identify and report adverse medication reactions. It might result in inappropriate or excessive dosages, prolonged drug use, and food-drug interactions. The challenge of self-medication is growing for healthcare professionals due antimicrobial resistance and related problems.[6,7,9]

METHODS

Study site and setting

This community-based cross-sectional study was carried out in the Pune district and Ahmednagar district of Maharashtra. Adults who resided in urban as well as rural regions of Maharashtra, India, aged 18 and above and under 85 were included in this descriptive, cross-sectional study. The information was gathered for the period of 6 months from May 2023-October 2023. The procedure followed a set protocol, which included explaining the goal of the study and encrypting respondents' responses to protect privacy.

Data collection

The responses were collected using a predesigned and checked questionnaire that was available in both English and Marathi. The questionnaire was adapted from prior research and adjusted as needed according to feedback from the study population. Demographic information is gathered, including information on gender, age, region, education, occupation, relationship status, medical history in the past, previous medication use, social background, and rationale for self-medication. After explaining the study's objectives to the 410 participants, the questionnaire was distributed to them. Confidentiality was upheld while the study's nature and implications were disclosed. Disagree and strongly disagree were pooled into a single group for examination. The process for strongly agreeing and agreeing was the same.

Inclusion criteria

Age range between 18 and 85, as well as males and females with a range of educational backgrounds, were required for inclusion. Self-prescribed analgesics were defined as those used in the past year on one's own initiative without a doctor's prescription in order to meet the acceptance criteria. This includes both prescription and OTC medications.

Exclusion criteria

Prescription medicines, being under the age of 18, or being over the age of 85 were prohibited. On the grounds that the forms were not completely filled out, 10 surveys were rejected. We eliminated those who did not provide consent and those who did not experience a medical episode within a period of six months of the data gathering date.

Data analysis

Data were gathered using a questionnaire that was tailored to the study population and translated into the local language of Marathi for readability. Prior to the commencement of data collecting, a pilot test was conducted, and any necessary adjustments were made. The completed data was then put through a chi-square analysis (χ^2) after being combined into percentages and a cross-tab for several parameters. A p=0.27 was discovered for the degree of significance and indicated that the evaluated potential factor interactions were significant.

Ethical consideration

Each study participant provided informed approval after being made aware of the goals, objectives, and benefits of the study. The decision to quit participating was entirely up to the participants. Participants' confidentiality or anonymity was protected.

Operational definition

Self-medication refers to a person's, families, or community's capacity to maintain health, avoid disease, and deal with illness and disability, either with or without medical assistance.

The WHO, defined self-medication as "the use of pharmaceutical products or drugs by the user to treat identified disorders or symptoms, as well as the consumption of medication suggested by lay materials or health workers who aren't allowed to prescribe medicine."[10]

RESULTS

A population-oriented cross-sectional study was carried out to ascertain the incidence of self-medication consumption and the factors associated with it. The study's conclusions are as follows.

A total of 400 respondents-out of 500 subjects-completed the survey. There were no missing responses.

Distribution of sociodemographic variables (Table 1).

Distribution of usage of self-medication

The findings show that 76% of Maharashtrians take OTC medications, whereas just 24% refrain from using any drug prescribed by a doctor (Figure 1).

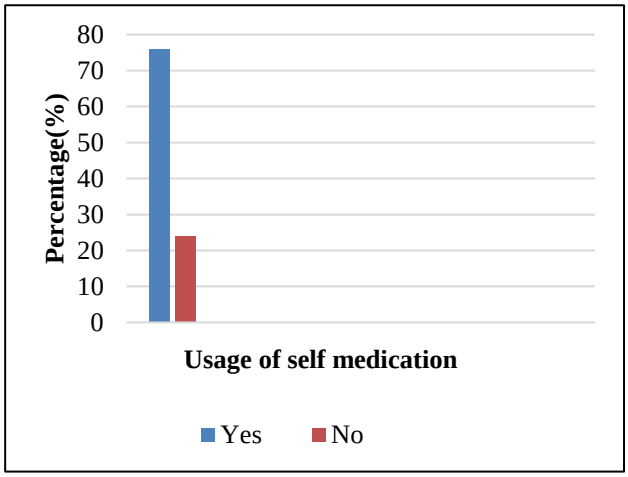

Figure 1: Usage of self-medication in percentage (%).

Three hundred and thirty of the 400 responders who were asked that question did so. Self-medication was used by 83% of people on a monthly basis, 14.8% on a weekly basis, and the remainder daily for OTC drugs.

Out of 354 responses, the table shows that the most frequently used drug classes were painkillers with 175 (49.4%), antacids with 84 (23.7%), and antibiotics with 54 (15.3%). The least frequently used drug classes were anti-viral with the 6 (1.7%), vitamin supplements with 13 (3.7%), and the oral contraceptives with 0 (0%) (Table 2).

Out of 351 responders, 98 (27%) used medication for headache, 79 (22.5%) for pain in the body, 69 (19.7%) for fever, 64 (18.2) for a sore throat and cough, and least for 3 (0.9%) for weakness (Table 3).

The leading causes of self-medication were identified as minor illnesses (227; 65.8%), readily available medications (128; 37.1%), prior experience with self-medication (118; 34.2%), pharmacist guidance (82; 23.8%), and a minimum of a lack of time to visit medical facilities (27%) (Figure 2).

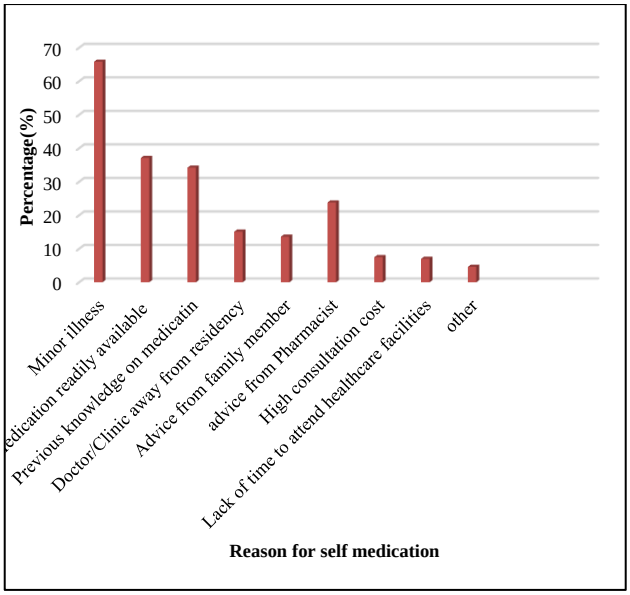

Figure 2: Reasons for self-medication.

The pharmacist (76.3%) and an outdated prescription (15.3%) were participants' primary sources of information for learning how to use self-medication (Table 4).

Paracetamol (53.14%), pantoprazole (30.4%), ondansetron and loperamide (13.62%), cetirizine (13.14%), azithromycin (12.46%), metronidazole (9.56%), chlorpheniramine (8.6%), and lactulose (4.92%) are drugs that are used as self-medications most frequently (Figure 3).

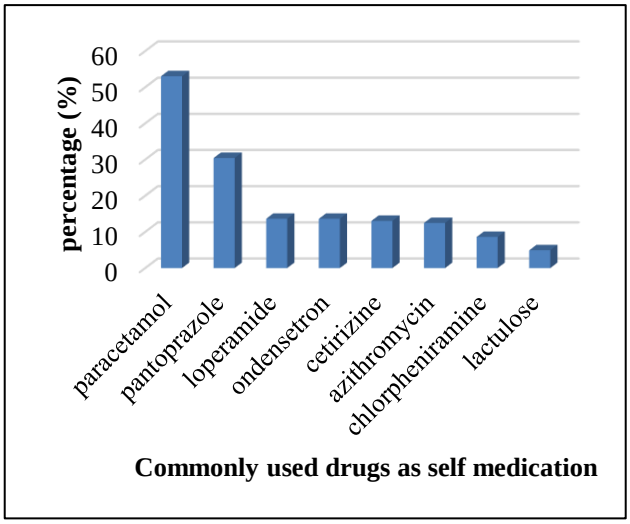

Figure 3: Commonly used drugs as self-medication.

Adverse event distribution resulting from self-medication

There were very few people who experienced the negative effects of self-medication where 76.3% of respondents said they had no adverse events from taking self-medication, 15.6% of people may have encountered any adverse outcomes from self-medication, 8.1% of the

population had OTC medicine adverse events. Severity of adverse events (A.E.) was found to be extreme in 6%, moderate in 18% and mild in 76% of respondents which includes nausea, gastric discomfort, constipation, inflammation and dizziness (Figure 4).

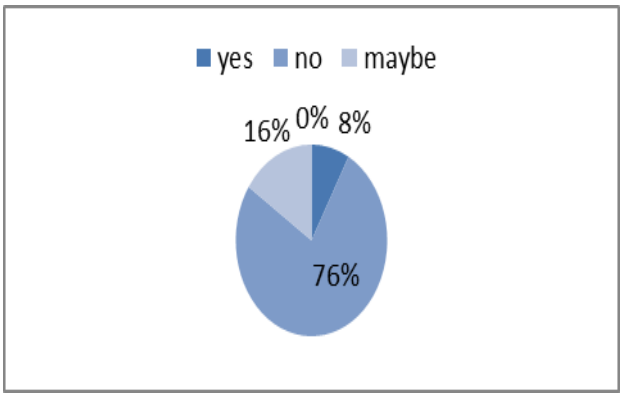

Figure 4: Percentage of adverse events experienced.

Distribution of satisfaction to self-medication

Among 400 participants, 41.25% consent to self-medication, vs 20% who object and 38.5% who are unsure. After using self-medication, 70% report satisfaction, whereas 12% express dissatisfaction (Figure 5).

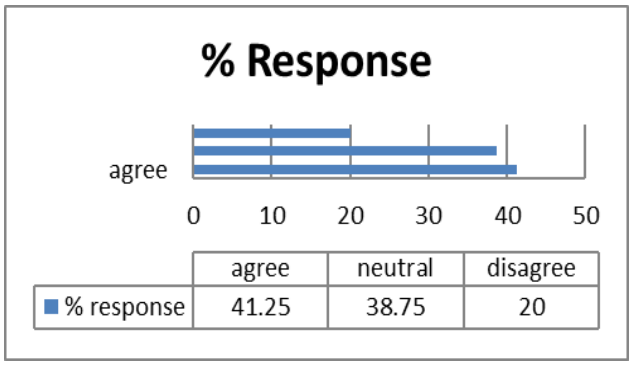

Figure 5: Individuals' opinion on self-medication.

Table 1: Distribution of socio-demographic variables. (n=400).

Variables	N	Percentage (%)
Age (in years)		
18-25	179	44.75
25-35	66	16.5
35-45	79	19.75
45-55	47	11.75
55-65	24	6.00
65-75	4	1.00
75-85	1	0.25
Gender		
Male	182	45.5
Female	218	54.5
Other	00	00
Region		
Urban	169	42.3
Rural	231	57.8
Education		
Secondary	71	17.8
Higher secondary	75	18.8
Graduation	223	55.3
Post-graduation	30	7.3
Other	1	0.8
Occupation		
Student	95	23.75
Farmer	79	19.75
Housewife	55	13.75
Entrepreneur	12	3.00
Engineer	33	8.25
Pharmacist	24	6.00
Doctor	10	2.50
Others	92	23.00
Marital status		
Married	233	58.3
Unmarried	167	41.8

Continued.

Variables	N	Percentage (%)
Past medical history		
Yes	102	25.50
No	298	74.50
Past medication history		
Yes	102	25.50
No	298	74.50
Social history		
Alcoholic	13	3.25
Smoker	17	4.25
Other	3	0.75
Not any	367	91.75

Table 2: Drugs commonly used for self-medication, (n=354).

Category of drugs	N	Percentage (%)
Antacid	84	23.7
Antiemetic	23	06.5
Painkiller	175	49.4
Antibiotic	54	15.3
Antiviral	06	1.7
Antipyretic	39	11
Antihistamines	37	10.5
Vitamin supplements	13	3.7
Oral contraceptives	00	0
Others	38	10.7

Table 3: Indication for self-medication, (n=351).

For what condition	N	Percentage (%)
Headache	98	27
Diarrhea	27	7.7
Nausea	26	7.4
Vomiting	22	6.3
Constipation	13	3.7
Allergy or rash	17	4.8
Fever	69	19.7
Cold/cough	64	18.2
Body pain	79	22.5
Acidity	57	16.2
Weakness	03	0.9
Abdominal cramps	34	9.7
Others	15	4.3

Table 4: Source of information for self-medication, (n=400).

Source of information	N	Percentage (%)
Advertisement	4	1.1
Pharmacist	270	76.3
old prescription	54	15.3
Relatives	35	9.9
Other	30	8.5
Friends	15	4.2
Google	11	3.1

DISCUSSION

The idea of self-medication has become widely accepted because it encourages people to treat minor illnesses with efficient and straightforward treatments. However, mistaken confidence might result in improper self-medication and exposes users to all associated risks.[11] The rising availability of OTC medications, however, can lead some patients to think that there is a medicine for every illness.[12] Prescription drugs are easily obtained, and although while OTC drugs are sold to consumers directly without a doctor's prescription, their negative effects and adverse reactions are identical with those of prescription drugs.[13] There is a significant amount of self-medication in many developing countries. Throughout the world, self-medication is widespread, particularly in urban areas.[14]

According to our survey, self-medication was substantially more common in rural Maharashtra (57.8%) than in urban areas (42.3%). Students from various science streams, housewives, farmers, business owners, jobless individuals, and engineers make up the majority of the study population.[15] This study clearly shows that the majority of students (23.75%) engaged in substantial self-medication. Self-medication was observed to occur 59.4% of the time in Maharashtra. This study unequivocally shown that self-medication was more common among women than men.[16] In terms of the drug class, analgesics account for 175 (49.4%), antacids for 84 (23.7%), antibiotics for 54 (15.3%), and antivirals for six (1.7%), vitamin supplements for thirteen (3.7%).[17] In this study, the drug most frequently used for self-medication proved to be paracetamol (53.14%), followed by pantoprazole (30.43%), loperamide (13.62%), ondensetron (13.62%), cetirizine (13.14%), azithromycin (12.46%), metronidazole (9.56%), chlorpheniramine (8.6%), and lactulose (4.92%). The most often drug used for self-medication was paracetamol, which may have been because it was so widely accessible and affordable. Self-medicating improperly can result in major side effects and antibacterial resistance.[18]

According to the data gathered, 98 people (27%) reported having headache discomfort as their most frequent health issue. The 79 (22.5%) of people reported having physical

discomfort, 69 (19.7%) used medication for fever, 64 (18.2%) for cold and cough, and the least number 3 (0.9%) for lethargy. The names of the drugs that the populace reported taking on their own initiative were reported. The most popular painkillers among the public, according to our research, were paracetamol, aspirin, diclofenac, ibuprofen, and naproxen. The majority of research in this area also revealed that the majority of people self-medicate with these popular OTC painkiller types.[17,19]

In the current study, the pharmacist (76.3%) served as the participants' primary information source for learning how to use self-medication. In this study, the most common reasons for self-medication were minor illnesses (65.8%), medications being easily accessible (37.1%), prior medication knowledge (15.1%), doctors' offices being far from where the participant lived (13.6%), advice from close relatives (23.8%), pharmacist advice (23.8%), lack of time to visit medical facilities (7.5%), and high consultation costs (7%).[20]

Self-medication has benefits and drawbacks. Responsible self-medication is an essential part of self-care and an effective replacement for conventional medical care, even when excessive self-medication may have adverse effects. OTC medications are safe and intended for self-medication; but, if they are used incorrectly owing to ignorance of their side effects and interactions, serious consequences may result.[21] Finally, improving knowledge and fostering cultural change are the greatest ways to decrease pharmaceutical consumption. The study has several limitations of its own. In this study, self-medication was restricted to allopathic drugs alone. Depending on the condition, different drug consumption patterns would exist.[22]

Limitations

The inability to validate the responses provided by the respondents is the most significant constraint. More research is required to understand rural residents' perceptions and habits as well as how socioeconomic status affects self-medication. More importantly, as self-medication is an initiated by oneself action that often varies from context to setting, generalizing the results of our study to other parts of Maharashtra might be limited. Although each participant was urged to complete the questionnaire on their own, it is still possible that they may have influenced one another. The number of participants who had family doctors was not examined in the study, therefore it is impossible to completely rule out their role as a source of prescriptions.

CONCLUSION

One of the most important issues for Maharashtra's medical societies is self-medication. This study can be viewed as a foundational investigation into the factors that lead to OTC use and its associations with various clinical variables and socioeconomic status. In both rural and urban areas of Maharashtra, 76% of people self-medicate. According to the study, around three-fourths of the population self-medicates. The most popular substance used for self-medication was Paracetamol. The most often stated reasons for self-medication by the general public were minor diseases, the accessibility of medication, and past experience with self-medication. The most widely reported types of pharmaceuticals taken by self-medication were painkillers, antihistamines, vitamins, antacids, and antibiotics. To assist patients in determining if self-medication is acceptable, patients must be aware of self-medication practices.

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