



Assessment of self-medication practices and associated factors by clinical pharmacists in rural population of Northeast India

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ABSTRACT:

Background and Objectives: Self-medication is a major concern for health authorities worldwide. The aim of this study was to determine the prevalence of self-medication with allopathic and other medicines and its associated factors in the rural community.

Materials and Methods:

A cross sectional prospective community based unicentric study was designed and conducted for a period of 10 months from July 2022 to May 2023 in a newly established Drug Information & Patient Counseling Centre and its Mobile Pharmaceutical Care Unit at Jollang village of Arunachal Pradesh, India. The statistical package for social sciences (SPSS) V26 was used to perform the statistical analysis. The data was acquired; compiled and categorized. Continuous data were expressed as mean standard deviation, while descriptive analysis was expressed as percentage.

Results:

Of the total 312 participants, 237 were found to have practiced SM in the last three months. Analysis of the data revealed that the prevalence of SM in the region was 67.13%. It was observed to be higher in men (58.23%) than in women (41.77). In addition, people with a college degrees (52.32%) and middle-class incomes (55.27%) were found to practice Self-medication in higher number. The most frequently used drugs for self-medication in the area were analgesics and antipyretics (24.05%), followed by acid suppressants, or PPIs (17.29 %). Major complaints for opting self-medication were headache (18.14%) and fever (16.14%).

Conclusion:

In this study, the prevalence of self-medication was determined to be 67.13 percent. Furthermore, it was noticed that a higher education did not prevent people from developing the habit of self-medication; rather, it played a significant role in it. Hence, to encourage the public to understand the serious consequences of self-medication, the Drug Control Agency



and healthcare policymakers need to invest some resources in this effort by engaging clinical pharmacists.

Introduction

Self-medication (SM), according to the World Health Organization (WHO), is the use of prescription drugs for intermittent or continuous treatment of chronic or recurrent illnesses or symptoms, as well as the use of drugs to treat disorders or symptoms that oneself diagnoses.¹ SM is very common worldwide in both developed and developing countries²⁻³. According to available data, in developing countries, almost 80 percent of all medications can be purchased without a prescription⁴ SM, as an element of self-care, is the use of medications without a prescription from a medical practitioner to treat self-identified illnesses⁵. This may also include using herbs, sharing medications with friends or family members, storing and reusing or refilling prescription medicines without medical assistance⁶. The practice of SM must be based on a reliable and authentic source of drug information. Failure to do so may result in irrational drug use, wasted resources, an increase in antibiotic resistance cases, adverse drug reactions, and prolonged morbidity⁷. Over-the-counter (OTC) drug is more common than prescription drug use globally in the context of SM.⁸ Despite being widely used safe and effective for SM, OTC medications can have even negative effects if used improperly. This is particularly true for vulnerable populations, such as children and the elderly, and occurs when users are unaware of the proper dosage, potential side effects, and interactions in pregnancy and other physiological conditions⁹⁻¹⁰

SM in Indian Scenario

In India, the prevalence of SM practice varies from 8.3% to 92%.^{11,12} Many people do not seek medical attention when they become ill. They either go to a retail pharmacy to buy it or they approach to a neighbor who might have some medication left over from their past illness and procure it from them.¹³ SM is a common practice in India as it offers people a cost-effective alternative for their ailments.¹⁴ In India, OTC medications are not categorized separately, and those that do not fall under the schedule of prescription medications are typically marketed as such.¹⁵ On other hand according to International Pharmaceutical Federation (FIP),

it is a pharmacist's responsibility to ensure that a patient receives the necessary drug information for the safe and effective use of medications¹⁶ Therefore, using over-the-counter medications (OTC) without the guidance of a licensed pharmacist or medical professional may have major consequences.

In India, most studies on SM have focused heavily on its prevalence, Perceptions and contributing factors.¹⁷⁻¹⁹ However, no study has been conducted to educate people about their medications for SM.

So, the main aim of this study was to evaluate SM practice and its influencing factors and to educate the general public about their medications and serious complications of SM through drug-specific patient counseling.

MATERIAL AND METHODS

Study design:

It was a Cross sectional prospective community based unicentric study.

Study duration and Site: The study was conducted for a period of 10 months from July 2022 to May 2023 in a newly established Drug Information & Patient Counseling Centre and its Mobile Pharmaceutical Care Unit in Jollang village of Arunachal Pradesh, India

Sample size calculation:

A total of 312 subjects were interviewed during the study period, of which 237 were found to be eligible for the study and enrolled for final assessment.

Ethical approval:

Ethical clearance was obtained before the initiation of the study. All study objectives, as well as data protection and analysis methods, were explained. All study protocols were approved by the institutional ethics committee of Sanjeevani Cancer Hospital, Chhattisgarh, India.

Study procedure and data collection process:

After extensive literature research, a self-structured questionnaire was developed in English. The content of the questionnaire was checked by the team of experts. It was



translated into Hindi (local language) by the investigator and the tool was reviewed by a Hindi language expert. Before data collection, the research objective was explained and informed consent was obtained. The study questionnaire was divided into three Parts. Section one contained subjects Socio-demographic details. Section two contained questions about self-medication behavior such as reasons for self-medication, diseases or symptoms for which SM was done, drug used for self-medication, source of information about the drug used, knowledge about the drug and Section three included participants' feedback on clinical pharmacists' advice on medications and awareness of the serious consequences of SM practices. The questionnaire was verbally administered to individuals with impaired vision or illiteracy who were unable to read it by themselves.

Data entry, analysis and interpretation: The statistical package for social sciences (SPSS) V26 was used to perform the statistical analysis. The data was acquired; compiled and categorized. Continuous data were expressed as mean standard deviation, while descriptive analysis was expressed as percentage. The results were presented in bar charts and frequency distributions.

SELECTION CRITERIA

Inclusion criteria:

- Age more than or equal to 18 years
- Residents of the study area
- Mentally healthy
- He or She is able to communicate in at least one of the following ways: speaking or writing
- Use of any drug category without a prescription of a medical practitioner at the time of study or use within the last three months.

Exclusion criteria:

- Below 18 Years of age
- Subjects having confirmation or diagnosis of having psychiatric problems or disorders.
- Subjects having confirmation of alcohol or any drug intoxication.
- Subjects not willing to provide necessary details

RESULTS

Demographic details of study Participants

Of the total 312 participants, 237 were found to have practiced SM, and their average age ranged from 18 to over 60, with a standard deviation of 11.35 and a mean of 31.60. Most respondents had a college degree (52.32%), a High school education (21.94%), and less than a high school education (25.32%). SM was observed to be higher in men (138; 58.23%) than in women (99; 41.77%). A review of the participants' monthly income revealed that self-medication was high (131; 55.27%) among those in the 5000–25000 income range. (Table 1)

General complaints for which SM was done

The SM practice for common health related complains was as follows: Headache (43; 18.14%), Fever (39; 16.14%), Heart Burn (28; 11.81%), Allergy & Skin Infection (26; 10.97%), Cough & Cold (26; 10.97%), Contraceptives (24; 10.12%), General weakness (17; 7.17%), Sexual Problem (14; 5.9%), Menstrual Cramps (8; 3.37%), Weight Gain (5; 2.1%), Blood Pressure (3; 1.26%), Knee Pain (2; 0.84%), Diabetes (2; 0.84%). (Fig. 1)

Pharmacological Categorization of drug used for SM

The drugs used for SM were classified according to their pharmacological profiles as follows: Analgesic & antipyretics (57; 24.05%), Acid Suppressants/PPIs (41; 17.29%), Herbal Supplements (29; 16.45%), antibiotics (33; 13.92%), Expectorants/Antitussive (26; 10.97%), Steroids (17; 17.17%), Oral Contraceptives (13; 5.48%), antihistamines (2; 0.84%), vitamin and calcium supplements (9; 3.79%). (Fig 2)

Reasons for seeking self-medication

The rural population cited the following reasons for practising SM: financial constraints (123; 51.89%), Lack of availability of Health Practitioner (56; 23.62%), to save time (47; 19.83%), Issue not serious (12; 5.06%). (Table 2)

Assessment of drug knowledge of respondents

Upon evaluation, it was found that only 22.36 % of respondents knew the correct dosage. 91.40 % knew the administration route, less than ten percent (7.17 %) knew about side effects, a very small percentage (1.27 %) knew



about possible drug interactions, and a mere 12.24 % were aware about the drug's indication or contraindication. Furthermore, 18% of the respondents also reported taking prescription drugs in addition to SM. (Table 3)

Source of Drug Information for SM

Following are found to be the source of drug information for SM: Unauthorized Health Practitioners (132; 55.7%), Pharmacist (42; 17.72%), Nurses (11; 4.64%), Medical Practitioner (9; 3.80%), others (43; 18.14%) which includes friends, family members and old prescriptions. (Table 3)

Feedback from respondents after counseling on SM

Feedback question one asked, "Did you fully comprehend the drug's information that was provided? After analysis, it was discovered that the majority of respondents (200, 84.39%) fully understood the information provided by the CP, despite the fact that half of the respondents (30; 12.66 %) tended to somewhat agree that they had understood the information provided. Six people were indifferent about whether or not the information was clearly understood, while one person disagreed.

The assessment of the second question asked, "Whether respondents would be interested in using this type of service again?" It was found that (205; 86.50%) of the respondents strongly supported future use of the service, while (20; 8.44%) tended to agree with future provision of the service and twelve remained neutral in their opinion

Analysis of the third question, "Do you find the level of service satisfactory?" showed that 191 respondents (80.59 %) strongly agreed that the service was effective, while 29 respondents (12.24%), thought it was somewhat good, 15 respondents (6.33%) remained neutral, and 2 respondents (0.84%) disagreed that the service was good.

Upon assessing the fourth feedback question, "Is it necessary to seek advice from a healthcare professional before self-medication?" it was discovered that 180 respondents (75.95%) strongly agreed to consult a Health care professional, 50 respondents (21.10%) were somewhat agreed to consult, six (2.53%) remained neutral and one was somewhat disagreed to consult a health care professional. (Table 4)

Table 1: Association between demographic variables and SM practices.

VARIABLES	n	%
GENDER		
Male	138	58.23
Female	99	41.77
QUALIFICATION		
Below high school	60	25.32
High school	52	21.94
Graduate	124	52.32
AGE		
18-40	196	82.70
41-60	40	16.88
Above 60	6	2.53
Mean±SD	31.60±11.35	
MONTHLY INCOME		
NO INCOME	84	35.44
<5,000	0	0.00
5,001-25,000	131	55.27
25,001-45,000	19	8.02
Above 45,000	3	1.27
Mean±SD	18615.58±10071.83	



COMPLAINTS

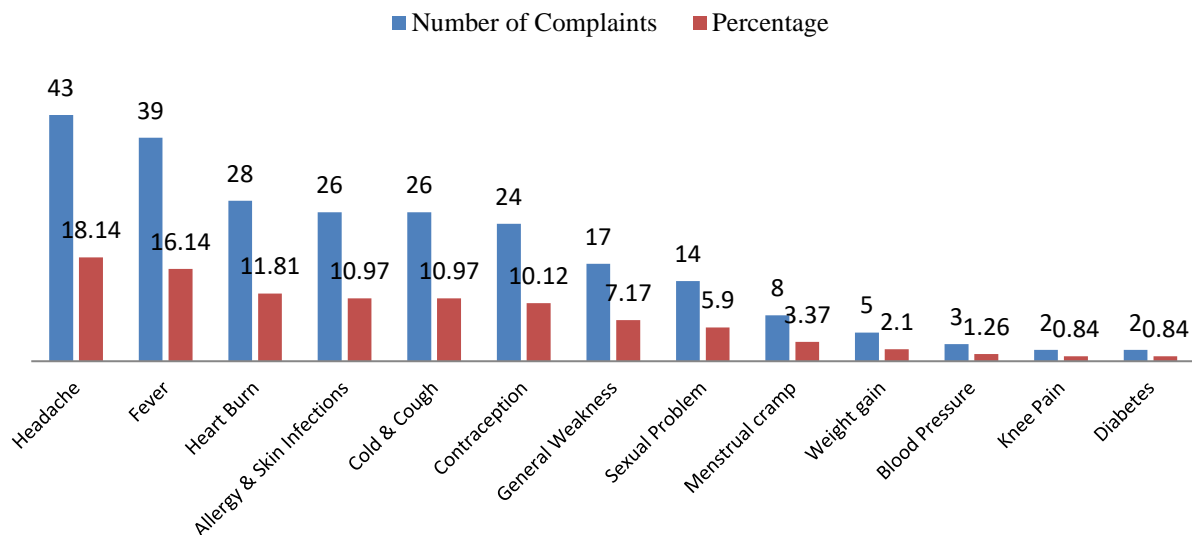


Fig.1 Graph representing various complains for which SM was done

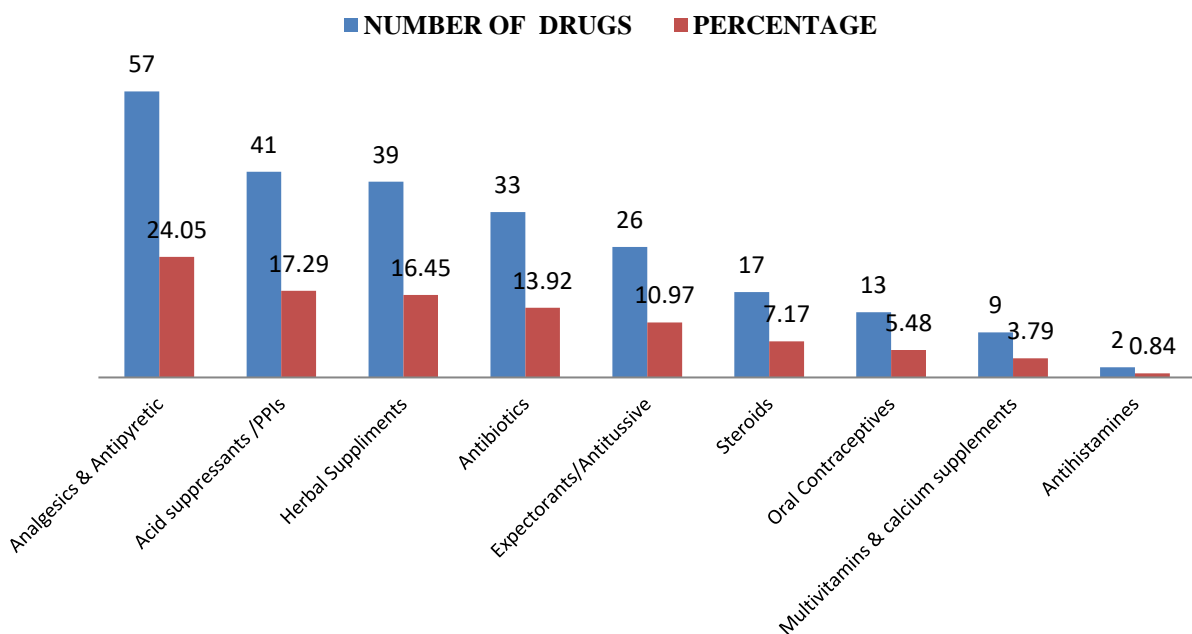


Fig.2 Graph representing various Pharmacological categories of drugs used for SM.

**Table 2:** Reasons for self-medication

SI No.	REASONS FOR SELF MEDICATION	n	Percentage
	Financial Issue	123	51.89
	Lack of availability of Health Practitioner	56	23.62
	To save time	47	19.83
	Problem is not Serious	12	5.06

Table 3: Assessment of respondent's SM practice pattern and drug knowledge.

SM PRACTICE PATTERN AND DRUG KNOWLEDGE	n	%
Whether She/he is taking/Usually takes any Drug/Product for their ailments without Prescription of a Medical Practitioner.		
YES	237	67.13
NO	75	21.03
Total Sample	312	
If Yes then, to whom She/he seeks advice before taking such medication Like:-		
Others (Internet, Friends & Family, Advertisement)	132	55.7
Unauthorized Health Practitioners	43	18.14
Pharmacist	42	17.72
Nurse	11	4.64
Medical Practitioner	9	3.80
Whether She/he properly knows about the drugs for SM under the aspects mentioned?		
Proper Dose		
YES	53	22.36
NO	184	77.64
Route of Administration		
YES	216	91.14
NO	21	8.86
Side effects		
YES	17	7.17
NO	220	92.83



Any possible Drug –Drug or Food Drug Interaction?		
YES	3	1.27
NO	234	98.73
Indications/Contraindications		
YES	29	12.24
NO	208	87.76
Any other drugs currently prescribed to patient by a Medical Practitioner?		
YES	43	18.14
NO	194	81.86

Table 4: Feedback from respondents after the counseling

RESPONDENTS' FEEDBACK AFTER COUNSELING	n	%
Did you fully comprehend the drug's information that was provided?		
Strongly Disagree	0	0.00
Somewhat Disagree	1	0.42
Neutral/No Comment	6	2.53
Somewhat Agree	30	12.66
Strongly Agree	200	84.39
Are you interested in using this type of service again?		
Strongly Disagree	0	0.00
Somewhat Disagree	0	0.00
Neutral/No Comment	12	5.06
Somewhat Agree	20	8.44
Strongly Agree	205	86.50
Do you find the level of service satisfactory?		
Strongly Disagree	0	0.00
Somewhat Disagree	2	0.84
Neutral/No Comment	15	6.33
Somewhat Agree	29	12.24
Strongly Agree	191	80.59



Is it necessary to seek advice from a healthcare professional before self-medication?		
Strongly Disagree	0	0.00
Somewhat Disagree	1	0.42
Neutral/No Comment	6	2.53
Somewhat Agree	50	21.10
Strongly Agree	180	75.95

DISCUSSION

Gaining understanding of SM practice and related factors in the rural population was the primary goal of this study. The aspects that have been the subject of a thorough discussion are listed below.

Prevalence and socio-demographic aspects of self-medication

Analysis of the data obtained revealed that the prevalence of SM in the area was found to be 67.13%. This is lower than various studies conducted in rural populations in other parts of India²⁰⁻²³. The present study shows that SM is high in men than in women. This result was not consistent with the results of other studies where the number of women was high.²⁴⁻²⁵ It was discovered that more people with higher education but middle-class incomes practiced SM, which is consistent with a study carried out in India by B. Malik et al.²⁶. The reason could be: Due to the poor economic situation, people may not be able to afford the branded drugs and the cost of laboratory tests prescribed by medical practitioners.

SM and related complaints

The major complaints for which SM was performed were headache (18.14%) and fever (16.14%). Similar results were found in other studies conducted in India.²⁷⁻²⁹ Additionally, In our study people did SM for other complaints also which are as follows: Heart Burn (28; 11.81%), Allergy & Skin Infection (26; 10.97%), Cough & Cold (26; 10.97%), Contraceptives (24; 10.12%), General weakness (17; 7.17%), Sexual Problem (14; 5.9%), Menstrual Cramps (8; 3.37%), Weight Gain (5; 2.1%), Blood Pressure (3; 1.26%), Knee Pain (2; 0.84%), and Diabetes (2; 0.84%). This is more or less similar in other studies conducted in India and Nigeria³⁰⁻³¹

Pharmacological categorization of drug used for SM

While pharmacologically categorizing the drugs used in SM, it is observed that analgesics and antipyretics were commonly used in SM, which is similar to the other studies conducted in India.³²⁻³³ As in India, it is one of the over-the-counter (OTC) medications that are considered safe and useful for treating minor ailments. Although useful, using it in inappropriate doses also poses some risks. Since antibiotics are widely accessible without a prescription, numerous studies conducted in developing nations have revealed a high rate of antibiotic use³⁴⁻³⁶. This is also the case in our study. Although schedule H1 in India restricts the sale of antibiotics without a doctor's prescription, but they are easily available locally without a prescription³⁷⁻³⁸. The other commonly used drug categories was acid inhibitors/PPIs, which is similar to the results of other national and international studies³⁹⁻⁴². The reason could be its categorization as OTC and its easy availability in the community. However, using PPIs without medical supervision poses many risks. Long-term use of PPIs causes many problems, including decreased absorption of iron, vitamin B12 and calcium, respiratory infections and can even lead to gastric cancer⁴³⁻⁴⁴. Next to PPIs respondents were using herbal supplements for their basic ailments which is similar to the studies conducted in other countries.⁴⁵⁻⁴⁶. The reason could be their belief in traditional medicines as herbal medicines are believed to have no side effects. Expectorants/Antitussive, antihistaminic, oral contraceptives were also used for SM by respondents in this study. This is similar to other study as well⁴⁷⁻⁴⁸

Source of Drug Information for SM

In our study the major source of drug information for SM was found to be other which includes internet,



advertisement, friend and family. Which is in contrast with a study conducted in Jordan where pharmacist was found to be the major source⁴⁹. The reason could be the widespread use of internet sources and social media by the general public these days. Next to the other source unauthorized health practitioners (UHP) were also involved in higher number 43(18.14%). As in rural areas availability of qualified health practitioners is a big challenge in India.⁵⁰⁻⁵¹. So, people are frequently visiting UHP for their common ailments.

Assessment of drug knowledge of respondents

On evaluation of drug knowledge of the respondents, it was found that only 22.36% of the respondents knew the correct dosage. 91.40 % knew the administration route, less than ten percent (7.17 %) knew about side effects, a very small percentage (1.27 %) knew about possible drug interactions, and a mere 12.24 % were aware about the drug's indication or contraindication. Furthermore, 18% of the respondents also reported taking prescription drugs in addition to SM.

A study conducted in Saudi Arabia and Iran assessed participants' overall knowledge of common medications, including prescription, over-the-counter, and herbal medications and their probable ADRs⁵²⁻⁵³. However, our study evaluated individual drug under self-medication and provided appropriate counseling about the drug and consequences of SM to prevent the general public from drug related harms.

Factors related to self-medication

Studies have shown that self-medication occurs for a variety of reasons. In our study the reasons were as follows: financial crisis and lack of availability of health practitioner, Problem is not serious, and to save time. These results are almost similar with the studies conducted in India, Lithuania and Sudan.⁵⁴⁻⁵⁶. These explanations, however, depend on the surroundings and study populations in the areas where the research was conducted.

Feedback from respondents

When analyzing the respondents' feedback after the counseling, it was found that the majority of respondents understood the information provided about the drug, they were using for SM. 80% of respondents were strongly agreed to use the service in the future. Most of the respondents (80.59 %) strongly agreed that the service

delivered was effective and more than 75% agreed to see a Pharmacist or Doctor before SM. This type of study has not been done in India where people have been educated about the drug they are using for SM.

Limitations and Strength

The fact that the conclusions of the present study depend on respondents' memories of their medication use in the last three months may have been a limitation and thus, recall bias cannot be completely ruled out. It may be difficult to extrapolate the study's findings to other communities because it was done on a population living in a village, where exposure to frequent health campaigns is likely to cause the study population to behave differently than other communities.

In this study, each drug was evaluated and participants were offered appropriate drug-related counseling, which is different from other studies in which observations were made without any counseling. This can be seen as strength of the study.

Recommendations

SM may be impacted by engaging CP in educational interventions designed to change people's beliefs about how affordable and accessible healthcare facilities are. As health education is a good way to inform people about the negative effects of analgesic use, particularly with regard to the serious effect on liver and kidneys. By means of the media, people should be alerted to the risks associated with antibiotic resistance and major drug reactions.

However, since pharmacists are the primary drug suppliers, it is important to educate them about the medical and legal ramifications of dispensing drugs without a prescription. Strict sales control is essential, and drug control enforcement needs to be stepped up.

Conclusions

In the current study, the prevalence of self-medication was determined to be 67.13 percent. Male gender has been found to be linked to a higher probability of taking medications without a doctor's prescription. Furthermore, it was found that a higher education did not prevent people from developing the habit of self-medication; rather, it played a significant role in it. Hence, to encourage the public to understand the serious consequences of SM, the Drug



Control Agency and healthcare policymakers need to invest some resources in this effort by engaging clinical pharmacists. This will help change the general public's attitude towards SM practices and may protect the general public from drug-related harm.

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Conflicts of interest

There are no conflicts of interest

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