

Prevalence of self-medication in rural area of Andhra Pradesh

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ABSTRACT

Background: The consumption of medicine without consulting a doctor is called self-medication. In the recent decade, the prevalence of self-medication was increased mainly in the developing countries. The reason varies from the nonavailability of doctors to economical reason. But people are not aware of the side effects and interactions of drugs. This is risky behavior and may lead to death. The objective of this study is to find out the prevalence and various reasons, sources, and common drugs used for self-medication. **Materials and Methods:** A cross-sectional community-based study conducted in Visakhapatnam district, Andhra Pradesh. 166 houses were selected by using a simple random sampling method. One respondent from one household was interviewed by using a semi-structured questionnaire. The data obtained were analyzed by using SPSS V22. Chi-square and Fisher exact tests were applied to find associations. Phi, Cramer Rao V, and contingency coefficient were applied to find the strength of association. A value of $P < 0.05$ was considered significant. **Results:** Among 166 subjects, the majority (58.4%) of participants were in the age group between 18-30 and most of them were female 142 (85.5%). The prevalence of self-medication was 68.1%. The main source of self-medication was directly from the pharmacy, that is, pharmacists (72.6%). Analgesics were commonly (85%) self-medicated drug. The main indication for self-medication was headache (78.8%) and fever (66.4%). **Conclusion:** The prevalence of self-medication was high and which is hazardous to health. This needs prompt legislative action.

Keywords: Andhra Pradesh, drugs, over the counter, rural, self-medication

Introduction

According to WHO, health is defined as a state of complete physical, mental, and social well-being and not merely the absence of diseases or infirmity. Everyone has their own belief about health, sickness, and treatment. Some may follow their traditional

way of treatment or go to the doctor or they may take medicines on their own during sickness to maintain their proper health.

Now day's use of self-medication is highly prevalent in both urban and rural communities varying from 32.5% to 81.5%.^[1-3] In Myanmar, the prevalence was 89.2% in the labor force.^[4] As per World Self Medication Industry (WSMI), self-medication defined as the treatment of common health problems with medicines especially designed and labeled for use without medical supervision and approved as safe and effective for such use.^[5] Basically, self-medication is obtaining and consuming drugs without the advice of a physician for diagnosis, prevention or treatment of disease.^[6] Medicines for

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self-medication are also called “nonprescription” or “over the counter” (OTC) which are available through pharmacies without a doctor’s prescription. Medicines that require a doctor’s prescription are called prescription products. These OTC products are also available in supermarkets and other outlets in some countries.^[7]

Some people may take advice from an older person who is having knowledge of simple remedies for common illnesses. Some may go to the pharmacist because they can assess the symptoms and explain how to use the medication properly. Some may purchase an OTC medicine based on previous personal experience, a medical recommendation, or through the internet.^[8]

The WHO Expert Committee in 1995 on National Drug policies stated that: “Self-medication is widely practiced in both developed and developing countries. Medications should be approved as being safe by the national drug regulatory authority for self-medication. Such medicines are normally used for the prevention or treatment of minor ailments or symptoms, which do not justify medical consultation. In some chronic or recurring illnesses, after initial diagnosis and prescription, self-medication is possible with the doctor retaining an advisory role.”^[9] In developing countries, most of the illnesses are treated by self medication.^[10,11] also in developed countries like Australia, over half a million people are using analgesics for non medical purpose OTC.^[12] Because wide range of drugs are easily available and inadequate health services results in increased proportions of drugs used as self medication if we compare it to prescribed drug.^[6]

This increasing range of drugs makes available OTC increases the risks of interactions and adverse reactions.^[13] Such as interaction between active ingredients of hidden preparations of OTC drugs and prescription medicines, risk of worsening of existing disease pathology.^[14] Their improper use due to lack of knowledge about correct dose, interactions and side-effects could lead to serious implications, especially in children and old age and some physiological conditions like pregnancy and lactation.^[15-17]

Self-medication practice has now become a serious health issue for society. There has been relatively very less research on self-medication and mainly in Andhra Pradesh. So further research is needed to explore this. So keeping this in view, this study is proposed to see the prevalence of use of self-medication, sociodemographic variables affecting this practice and reason behind this. Also, giving informal health education regarding the consequences of self-medication to the subjects.

Aims and Objectives

Aim

To study the prevalence of self-medication in a rural area of Andhra Pradesh.

Objectives

1. To study the prevalence of self-medication

2. To study the sociodemographic variables affecting the practice and reason behind self-medication
3. To give informal health education regarding the consequences of self-medication

Material and Methods

Study design and setting

Ethics Committee Approval was obtained. Date of the approval - 16th April 2018. The present study is a cross-sectional study. It’s a community-based study conducted from May 2018 to June 2018 in the Kommadi village of Visakhapatnam district in Andhra Pradesh. The total population of Kommadi Village is 2009 and there are total of 325 houses. Face to face interview was taken to determine the prevalence of self-medication and its associated factors.

Sample size calculation

The prevalence of self-medication was reported 51.75% in the previous study of the rural population in Chittoor District, Andhra Pradesh done by Kumar CA.^[18]

$$n = 4pq/d^2$$

Where,

n = the minimum sample size required

p = prevalence of self-medication according to a recent study conducted by Kumar CA in Chittoor District, Andhra Pradesh; it was found 51.75% prevalence of self-medication^[18]

$$q = 100 - p \quad (100 - 51.75 = 48.25\%)$$

$$d = \text{error} = 15\% \text{ of prevalence} = 7.76$$

$$n = 4 * 51.75 * 48.25 / (7.76)^2 = 165.86 = 166$$

Sampling method

166 houses were selected by using a simple random sampling method. One respondent from one household was interviewed.

Inclusion criteria:

1. Respondents above 18 years mainly head of the family or housewife
2. Person of sound mind

Exclusion criteria:

1. Respondents below 18 years
2. Person of an insane mind

Study questionnaire

A semi-structured interview questionnaire was prepared in English after an extensive literature review. It was translated to Telugu (local language) by the investigator. For this study,

self-medication was defined as “use of medicines in the last 1 year without the prescription of a registered medical practitioner”. The study questionnaire consisted of socio-demographic information, general information about self-medication, sources of information, reasons, and self-medication practices.

Data collection

The semi-structured interview questionnaire was the tool used to collect the data. Information had been collected by the direct interview method. Informed consent was taken before collecting the data by explaining the purpose of the study. One respondent from one household was interviewed followed by informal health education about self-medication and adverse events. Subjects often had difficulty in recalling the particular drug use. So in these cases, we have crosschecked with the tablet strips, medicine packets, medicine bottles kept in the house by the subjects. Sociodemographic data, illness for which the medication was used, type of medication and sources of information was collected as per recall period of 1 year. Data were entered into Microsoft Excel and all entries were cross-checked against the questionnaire.

Statistical analysis

The data obtained from the Excel sheet was analyzed by using SPSS V22. Descriptive statistics represented with Percentages. Chi-square and Fisher exact tests were applied to find associations. Phi, Cramer Rao V, and contingency coefficient were applied to find the strength of association. A value of $P < 0.05$ was considered significant.

Results

In this study of households survey, among 166 subjects, the majority (58.4%) of them were in the age group between 18 and 30 and 30.1% came in the age group 30–45. Most of the respondents were female 142 (85.5%) and out of the 8 (5.6%), females were pregnant. 137 (82.5%) subjects were married. Most of them were (89.8%) Hindu. Maximum respondents 104 (62.7%) were from BC. Around 107 (64.4%) subjects were having education 10th and above. The majority of the respondents were housewives 91 (54.8%) followed by daily wage workers (16.9%). According to Modified BG Prasad classification January 2017 CPI (consumer price index), maximum participants belonged to upper-middle-class (34.9%) and upper class (63.9%). If we consider the sociodemographic variables and their strength of association with self-medication as shown in Table 1. Marital status, gender, and occupation have positive associations. There is a strong association between occupation and self-medication [Table 1].

In the present study, out of 166, around 113 (68.1%) reported self-medication within one year of recall period [Figure 1]. If we see the frequency of using drugs for self-medication, a maximum of around half of the subjects (47.8%) responded that they have used more than 5 times in the last 1-year period.

The main source of self-medication was directly from the pharmacy, that is, pharmacists (72.6%) followed by old

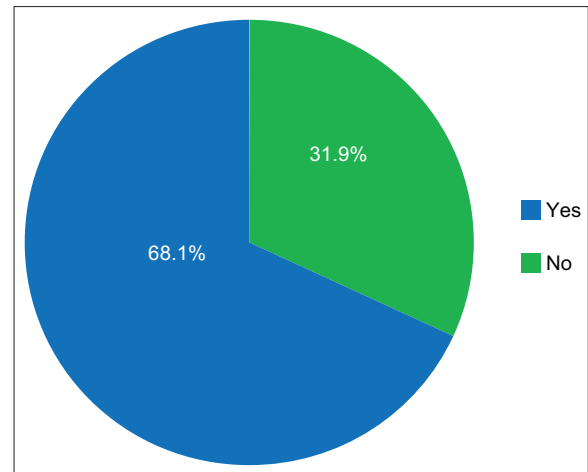


Figure 1: Prevalence of self-medication (n = 166) (Original)

prescription of previous illness (25.7%), and friends and relatives prescription (1.8%) as shown in Figure 2.

Most common symptoms for which self medication done were headache (78.8%), fever (66.4%) followed by leg pain (60.2%), cold (52.2%), cough (52.2%), gas trouble (24.8%), diarrhea (22.1%), and stomach ache (16.8) [Table 2].

Analgesics were commonly (85%) self-medicated drugs, followed by antipyretics (67.3%) and cough remedies (32.7%) [Figure 3].

When asked about the factors which influence the choice of OTC medicines, most of them responded to pharmacists (54.9%) and previous experience (23.9%) followed by old prescription (17.7%), and friends and relatives (3.5%) [Table 3].

Doctors' advice not needed for common illness (52.2%) was the main reason for self-medication. Other reasons were minor illness (31.9%) and quick-relief (3.5%) [Figure 4].

Maximum subjects (53.9%) didn't stock any medicines at home. The drugs which are commonly stocked at home are Analgesics (31.0%) and Antipyretics (29.2%) followed by Cough Remedies (12.4%) [Table 4].

Maximum subjects responded that they have checked labels (79.6%) and expiry date (81.4%) while purchasing drugs for self-medication [Figure 5].

Out of 166, 116 (69.9%) responded that self-medication is safe to use. 89.8% of subjects were not aware of the fact that these drugs can be abused. Maximum 86.1% of participants were not aware of drug resistance and 98.8% not aware of drugs should be avoided in pregnancy. Most of the subjects don't know about generic drugs (85.5%) [Table 5].

Table 1: Sociodemographic variables and association with self-medication (n=166) (Original)

Variable	Category	Self medication				Chi-square /Fisher Exact	P	Strength of association
		Yes		No				
		Count	Percentage	Count	Percentage			
Age	15-30	66	68.0%	31	32.0%	0.95	0.81	-
	30-45	33	66.0%	17	34.0%			
	45-60	13	76.5%	4	23.5%			
	>60	1	50.0%	1	50.0%			
Sex	Female	102	71.8%	40	28.2%	-	0.02*	0.196 Weak
	Male	11	45.8%	13	54.2%			
Marital status	Married	100	73.0%	37	27.0%	-	0.04*	0.229 Moderate
	Unmarried	13	44.8%	16	55.2%			
Caste	BC	73	70.2%	31	29.8%	6.9	0.07	-
	OC	24	68.6%	11	31.4%			
	SC	6	40.0%	9	60.0%			
	ST	10	83.3%	2	16.7%			
Religion	Christian	9	60.0%	6	40.0%	0.83	0.66	-
	Hindu	103	69.1%	46	30.9%			
	Muslim	1	50.0%	1	50.0%			
Education	Illiterate	17	81.0%	4	19.0%	8.1	0.23	-
	Primary	16	72.7%	6	27.3%			
	Secondary	13	81.3%	3	18.8%			
	10 th	30	73.2%	11	26.8%			
	Intermediate	11	57.9%	8	42.1%			
Occupation	Graduation	23	56.1%	18	43.9%	23.17	<0.001*	0.386 Strong
	PG	3	50.0%	3	50.0%			
	Daily wage worker	19	67.9%	9	32.1%			
	Housewife	72	79.1%	19	20.9%			
	Office worker	11	57.9%	8	42.1%			
	Professional	2	33.3%	4	66.7%			
	Student	0	0.0%	6	100.0%			
Income	Unemployed	9	56.0%	7	44.0%	0.96	0.81	-
	>6254	72	67.9%	34	32.1%			
	1876-3126	1	100.0%	0	0.0%			
	3127-6253	39	67.2%	19	32.8%			
	938-1875	1	100.0%	0	0.0%			

Table 2: Indications for self-medication (n=113) (Original)

Indications	Frequency	Percentage
Headache	89	78.8
Cold	59	52.2
Leg pain	68	60.2
Fever	75	66.4
Gas trouble	28	24.8
Diarrhea	25	22.1
Acidity	11	9.7
Cough	59	52.2
Sore throat	15	13.3
Stomach ache	19	16.8
Vomiting	18	15.9
Dyspnoea	2	1.8

Discussion

In the current study, the prevalence of self-medication in the rural area of Andhra Pradesh was found to be 68.1%.

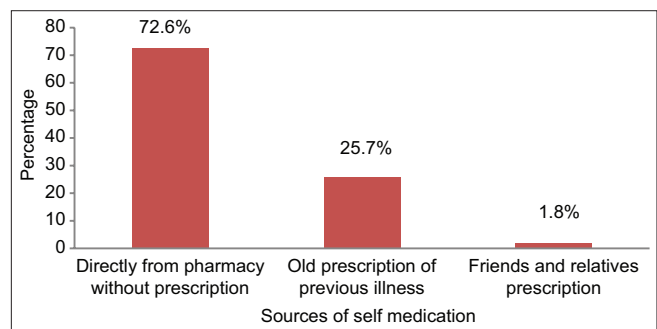


Figure 2: Sources of self-medication use (n = 113) (Original)

The very similar prevalence found in the study of rural areas of UP 69.6% and with the same recall period used in the present study.^[19] This is somewhat higher than the study conducted by Kumar in the rural area of Chittoor District, Andhra Pradesh (51.75%), the study of Gayathri in rural Kanchipuram (58.4%), and a study conducted Nellikuppam Village, Tamil Nadu (53.43%).^[18,20,21]

Table 3: Factors influencing the choice of OTC medicines (n=113) (Original)

Factors influencing the choice of OTC medicines	Frequency	Percentage
Friends and relatives	4	3.5
Old prescription	20	17.7
Pharmacists	62	54.9
Previous experience	27	23.9
Total	113	100.0

Table 4: Drugs stocked at home (n=113) (Original)

Drugs stocked at home	Frequency	Percent
Analgesics	35	31.0
Antipyretics	33	29.2
Cough Remedies	14	12.4
Antacids	2	1.8
Sleeping Aids	1	.9
Drugs for Hypothyroidism	1	.9
No single drugs	62	53.9

Table 5: General awareness about drugs (n=166) (Original)

Awareness	Yes	No
Self-medication safe to use	116 (69.9%)	50 (30.1%)
Aware about fact that the OTC products can be abused	17 (10.2%)	149 (89.8%)
Aware about drug resistance	23 (13.9%)	143 (86.1%)
Aware that drugs should be avoided in pregnancy	2 (1.2%)	164 (98.8%)
Aware about generic drugs	24 (14.5%)	142 (85.5%)

In India, other studies also have shown a higher prevalence of self-medication like in rural Maharashtra (81.5%), Haryana (73%), Delhi (92.8%) Erode (62%), Puducherry (71%), Mumbai (85%),^[3,22-26] The study of Maharashtra (29.1%) and Hyderabad (30.5%) reported lower prevalence.^[27,28]

Worldwide, the prevalence of self-medication was high in the study of Nigeria, Pakistan, Nepal, Africa, and Myanmar.^[4,6,29-32] If we compare the urban and rural areas of Visakhapatnam, the present study shows a higher prevalence in a rural area than urban slum area (58.5%). This variation in prevalence because of differences in recall period, the definition of self-medication used, different methodology and various socio-demographic variables. In the present study, 1-year recall period was used. It is similar to the study of Kulkarni and Keshari.^[19,27] A study conducted by Nair, Appala Naidu, and Shankar used the recall period of 6 months.^[6,34,35]

The study of Maharashtra and Delhi used a 3-month recall period of self-medication practice.^[23,28]

Maximum (47.8%) responded that they have used self-medication more than five times. This finding was in contrast to the findings of Puducherry and Karnataka.^[22,36]

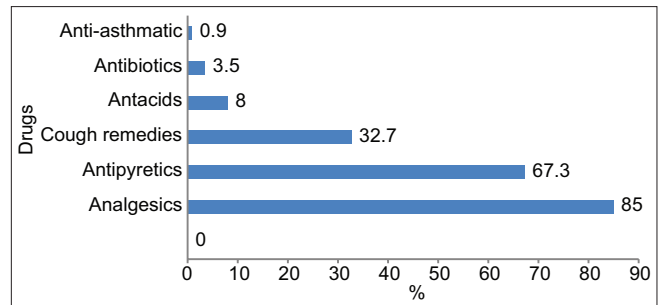


Figure 3: Drugs used for self-medication (n = 113) (Original)

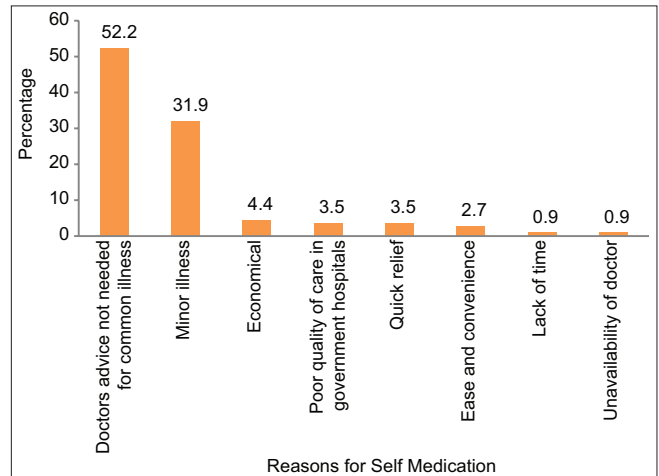


Figure 4: Reasons for self-medication (n = 113) (Original)

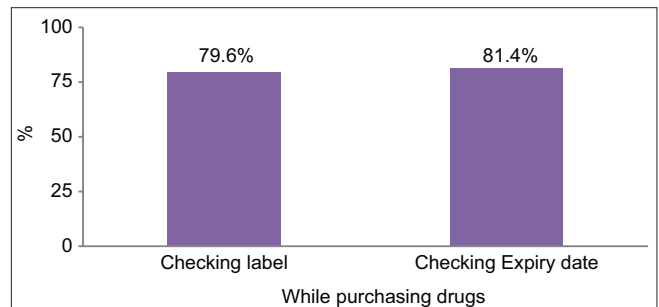


Figure 5: Checking label and expiry date (n = 113) (Original)

The present study shows more prevalence of self-medication in females than males. This finding was not in line with the findings of other studies.^[6,18,19,20-23,27,28,34,35,37-39] Also, this study reported self-medication more prevalent in housewives and married people. This finding was similar to the study of Nair.^[34] This is because most of the time housewife is the only caretaker of all people at home and she usually is aware of the drugs for minor illness.

The main source of self-medication in this study was directly from the pharmacy i.e. Pharmacists (72.6%). Similar findings were reported in the study of Kalaivani, Sinha, Balamurugan.^[21,22,37] Some studies reported friends, electronic media, family and neighbors were the common sources for practicing self-medication.^[25,39-41] In a study of Phalke

advertisements in newspapers, TV, radio, and magazines were the source of information for self-medication.^[3] In a study of Nair, the main source of information was an old prescription.^[34] Studies conducted in Pune and Haryana also reported the previous prescriptions as the main source of information.^[24,42]

The most common symptoms for which self-medication was done were headache (78.8%) and fever (66.4%). Similar findings found in other studies conducted in India.^[3,19,20-22,34,38] This Result differs from some studies, that is, the study of Kulkarni, Limaye, Sinha, and Keshari reported pain/joint pain, cold, cough, acidity were common indication for self-medication.^[19,27,28,37]

The majority of them (85%) responded that Analgesics were mostly self-medicated drugs, followed by Antipyretics (67.3%). The same findings reported by other studies.^[3,12,19,20,21,24,33,34,37,43]

The study of Limaye reported commonly used drugs for self-medication were antacid and antibiotic.^[28] In the study of Andhra Pradesh, Pune, and Sahaswan reported nonsteroidal anti-inflammatory drugs (NSAIDs) were commonly self-medicated.^[18,39,42]

In the present study, the majority of the participants responded that doctors' advice not needed for common illness/minor illness as the main reason for self-medication. Our result differs from other studies. In the study of Gayathri *et al.*, the main reason given for self-medication was the poor quality of care in Government hospitals. This is in contrast to our study as very few subjects reported this reason.^[20] Whereas a study conducted in Kancheepuram district reported a delay in government hospitals was the commonest reason.^[21] The urban slum study conducted in Hyderabad reported a high cost of consultation of private doctors and poor quality of care in government hospitals were the main reasons for self-medication.^[27]

Also in the rural area of Town Sahaswan in Northern India reported high treatment costs in hospitals were the primary reason for practicing self-medication.^[39] A study conducted in a rural area of Bhopal reported a high cost of consultation followed by mild illness/doctor's advice not needed were common reasons.^[37] The most common reason for the self-medication in the study of Limaye was having an old prescription and saving time.^[28] and in the study of Keshari were time-saving, high cost of consultation, and minor illness.^[19] The study of rural Maharashtra reported economic and nonavailability of health care facilities were major reasons for self-medication.^[3]

According to the study of Balamurugan and Kumar lack of time to visit a doctor and minor illness/mild disease were common reasons.^[18,22]

When asked about the factors which influence the choice of OTC medicines, most of them responded Pharmacists (54.9%) followed by previous experience (23.9%) and old prescription (17.7%). Similar findings reported in a study conducted by Nair.^[34]

The majority of the subjects responded that they have checked labels (79.6%) and expiry date (81.4%) on drugs before self-medication. these findings were in contrast to findings reported in a study conducted in Thiruvananthapuram and Hyderabad.^[27,34]

Most of the participants (69.9%) responded that self-medication is safe to use. This is contradictory to the study of Thiruvananthapuram in which the majority reported not safe for use.^[34] The majority of subjects were not aware of the fact that these drugs can be abused. Whereas a study conducted by Nair reported the majority of subjects were aware of this fact.^[34]

Maximum 86.1% of participants were not aware of drug resistance. 98.8% of not aware of drugs avoidable in pregnancy. Most of the subjects don't know about generic drugs (85.5%). These findings were similar to findings reported in the study of Kulkarni.^[27]

Conclusion

This study shows a higher prevalence of self-medication. It is necessary to make people aware of the consequences of self-medication. So there is a need for health education and behavior change related to self-medication practices. Sometimes pharmacists may give fixed drug combination (FDC) drugs which are irrational. Then it is also necessary to increase general awareness of the people about the drugs by giving health education. Health education and behavior change can be done by conducting camps, advertisements in TV and Newspaper.

Very few studies have been conducted in rural areas of Andhra Pradesh about self-medication practices. There is a need for more research in the rural areas and also in urban areas.

Ethical approval

The ethical clearance was taken from the Institutional Ethics Committee of Gayatri Vidya Parishad Institute of Health Care and Medical Technology, Marikvalsa, Visakhapatnam, Andhra Pradesh.

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Declaration of patient consent

The authors certify that they have obtained all appropriate patient consent forms. In the form, the patient (s) has/have given his/her/their consent for his/her/their images and other clinical information to be reported in the journal. The patients understand that their names and initials will not be published and due efforts will be made to conceal their identity, but anonymity cannot be guaranteed.

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Conflicts of interest

There are no conflicts of interest.

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