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Original Research Article

Assessment of self-medication with analgesics among rural community of South India

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ABSTRACT

Introduction: World Health Organization defines self-medication (SM) as the self-administration of a medication in the absence of a current prescription and/or without consulting a healthcare professional. Analgesics are the most commonly abused drug as a self-medication for relieving pain of any kind among the people. Our aim was to assess the prevalence of self- medication with analgesics and find the social factors associated among the rural people in Southern India.
Materials and Methods: A community based cross sectional study using cluster sampling technique, four villages (clusters) were randomly selected in a rural District and among 460 respondents belonging to age group 18 to 60 years were interviewed.
Results: The mean age in years was 48.4 ± 15.5. About 182(39.6%) were illiterates and many respondents belonged to Agricultural laborers 350(76.1). Self-medication with analgesics is practiced by 24.8% of the respondents. Reason for self-medication was to reduce the out-of-pocket expenditure (72.4%). About 65.8% respondents purchased analgesics over the counter from pharmacy.
Conclusion: The prevalence of self-medication with analgesics was relatively high which is a threat for the community and can lead to multi organ damage to among rural people. Universal policy on drug selling over the pharmacy counter should be strictly implemented.

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1. Introduction

World Health Organization defines self-medication (SM) as the self-administration of a medication in the absence of a current prescription and/or without consulting a healthcare professional.[1] It may include the retention and re-use of prescription drugs or the direct purchase of prescription-only drugs without any medical input.[2]

Simply, self-medication means the use of medicine without consulting a doctor. People opt for self-medication since it is cost-effective, especially for people who cannot afford the cost of clinical services. Studies have revealed that the increase in self-medication was due to a number of factors such as socioeconomic factors, lifestyle, ready access to drugs, increased awareness about self-care, and greater availability of medicinal products.[3]

The threats associated with self-medication can be misdiagnosis, use of excessive drug dosage, prolonged duration of drug use, drug interactions, and poly-pharmacy can happen.[4]

In some instances, purchasing the medicines over the counter can be beneficial to mankind like in hilly, tribal hamlets and far to reach areas due to manpower and transport services. So that self-medication for minor illness can be practiced.[5]

Self-medication has many benefits to patients like quick access to treatment, self- independence in reducing

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symptoms, reduced cost of accessing healthcare and frequency of visits to health centers and lowering absence from work. self-medication if not monitored can result in serious adverse effects, increased antimicrobial resistance, dangerous food and drug interactions, as well as drug misuse and abuse.[6]

Most commonly abused analgesics around the world are Acetaminophen, Non steroidal anti-inflammatory drugs (NSAIDs) and opioids to reduce the Pain are the most commonly abused among people.[7]

Self-medication is often an important cause of drug poisoning. This is particularly true for the commonly used and purchased over the counter by the people for analgesic drugs to get relieve from fever and pain.[8]

To understand the factors influencing purchase of over counter medicines at pharmacy shops and a policy can be established to avoid such practices as it can lead to severe kidney, Gastrointestinal and other complications. Many people in India are highly influenced by media advertisements and the Internet usage which promote self-medication has to be unfolded.

The present study was conducted to know the prevalence of self- medication with analgesics among the rural people and to determine the factors associated with analgesic use.

2. Materials and Methods

2.1. Study design and setting

A cross sectional study was conducted from Sept to Oct 2021 in the field practice area of rural health centre attached to field practice area of Sri Devaraj Urs Medical College, Tamaka, Kolar. The sample size was calculated based on the prevalence of analgesic consumption which was found to be 85% in a study conducted by Gourav M Rangari et al. in Andhra Pradesh,[9] considering the absolute precision of 4%, design effect of 1.5, the minimum sample size was calculated to be 460, Calculated using Open Epi version. 3.01. Among 34 villages which comes under rural field practice area, 4 villages namely (Kallur, Bayyapanahalli, Ichala Dinnur, Urati Agrahara) were selected based on cluster random sampling technique. Considering the equal distribution of samples among 4 villages 115 households were randomly selected from each village so that the required sample size of 460 was achieved.

2.2. Data collection tool and technique

A pre-validated and pre-tested semi-structured and a standardized questionnaire was devised for the collection of socio-demographic details and for obtaining the reason, practices and attitude related to self-medication with analgesics. The questionnaire was designed by a panel of two experts from the field of community medicine who had worked at least for three years in the rural area where this study was done keeping the local context in picture. The developed questionnaire was translated to local language (Kannada), and the translated questionnaire was checked for content validity by two linguistic experts separately. The corrected Kannada questionnaire was then back translated to English. The final questionnaire was administered to five people not part of the study to check for any incongruence in both language and content. The final questionnaire thus developed was used for the survey.

The house holds are approached and one adult was introduced from each household. If more than one eligible adult was present at the time of data collection lottery method was used to select the respondent. After obtaining the written informed consent, the questionnaire was administered by the team of trained interns posted in the Department of community medicine and the details were captured. There were two supervisors of the rank assistant professors and above from the Department of community medicine and one postgraduate who was trained supervised the data collection. In case the selected household was locked, the next household in the sequence was selected. Only one visit was made to a particular household for collecting the information regarding self-medication on analgesics.

2.3. Data entry and analysis

A single data entry was done using Microsoft Excel version 2019 and later exported to SPSS licensed version 22 for data analysis. Age was reported as mean and standard deviation (SD). The other socio demographic variables and responses to the questionnaire were reported using frequencies and percentages.

A set of 17 responses to questions was used to assess the individual's self -medication with analgesics regarding various factors, practices and attitude. Each response was coded as 1 for yes and 0 for no and for multiple responses we have used the range from 1 to 5 for coding. We used frequency and percentage along with 95% confidence interval (CI) to report the level of association.

Univariate analysis was done using binary logistic regression, all the associations were reported using odds ratio along with 95 % CI. A p-value <0.05 was considered as statistically significant.

Table 1: Socio-demographic characteristics of participants

Socio-demographic characteristics	Number n=460	Percentage (%)
Age in years (mean ± SD)	48.4 ± 15.5	
Gender		
Male	311	(67.6)
Female	149	(32.4)
Education		
Illiterate	182	(39.6)
Primary schooling	86	(18.7)
High school	103	(22.4)
PUC/Diploma	87	(18.9)
Occupation		
Govt/Private service	37	(8.0)
Agricultural labou	350	(76.1)
Student	07	(1.5)
Unemployed	64	(13.9)
Income		
<2000	452	(98.3)
>2000	8	(1.7)
Health care facility		
Private Hospital /clinic	117	(25.4)
Government Hospital	175	(38.0)
Quack	168	(36.5)

3. Results

A total of 460 households comprising 2245 individuals covering four villages were surveyed. Of the total 460 adults interviewed. The mean age ± SD was 48.4 ± 15.5 years. There were 311 males (67.6 %) and 149 females (32.4%) constituted in the study. More than half of the respondents (76.1%) were Agricultural laborers, of which 98.3% earn<20000 rupees every month. Many respondents were illiterate (39.6%) and using government health care facility (38%).Table 1

*Out of 460 respondents we considered 114(24.8%) respondents who had history of self- medication with analgesics for past 6 months for assessment. Among the 114 participants who had self-medicated with analgesics in the past 6 months, about 34 subjects had taken analgesics for more than 5 times. The main reason for self-medication with pain killers who had participated in the study is for cost saving (72.4%). Participants used analgesics as self-medication mainly for headache (65.7%) followed by low backache (11.4%) and fever (10.5%). Selection of analgesics by the study participants were based on the recommendation by pharmacist (65.8%) at pharmacy counter (Chemist shop). About 65.8% subjects purchased analgesics at pharmacy counter based on type of pain. 65.4% subjects consulted pharmacist for dosage for self-medication with analgesics followed by asking friends or relatives (15.7%).

Many 64 (55.9%) respondents read the instructions provided in the Tablet strips and 24 (20.8%) respondents read the instructions sometimes. 27(23.7%) participants had never read the instructions that come with pain killer. Among the respondents who has read the instructions, 76 (66.3%) respondents fully understood the instructions that come with painkillers.

Around 69.3% subjects have not changed the dosage of analgesics according to the severity of pain and 65.4% respondents had taken same analgesic tablets with different brand names for self-medication. About 66.5% respondents had stopped taking painkillers without any specific reasons. Only14 (12%) participants had side effects due to self-medicating analgesics and among the subjects who had side effects due to pain killers (66.1%), the participants stopped taking pain killers by themselves when they had any side effects. Table 2

Around 80(70.4%) respondents who are self-medicated with analgesics responded that it's not an acceptable practice to take painkillers without consulting the Doctor and 94(82.6%) respondents were not sure for treating common health problems with analgesics successfully by themselves.Table 3

Among the study population the self-medication is more in males when compared to females, without any association statistically. Though self-medication was more in age group (31-45) years which was not associated with any statistical difference with young or elderly age group. Self-medication among high school children was more (43%) and is statistically significant when compared to others. Among the Agricultural laborers self- medication (22%) was more when compared to any other occupational groups which is statistically significant. Majority (25%) subjects belonged to SES < 20000 Rs per month of per capita income. Table 4

4. Discussion

The prevalence of self- medication with analgesics in the present study was found to be 24.8 % among the studied population. In India many studies showed higher prevalence rates conducted at different places namely Udupi District, Karnataka (39%), Pune (33.3%), Chennai (34.7%), Bhopal (55.3%), Kancheepuram, Tamil Nadu (49.6%), Maharashtra (40.7%). The countries like Brazil (48.4%), Harar city, Ethopia (42.2%).[10–18] showed a different prevalence rate of self-medication with analgesics. Some of the studies in India which is closely resembling to our study are in Puducherry (27.2%) conducted by Selvaraj K etal, Sahaswan, Uttar Pradesh (25.3%), Qassim, Saudi Arabia (18.3%), by Ahamad A etal, and in Karachi, Pakistan (28.8%).[5,17,19,20]

Table 2: Factors influencing Self-medication with Analgesics among rural population

Variable	Number n=460	Percentage (%)
Have you ever self-medicated pain killers by yourself?		
Yes	114*	(24.8%)
No	346	(75.2%)
How many times did you treat yourself with painkillers (Analgesics) in the past 6 months?		
<5 times	50	-
>5 times	34	-
What were your reasons of self-medication with painkillers?		
Cost saving	83	(72.4%)
Convenience	17	(14.8%)
Lack of trust in prescribing doctor	03	(3.0%)
Others	11	(9.8%)
For which of the following complaint(s) did you use painkillers?		
Joint Pain	4	(3.5%)
Stomach Pain	3	(2.7%)
Low Back Pain	13	(11.4%)
Headache	75	(65.7%)
Fever	12	(10.5%)
Others	4	(3.5%)
Multiple Symptoms	3	(2.7%)
Your selection of painkillers was based on		
Recommendation by pharmacist	75	(65.8%)
Opinion of family members	5	(4.4%)
Opinion of friends	12	(10.5%)
My own experience	10	(8.8%)
Previous doctor's prescription	5	(4.4%)
Advertisement	7	(6.1%)
What did you consider when selecting pain killers?		
Type of pain killer	75	(65.8%)
Brand of pain killer	7	(6.1%)
Price	9	(7.9%)
Indications for use	11	(9.7%)
Adverse reactions	11	(9.7%)
Any other, Specify	1	(0.8%)
Where did you usually take pain killers from for self-medication?		
Pharmacy	75	(65.8%)
Local practitioner/quack	15	(13.1%)
Left over from previous prescription	9	(7.9%)
Online shopping/e-pharmacy	13	(11.4%)
Any other specify	2	(1.8%)
Did you ever check the instructions that come with pain killer tablets?		
Yes, sometimes	64	(55.9%)
Yes, always	24	(20.8%)
No	27	(23.7%)

Continued on next page

Table 2 continued

How much did you understand the instructions?		
Fully understood	76	(66.3%)
Partly understood	10	(8.9%)
Did not understand at all	28	(24.8%)
How did you know the dosage of the pain-killer tablets?		
By reading instructions on the package	5	(4.8%)
By consulting a quack	1	(1.1%)
By consulting a pharmacist	75	(65.4%)
By asking family members/friends	18	(15.7%)
From newspapers/ magazines/ books/TV	11	(9.6 %)
Internet	3	(2.2%)
from previous experience	1	(1.3%)
Do you ever increase or decrease the number of pain killer tablets taken based on the severity of pain?		
Yes, always	10	(9.1%)
Yes, sometimes	25	(21.5%)
Never	79	(69.3%)
Have you ever found out that you have taken same tablet with different names for pain?		
Yes	75	(65.4%)
No	39	(34.6%)
When do you normally stop taking pain killers?		
After a few days regardless of symptoms	8	(7.0%)
After symptoms disappeared	15	(13.5%)
After tablets ran out	7	(6.3%)
After consulting quack/pharmacist	8	(6.7%)
No reason	76	(66.5%)
Have you ever had any side-effects when you took pain-killers on your own?		
Yes	14	(12%)
No	100	(88%)
What did you do for when you got the side-effects?		
Stopped taking the pain-killer	9	(66.1%)
Switched to another pain-killer	1	(4.9%)
Consulted pharmacist	2	(14.8%)
Consulted doctor	1	(9.3%)
Nothing	1	(4.9%)

The present study shows more prevalence of self-medication in males than females. Similar findings were observed in India and other countries.[10–20] There are some studies conducted in Erode, Tamil Nadu reported that both males and females have consumed self-medication in equal proportions.[21]

Agricultural laborer's (78) and the respondents who have attended high school(44) had consumed analgesics higher than the other groups and is statistically significant ($p<0.05$). Similar results was observed in Mumbai, Maharashtra and Chittoor District, Andhra Pradesh.[15,22]

The major reason for self-medication with analgesics is for cost saving (72.4%) which had similar findings in study conducted at Bhopal, Chennai, Sahaswan, Uttar Pradesh, Harar city Ethiopia, Erode, Tamil Nadu.[12,13,19,21] However, in a study from Kancheepuram, Tamil Nadu reported that self-medication was due to lack of health services.[14] Few studies from Puducherry, Pune and Qassim, Saudi Arabia reported that repetition of previous prescription is another reason for self-medication.[5,11,18]

Our results indicated that chemist shops (65.8%) and pharmacists (65.4%) were the source from where the respondents get information about the choice of drug for practicing self-medication. This is similar to the studies conducted at Chennai, Tamil nadu by Varadarajan V et al., Karachi, Pakistan by M. Iqbal Afridi et al. Kancheepuram, Tamil nadu by Kalaivani Annadurai et al., Mumbai, Maharashtra by Limaye D et al., Kuppam, Andhra Pradesh by Kumar CA et al.[14,15,20,23]

In this study headache is the most common cause for self-medication. Several studies have reported that headache is the most common cause for self-medication with analgesics.[12,19,21,22] In some studies common cold and many other types of pain were he cause for self-medication with other symptoms.[5,13,23] Seasonal changes due to weather conditions play a role in self-medication with different kinds of medicines.

Around 55.9% of participants use to read the instructions fully and 20.8% of participants had partly read the instructions and 23.7% haven't read instructions at all from any strips containing analgesics. From this we can understand that majority of the population is aware about the medications they are taking from over the counter for self-medication. Similar findings are reported by F. AlGhofaili et al.[17] A study conducted in Bhopal reported that only 3.6% of participants had read the instructions.[13]

In our study around 69.3% respondents didn't increase or decrease the dosage of tablets for painkillers by themselves while they were on self-medication. This may be due to the respondents are more aware of after use side effects with analgesics or NSAIDs.

Majority of the respondents (88%) didn't have any side effects due to self-medication with analgesics and those who had history of side effects (12%), they had stopped self-medication by themselves without consulting a physician. A study conducted by Chakravarthy et al. in Chennai reported that majority of the population are aware about the side effects of drugs, instead of this knowledge they self-medicate by themselves.[12]

About 34% of the study participants mentioned the generic names consumed namely Tablet (diclofenac, meftal spas, paracetamol and as a fixed dose combination(FDC) of aceclofenac and paracetamol). The rest of the participants (66%) were unaware of the generic names of the pain killers consumed. A Study conducted at Kancheepuram showed paracetomol (84.9%) was the most common drug used for self-medication,[14] In erode it was reported that 33.7% of the respondents had practiced to consume analgesics.[21] About 50% of the subjects in Pune had a practice of taking fixed dose combination(FDC).[11]

5. Conclusion

The prevalence of self-medication with analgesics is pretty high in our study. Considering the self-medication practice with various generic medicines without consulting a registered medical practitioner(RMP) can lead to many complications and end organ damage. In a country like India there can be socioeconomic, behavioral or attitudinal causes for self-medication as reported in our study.

The chemists should follow proper SOP guidelines and information in dispensing any drugs. A forum or work shop should be organized for community pharmacists regularly to update and improve their knowledge. In simple way we can create awareness about self-medication through Medias like newspaper, magazine, TV etc. These results indicate the need to increase community awareness about the dangers of using over the counter drugs by the further inauguration of health education campaigns. With this findings Government should be made to prevent the supply of medicine without prescription by pharmacies. In this regard a universal policy on drug selling over the pharmacy counter should be strictly managed.

6. Ethical considerations

The study protocol was approved by the Institutional ethical committee for human studies and approval number is DMC/KLR/IEC/290/2021-22.Written informed consent was obtained from all participants who participated in the survey.

7. Availability of data and materials

All the records regarding captured data is kept in a locker in the Department of Community Medicine, Sri Devaraj Urs Medical College.

Table 3: Attitude regarding Self-medication with analgesics among respondents

What do you think about taking medications on your own for painwithout consulting the doctor?	Number n=460	Percentage (%)
Good practice	7	(6.3)
Acceptable practice	27	(23.3)
Not acceptable practice	80	(70.4)
Do you think you can treat common health problems with pain killers bysuccessfully by yourself?		
Yes, I can	12	(10.4)
Not sure	94	(82.6)
No, I cannot	1	(0.7)
Good practice	7	(6.3)

Table 4: Socio-demographic factors influencing self medication with analgesics among the respondents.

Participants Characteristics	Self-Medication		Chi-square / Fisher exact	p-value	Strength of association
	Yes	No			
Sex					
Male	82(26%)	229(74%)	1.29	0.256	1.3
Female	32(22%)	117(78%)			
Age					
18-30 years	23(31%)	51(69%)	5.12	0.163	-
31-45 years	39(28%)	100(72%)			
46-60 years	38(22%)	134(78%)			
>60 years	13(18%)	61(82%)			
Education					
Illiterate	33(18%)	149(82%)	23.7	0.001	-
Primary School	18(21%)	68(79%)			
High School	44(43%)	58(57%)			
PUC	19(22%)	68(78%)			
Occupation					
Unemployed	27(42%)	37(58%)	14.2	0.003	-
Student	03(43%)	37(57%)			
Agricultural laborer	78(22%)	272(78%)			
I T worker	06(16%)	31(84%)			
Percapita Income (Rs)					
<20000	113(25%)	339(75%)	0.659	0.68	2.3
>20000	01(12%)	07(88%)			

8. Authors' Contribution

Conception, design, Statistical Analysis and interpretation of data was done by Dr. Naresh Kumar S J Data entry, technical support, supervision and drafting the manuscript was done by Dr. Rameez M Sali and manuscript critical revision was done by Dr. Varsha R Mokhasi.

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10. Conflict of Interest

There are no conflicts of interest.

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