



A CROSS-SECTIONAL STUDY TO KNOW THE PREVALENCE, PATTERN AND ASSOCIATED FACTORS WITH SELF-MEDICATION PRACTICES AMONG ADULT POPULATION OF DISTRICT AMBALA (HARYANA)

Dr. Kapil Kumar¹, Dr. Deepmala Kmaboj^{2*}, Dr. Vijay Chawla³

¹MD Community Medicine, Additional Senior Medical Officer, Mukand Lal District Civil Hospital, Yamunanagar, Haryana, India

^{2*} Associate Professor, Department of Mathematics, Mukand Lal National College, Yamunanagar, Haryana, India

³Assistant Professor, Department of Mathematics, Maharaja Agrasen College, Jagadhri, District Yamunanagar, Haryana, India

***Corresponding Author:** Dr. Deepmala Kamboj
E-mail address: dmala.math@mlncollegeynr.ac.in

ABSTRACT

Background: “Self-medication (SM) is the practice of using medications without a legal prescription to treat self-diagnosed symptoms or medical conditions, on the principles of self-belief of the patient.” People tend to practice SM, as it cuts down the healthcare cost such as the consultation fees of the physician, moreover, they are time-saving. Although, SM is encouraged as a first-aid in certain emergency conditions.

Aim: The study aimed to know the prevalence, pattern & associated factors to self-medication practices in the adult population of district Ambala, Haryana.

Material and Methods: A community-based cross-sectional study was carried out in District Ambala (Haryana). A pretested semi-structured self-made questionnaire was used to collect data from 429 adult participants. Information regarding self-medication use in the past 1 year and associated sociodemographic factors, purpose, source of drug procurement, and attitude towards self-medication use was collected. Data was entered into Excel and analyzed using SPSS IBM.

Results: Out of 429 subjects, 249 (58%) practiced self-medication practices. Majority were females (51%), Hindu were (81%), unmarried persons were (57%), and employed/job were (45%) who found practicing self-medication, 54% belongs to rural area. The majority took self-medication for fever (64%) & aches & pain (42%). Among the respondents, 57% used local pharmacy prescriptions to get medicine.

Conclusion: There is a need to augment awareness and implement legislation to promote judicious and safe practices. After Improving knowledge and understanding of self-medication may result in rational use and thus limit emerging microbial resistance issues.

Key-words: Self-medication practices, Prevalence, Pattern, Antibiotic use

Introduction:

Self-Medication (SM) is a practice of using of medications without a legal prescription to treat the self-diagnosed symptoms or medical conditions, on the principles of self-belief of the patient. [1]

Self-medication is an age-old practice. Some of the reasons for growth in self-medication are the urge of self-care, feeling of sympathy toward family members in sickness, lack of health services, poverty, ignorance, misbeliefs, extensive advertisement of drugs and availability of drugs in establishments other than pharmacies. A patient with fever, cold, cough, diarrhea, indigestion or wound infection, might receive expert advice from friends or even total strangers in India about medicines, specially about usage of antibiotics.[2] Self-medication is the most common practice followed throughout the world, especially in developing countries like India.[3] The prevalence of SM practice in India ranges between 8.3% to 92%.[4],[5] A report in 2015 stated that 52% of Indian population is taking self-medication. [6],[7] People tend to practice SM, as it cuts down the hospital and treatment cost such as the consultation fees of the doctor, moreover they are time saving. Although, SM is encouraged as a first-aid in certain emergency conditions. [8] It predisposes the persons to develop various serious adverse effects and masks the symptoms of chronic diseases, leaving them undiagnosed and eventually untreated. [9] In the present scenario of the ongoing COVID-19 pandemic, there is a likely chance that these numbers might have gone up, considering that visiting a hospital during lockdown could have been a challenge, associated with the fact that many private clinics were shut or functioning at a lower capacity. Some medications like homemade ayurvedic kadha have been advertised as beneficial without any proper scientific basis, and people might have also fallen for them. Use of excessive dosage, prolonged duration of use, drug interactions, adverse reactions and antibiotic resistance are some of the known problems associated with misuse of medicines.[10] Indiscriminate practice of self-medication often leads to dangerous unwarranted adverse effects like allergic reactions, poisoning due to overdosage, and life-threatening drug interactions. It may also result in a delay in health care seeking. All these factors increase the burden of morbidity and cost of health care seeking ultimately. Such indiscriminate use of medicines also results in drug resistance and dependence, frequently to the drugs that primary care physicians have to solely depend on, as they often have to work with limited resources.[11] The most widely self-medicated substances are over-the-counter drugs used to treat common health issues at home, as well as dietary supplements. Which do not require medical prescription and also easily available. Irrational use of antimicrobials without medical guidance may result in a greater probability of inappropriate, incorrect, or undue therapy, missed diagnosis, delays inappropriate treatment, pathogen resistance, and increased morbidity.[12] The World Health Organization (WHO) alerts that in lower and middle east countries LMIC), about 80% of antibiotics are used in the community, of which about 50% are used inappropriately. It has also been reported that more than two-thirds of antibiotics available in the pharmaceutical sector in low- and middle-income countries (LMIC)s are used for self-medication [13]. LMIC settings are facing huge challenges such as poor health systems, poor supervision and control of antibiotics, poor prescribing and dispensing practices by healthcare workers, and non-compliance with guidelines for antibiotics dispensing [14]. World Health Organization (WHO) promotes the practice of self-medication without medical consultations for effective and quick relief of symptoms to reduce the burden on health-care service centres, which are often understaffed and inaccessible in rural and remote areas [15]. With this background of the high prevalence of this important issue, this study assesses the pattern of self-medication and its practice among adults in an adult community of Haryana. Very few studies have focused on overall self-medication in North India region.

The present study aims to look at the prevalence, pattern and associated factors related with self-medication practices among adult population in District Ambala (Haryana).

Material and methodology:

It was a descriptive cross-sectional study design for fulfilling the study design and requirements, convenience sampling method was used. Pretested semi-structured questionnaire was used to collect data. Information regarding self-medication uses from the past 1 year and associated sociodemographic factors, purpose, source of drug procurement, attitude toward self-medication use was collected.

Study Population

This study sample consist of adult population of District Ambala (Haryana) from the age of 18 years and above. The study had a sample of 400. However, 429 completed the study questionnaire. study data was collected from January 2023 to September 2023.

Type of sampling: Convenience sampling method was used to study the desire population. The study facilities were community pharmacies and by directly approaching to patient and care taker/attendant. Sample was taken from rural area and urban area of district Ambala.

Inclusion criteria-All adult population resident of District Ambala Haryana (both rural and urban area) were eligible to participate in the study. both male and female of 18 years and above were included in the study.

Exclusion criteria- 1. Participants who were seriously ill/ bed ridden patients on treatment.

2. Participants who didn't gave consent to participate in the study.

Study design and sample size-

As per the prevalence of Self-medication in India is 52% [6], so that the sample size was calculated as by using the formula as follows $N=4PQ/L^2$. The sample size was calculated by taking prevalence of 50% with absolute precision of 5%, so the sample size comes to be 400. By adding 5% non-response rate, sample size of 420 was calculated. However, 429 participants completed the questionnaire.

Mode of data collection- Personal face to face interviews were conducted with the study participants. Persons were explained about the purpose of study. On an average the interview took 20 minutes for each participant. The data was entered into excel sheet and was analysed using SPSS version 28.0. (IBM Chicago). Generation of descriptive statistics was done. Qualitative variables were expressed as proportions and percentages.

Quantitative variables were expressed as mean and standard deviation. Finally, Chi-square test was used to establish association (if any) among qualitative variables. $P < 0.05$ was considered significant at 95% confidence interval.

Ethical consideration: A prior approval from the Institutional Ethics Committee was taken. The study did not impose any financial burden on the study participant.

Results: Out of 429 subjects, 249 (58%) practiced self-medication practices. Demographic characteristics such as age, gender, residence, religion, educational qualification, occupation, marital status, type of family, and average monthly income is represented in Table 1.

In the study, it was found that majority of the respondents who practiced self- medication belonged to age group 18-30 years [61% (262/429)]. Among the respondents practicing self-medication, 51% (219/429) of the participants were females and 49% (210/429) were males. Majority of respondents [54% (232/429)] belonged to rural area. Among the self- medicating respondents, majority were Hindu by religion [86% (369/429)]. This association was found to be statistically significant ($p \leq 0.001$). Level of education was significantly associated with self-medication tendency ($p \leq 0.001$), with the graduated [41% (176/429)] and post- graduated [37.2% (160/429)], tending to self-medicate more than those with higher education and vice versa. Considering occupation, self-medication was mainly practiced by subjects employed in a job [41% (176/429)] followed by students [27.2% (117/429)] and unemployed/students [20% (49/249)]. Self-medication practice was minimum (1.5%) seen among retired/pensioners and businessman/daily wager/ shopkeepers (8%). Majority of the respondents practicing self- medication were single [56.8% (244/429)], 53.1% (228/429) belonged to nuclear family.

The pattern of self-medication is given in Table 2. Majority of the respondents took self-medication for fever (64.1%), followed by pain (42.2%), cough (36.8%), running nose (36.5%), sore throat (21.9%), skin wound (13.5%) and diarrhea (11.8%). Nasal congestion (10.9%) and vomiting (10%) were the least common complaints for which self-medication was used. The source of medicines for self-medication was local pharmacy (56.6%), remaining medicines from previous prescriptions (15.1%), and both (24.7%). 74.3% percent who took self-medication always checked the package before taking medicine. The frequency of self-medication without visiting first to hospital/clinics in

past 1 year ranges from one to a maximum of five times in the past 1 year. Majority (51.5%) of the respondents self-administered medicines twice in the past 1 year. The most preferred alternate method for treatment at home was found to be ayurvedic system of medicine (66.9%) followed by allopathic system of medicine (31.7%) and homeopathy system of medicine (21.6%). Pain killers/NSAIDs (66.9%) was the major medicine used for self-medication followed by multivitamins (29.8%), antibiotics (28.4%) and antivirals (11.4%). Sixty-four percent of the respondents switched medicines during self-treatment. According to 44%, antibiotic self-medication was an acceptable practice.

Figure 1 depicts reasons for self-medication among respondents. Major reason reported for self-medication was minor illness (56%) and inconvenience (24%).

Discussion

The prevalence of self-medication in the study is 58%. In the current study, females (51%) reported more self-medication than males (49%) which is in contrast to the trend observed in the studies conducted in rural Uttar Pradesh. [8,17] In a study conducted in Puducherry, females reported more self-medication than males similar to the current study. In the current study, university graduates and post graduates (79%) showed a maximum tendency for self-medication. Self-medication was mainly practiced by subjects employed in a job (45%). Majority of the respondents (51%) have done self-medication twice in the past 3 months. In this study, participants reported self-medication for a variety of conditions such as Fever, Pain and aches, Cough, running nose, Sore throat, Skin wound, Diarrhea, Nasal congestion and Vomiting, and these findings were consistent with other studies. [8,15,17] According to this study, majority took self-medication for fever (64%). The results of this study indicate that Local pharmacy and Remaining medicine from previous prescriptions and online pharmacy/others were the sources from where respondents got information about the choice of antibiotic. Fifty-seven percent selected self-medication based on local pharmacy prescription. These results were similar to the studies conducted in Puducherry, rural Maharashtra, and rural Uttar Pradesh. Participants cited multiple reasons for self-medication such as convenience, minor illness, lack of time, and financial constraints, similar to other studies. [8,15,17,19] According to this study, the reason for self-medication by antibiotics reported by the majority (56%) was minor illness.

Pain killers/Nsaids, multi-minerals & multivitamins and antibiotics are most common allopathic drugs used for self-medication in this study. Similar results were observed a study [18] done in Pune found that NSAIDs (33.33), antibiotics (10.32), vitamins (14.08), were the most commonly used as self-medication practices.

Conclusion and suggestions

Some suggestions to decrease self-medication practices and antibiotics intake include Increase awareness via Educate the public about the risks of self-medication and antibiotic resistance through campaigns and public health programs. Access to healthcare Improves access to healthcare services, especially in rural areas, to reduce reliance on self-medication.

Alternative treatment modalities promote alternative treatments, such as herbal remedies or lifestyle changes, for minor ailments. Capacity building of pharmacists to counsel patients on proper medication use and discourage self-medication. Patient education about proper medication use, potential side effects, and the importance of completing prescribed treatment courses should follow. Healthcare provider training on responsible antibiotic prescribing practices. Policy reforms to regulate over-the-counter antibiotic sales and promote evidence-based treatment practices.

Decreasing self-medication practices and antibiotics intake requires a multifaceted approach that involves education, policy changes, and healthcare system reforms.

Self-medication is an alarming concept. This review focused on the self-medication of allopathic drugs, their use, its safety and reason for using it. It would be safe, if the people who are using it, have sufficient knowledge about its dose, time of intake, side-effect on over dose, but due to lack of information it can cause serious effects such as antibiotic resistance, skin problem, hypersensitivity and allergy.

The limitation of the present study could have been the fact that its findings rely upon the respondents recalling their medication use over the last month, and therefore recall bias cannot be ruled out.

The problems due to antibiotic self-medication such as using Local pharmacy prescriptions to get self-medication, minor illness such as sore throat and fever being self-medicated, switching medicines during self-medication, and stopping medicines on the disappearance of symptoms should be highlighted, especially among graduates and professionals by giving health education.

Conflicts of Interest

There are no conflicts of interest

Financial support and sponsorship

Nil.

Acknowledgement: Nil

References

1. Goyal A, Gaur A, Chhabra M, Deepak K. Knowledge, attitude and practices of Over the Counter (OTC) medicines among rural population-A cross sectional study. *Asian. J Pharm Pharmacol* 2018;4(2): 227-31.
2. Li LJ, Wang PS. Self-medication with antibiotics: a possible cause of bacterial resistance. *Med Hypotheses*. 2005;65(5):1000-1. doi: 10.1016/j.mehy.2005.05.018. PMID: 16002231.
3. Panda A, Pradhan S, Mohapatro G, Kshatri JS. Predictors of over-the-counter medication: A cross-sectional Indian study. *Perspect Clin Res*. 2017 Apr-Jun;8(2):79-84. doi: 10.4103/2229-3485.203043. PMID: 28447018; PMCID: PMC5384404
4. Badiger S, Kundapur R, Jain A, *et al*. Self-medication patterns among medical students in South India. *Australas Med J* 2012;5(4): 217-20. <http://dx.doi.org/10.4066/AMJ.2012.1007> PMID: 22848313
5. Lal V, Goswami A, Anand K. Self-medication among residents of urban resettlement colony, New Delhi. *Indian J Public Health* 2007; 51(4): 249-51. PMID: 18232170
6. Jha DN. 52% Indians self-medicate [Internet]. *The Times of India*. 2015. Available from: [https://timesofindia.indiatimes.com/city/delhi/52-Indians-self-medicate/ article show/ 46844 09 7 .cms](https://timesofindia.indiatimes.com/city/delhi/52-Indians-self-medicate/article show/ 46844 09 7 .cms). [Last accessed on 2024 Sep 24].
7. Narendranath KG. Govt says no to OTC sale of schedule H drugs [Internet]. *The Economic Times*. 2004. Available from: <https://economictimes.indiatimes.com/govt-says-no-to-otc-sale-of-schedule-h-drugs/articleshow/560289>. [Last accessed on 2024 Sep 23].
8. Ahmad A, Patel I, Mohanta G, Balkrishnan R. Evaluation of self medication practices in rural area of town sahaswan at northern India. *Ann Med Health Sci Res*. 2014 Jul;4(Suppl 2):S73-8. doi: 10.4103/2141-9248.138012. PMID: 25184092; PMCID: PMC4145522.
9. Limaye D, Limaye V, Krause G, Fortwengel G. A systematic review of the literature to assess self-medication practices. *Ann Med Health Sci Res* 2017.
10. Patil, Anant D., Hritika Sharma, and Tanusri Tetarbe. 2020. "COVID-19 and Concerns Related to Self-Medication." *International Journal of Basic & Clinical Pharmacology* 9 (9). Medip Academy: 1475. doi:10.18203/2319-2003.ijbcp20203638.
11. Ghosh K. Violence against doctors: A wake-up call. *Indian J Med Res*. 2018 Aug;148(2):130-133. doi: 10.4103/ijmr.IJMR_1299_17. PMID: 30381535; PMCID: PMC6206759.
12. Sattar S, Quddus R, Saha SK. Pattern of Self-Medication Practices among Rural Population of Mymensingh. *Mymensingh Med J*. 2018 Oct;27(4):843-850. PMID: 30487503.
13. WHO Antimicrobial resistance, global report on surveillance. World Health Organization; 2014.
14. Napolitano F, Izzo MT, Di Giuseppe G, Angelillo IF. Public knowledge, attitudes, and experience regarding the use of antibiotics in Italy. *PLoS One*. 2013 Dec 23;8(12):e84177. doi: 10.1371/journal.pone.0084177. PMID: 24376793; PMCID: PMC3871686.

14. Phalke VD, Phalke DB, Durgawale PM. Self-medication practices in rural Maharashtra. Indian J Community Med 2006; 31:34-5.
15. Jha DN. 52% Indians self-medicate [Internet]. The Times of India. 2015. Available from: <https://timesofindia.indiatimes.com/city/delhi/52-Indians-self-medicate/articleshow/46844097.cms>. [Last accessed on 2024 Sep 23].
16. Ahmad A, Parimalakrishnan S, Patel I, Kumar NV, Balkrishnan TR, Mohanta GP. Evaluation of self-medication antibiotics use pattern among patients attending community pharmacies in rural India, Uttar Pradesh. J Pharm Res 2012; 5:7658
17. Keche Y, Yegnannarayan R, Bhoyar S, Agrawal R, Chavan R, Mahendrakar P. Self medication pattern in rural areas in Pune, India. International Journal of Medicine and Public Health. 2012;2(4).
18. Selvaraj K, Kumar SG, Ramalingam A. Prevalence of self-medication practices and its associated factors in Urban Puducherry, India. Perspectives in Clinical Research. 2014 Jan;5(1):32

Table 1: Socio-demographic characteristics and rate of self-medication among the study participants (n=429)

	Self-medication practices (N=429)			P value	Odd's ratio with Confidence interval
Age category	Yes (n=249)	No (N=180)	Total		
18-30	157(59.9%)	105(40.1%)	262	0.705	1
31-40	51(53.1%)	45(46.9%)	96		1.32, (0.82, 2.11)
41-50	27(55.1%)	22(44.9%)	49		1.22, (0.66, 2.25)
51-60	12(66.7%)	6(33.3%)	18		0.75, (0.27, 2.11)
Above 60	2(50%)	2(50%)	4		1.5, (0.21, 10.78)
Gender					
Male	121(57.6%)	89(42.4%)	210	0.862	1
Female	128(58.4%)	91(41.6%)	219		0.97(0.66, 1.42)
Residence					
Rural	133(57.3%)	99(42.7%)	232	0.745	1
Urban	116(58.9%)	81(41.1%)	197		0.94, (0.64,1.38)
Religion					
Hindu	201(54.5%)	168(45.4%)	369	≤0.001	1
Sikh	39(79.6%)	10(20.4%)	49		0.31, (0.15, 0.63)
Muslim	2(100%)	0	2		0
Christian	7(100%)	0	7		0
Others	0	2(100%)	2		
Educational qualification					
Up to primary school	6(42.8%)	8(57.2%)	14	≤0.001	1.92(0.64, 5.78)
Up to high school	2(10.5%)	17(89.5%)	19		12.27(2.75, 54.78)
Up to higher secondary level	45(75%)	15(25%)	60		0.48(0.24, 0.92)
Up to Graduation	104(59.1%)	72(40.9%)	176		1
Postgraduate and above	92(57.5%)	68(42.5%)	160		1.06(0.69, 1.64)
Occupation					

Unemployed/Housewife	49(51.6%)	46(48.4%)	95	0.014	1.60(0.96, 2.65)
Businessman/daily wage/ shopkeeper	14(40%)	21(60%)	35		2.56(1.21, 5.38)
Employed/Job	111(63.1%)	65(36.9%)	176		1
Retired/Pensioners	6(100%)	0	6		0.13(0.0073, 2.36)
Student	69(59%)	48(41%)	117		1.18(0.73, 1.91)
Marital status					
Single	141(57.8%)	103(42.2%)	244	0.964	1
Married	107(58.5%)	76(41.5%)	183		0.59, (0.38, 0.9)
Divorced/widowed	1(50%)	1(50%)	2		1.37, (0.08,22.14)
Type of family					
Nuclear family	142(62.3%)	86(37.7%)	228	0.163	1
Joint family	97(53%)	86(47%)	183		1.46, (0.99,2.15)
Three generation family	10(55.6%)	8(44.4%)	18		1.32, (0.5,3.42)
Average monthly Income of person in RS.					
up to 10000	45(53.5%)	39(46.5%)	84	0.013	1.73(0.93, 3.21)
10001-30000	58(66.7%)	29(33.3%)	87		1
30001-50000	29(58%)	21(42%)	50		1.44(0.70, 2.96)
50001-100000	59(69.4%)	26(30.6%)	85		0.88(0.46, 1.67)
Above 100000	58(47.2%)	65(52.8%)	23		2.24(1.26, 3.96)

Table 2: Patterns of self- medication practices among study participants (n=429)

Responses	Frequency n (%)
Common complaints for which Self-medication was used	Out of total (n=429)
Fever	275(64.10%)
Pain and aches	182(42.2%)
Cough	158(36.82%)
Running nose	157(36.59%)
Sore throat	94(21.9%)
Skin wound	58(13.5%)
Diarrhoea	51(11.8%)
Others	50(11.6%)
Nasal congestion	47(10.9%)
Vomiting	43(10%)
From where do you usually get self-medication?	
Local pharmacy	243(56.6%)
Remaining medicine from previous prescriptions	65(15.1%)
Both of the above	106(24.7%)
Online pharmacy and Others	16(3.72%)
Do you check instructions on the medicine before taking?	
Always	319(74.3%)
Never	13(3%)
Sometimes	97(22.6%)

Frequency of self-medication without visiting first to hospital/clinics in past 1 year	
1-2 times	221(51.5%)
3-4 times	56(13.0%)
more than 5 times	93(21.6%)
Never	59(13.7%)
Which Alternate method for treatment do you prefer for treatment at home?	
Allopathy system of medicine	136(31.7%)
Avurvedic system of medicine	287(66.9%)
Homeopathy system of medicine	92(21.4%)
Others	29(6.75%)
Which class of medicine do you take commonly at home?	
Pain killers/NSAIDs	287(66.9%)
Multivitamin and multimineral	128(29.8%)
Antibiotics	122(28.4%)
Antiviral	49(11.4%)
others	58(13.5%)
Switching medicine during self-medication (when not relieved)	
Sometimes	273(63.6%)
Never	156(36.3%)
Their opinion regarding practices of self-medication	
Good practices	128(29.83%)
Acceptable practices	189(44.0%)
Not acceptable practices	112(26.1%)

Figure Legends

Figure 1: Reasons for self- medication in percentage

