



## Research Article

## Section: Community Medicine

### Prevalence of Self-Medication Among the Rural Population in Field Practice Area of a Tertiary Care Centre in South Kerala: A Cross-Sectional Study

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#### ABSTRACT

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**Background and Objectives:** Self-medication is a global phenomenon and potential contributor to antimicrobial resistance. The adverse consequences of such practices should always be emphasized to the community and steps to curb it. The objective of this study is to find the prevalence of self-medication practices among the population residing in a rural field practice area of a tertiary care center in South Kerala and to find its association, if any, with socio-demographic factors of the above population. **Methods:** The cross-sectional study was done among rural population of tertiary care Centre in ward 15 of Kalanjoor Panchayath. The study was conducted among adults aged 18 years or above. The sample size was calculated as 136. A systematic random sampling method was used. The study period was 3 months. A total of 183 people participated in the study. A semi-structured questionnaire which consists of 2 parts was administered by interview method and data was collected. Statistical Analysis included Descriptive statistics and chi-square test of significance done using IBM-SPSS software. **Results:** It was seen that out of the total 183 study sample, 119 people had history of self-medication out of which 56% people were aware of the problems caused by self-medications and 44% people were not aware. Majority of the participants take self-medication for common illnesses such as fever (55%), Headache (18%), Cough and Cold (7%). In our study we got a statistically significant association of history of self-medication with age and people aware of problems caused by this practice. **Conclusion:** Self-medication is found to be common among the participants of this study. Through this study, we were able to find various components of self-medication and their relevance to the study population. Many of them use medicines which were prescribed to them by doctors for past illnesses whereas some of them buy directly from the pharmacists. In some cases, they get information from family members who use the same medication. These people opted for self-medication due to the mild nature of the illness and lack of time. Self-medication, even though it helps solve various ailments, can cause problems such as resistance, misuse, etc. in the long run.

#### INTRODUCTION

Individuals who feel unwell commonly tend to treat themselves probably due to the innate survival instincts in humans.[1] The World Health Organization (WHO) has defined self-medication as the use of drugs to treat self-diagnosed disorders or symptoms, or the intermittent or continued use of a prescribed drug for chronic or recurrent disease or symptoms.[2] Basically, self-medication was obtaining and consuming drugs without the

without the advice of a physician for diagnosis, prevention or treatment of disease. Medicines for self-medication were also called “non-prescription” or “over the counter” (OTC) which were available through pharmacies without a doctor prescription. Medicines that require a doctor's prescription are called prescription products. These OTC products were also available in supermarkets and other outlets in some countries.[3]

The prevalence of self-medication was high all over the world, and it was a very common practice, both in the poor communities as much as it is in the economically privileged [1]. Practiced globally, self-medication was an important public health problem, with a reported prevalence of 0.1% in northern and western Europe, 21% in Eastern Europe, 27% in USA. In developing countries reported self-medication prevalence rates were much higher with e.g. 84% in Pakistan, 78% in Saudi Arabia, 67% in Nigeria and 79% in India.[2]

Coming to Kerala scenario, the prevalence of self-medication in Kerala is a significant concern, with a study carried on prevalence of self-medication in a village in Northern Kerala indicating a rate of 53.8% [4]. Another study in Ernakulam district based on prevalence of self-medicated use of antibiotics reported a lower rate at 18% [5]. Another community-based cross-sectional study was done on prevalence and pattern of antibiotic self-medication practice in an urban population in Thrippunithura municipality, an area of Ernakulam district, Kerala state, India. The area has an average literacy rate of 94.34%. The study population included permanent residents above 18 years of age. The prevalence of antibiotic self-medication is only 3.31%. [6].

Globally, consumers commonly reach for self-care products to help them treat their common health problems which include fever, body pains, indigestion, diarrhea, vomiting, cough, and upper respiratory tract infections. This was because it is considered easier, more cost-effective, timesaving, or the problem may seem too trivial to necessitate making an appointment with a healthcare professional, and in other cases, they have few or no other options. People also tend to medicate when they have previous experience of treating similar illnesses or non-availability of healthcare personnel with analgesics and antimicrobials being the most common medications used.[1]

Self-medication practices vary from person to person. Some people take advice from an older person who has knowledge of simple remedies for common illnesses. Some go to the pharmacist because they can assess the symptoms and explain how to use the medication properly. Some people purchase an OTC medicine based on previous personal experience, a medical recommendation, or through the internet.[3] Self-medication was associated with negative health effects such as misdiagnosis, drug resistance, use of drugs in excessive amounts, use of expired drugs, prolonged duration of use, drug interactions, poly-pharmacy, and other toxicological and pharmacological risks associated with improper use of medicines.[1]

Self-medication was more common among women, young people, those living alone, individuals of low socioeconomic status (SES), sufferers of chronic ailments and psychiatric conditions. Poor socioeconomic status, high medicine cost, non-availability of doctors in rural areas make health care inaccessible and consequently, pharmaceutical outlets serve as the first contact point of health care. In this context,

pharmacists, pharmacy assistants, compounders and health assistants become instrumental in fostering self-medication.[7]

Uninstructed use of medicines may lead to problems in the short and long-term. People were exposed to a greater amount of information, and they want to make independent decisions regarding their lives, which includes medications too. Another important reason was the increased access to antibiotics in countries where they are sold without prescription, thereby allowing people to ignore the physician and use their own opinion or the advice of others to self-medicate. It was also due to financial problems, illiteracy, inadequate healthcare facilities or even a lack of time.[8]

The practice of self-medication was influenced by factors such as socioeconomic status of patients, level of education, cultural practices in the community, and various other factors. Hence to address the disadvantages of self-medication and to increase the knowledge of people about responsible self-medication, we needed to have a clear picture of the factors influencing self-medication. The present study was carried out to estimate and characterize the overall prevalence of self-medication practices and its association with socio demographic factors among population residing in a rural field practice area of a tertiary care Centre in South Kerala, India.

## MATERIALS AND METHODS

To satisfy the objectives of the study, the following method was used.

**Study Design:** Community based cross sectional study

**Study Setting:** Ward 15 of Kalanjoor Panchayath

**Study Period:** 3 months

**Study Sample:** Population above 18 years residing in ward 15 of Kalanjoor Panchayath

**Inclusion criteria-**

1. Adults above 18 years
2. People who gave their consent

**Exclusion criteria-** Mentally insane, deaf, dumb, mute, visually challenged

**Sample Size:**

Using formula  $4pq/d^2$  where p is 68.1% [7] and taking d as absolute precision, which is 8%, the sample size is 136.

**Sampling Technique:** Systematic random sampling

Total number of houses in ward 15= 500

Sampling interval =  $500/136=3$

The first house was selected randomly between 1 to 3<sup>rd</sup> and then every 3<sup>rd</sup> house from the first house was selected. If it wasn't available, then the 4<sup>th</sup> house was taken

**Data Collection Tools and Techniques:**

Tool-semi-structured questionnaire which consists of 2 parts.

The first part contains socio-demographic details such as age, gender, income, education and occupation of the respondent and head of family, color of ration card, preferred system of medicine, preferred health care facility, distance to nearby health care center and history of chronic diseases.

The second part were questions related to self-medication practice such as history of practice of self-medication, number of times self-mediation was practiced during the last 3 months, illnesses self-medication was taken for, source of medication, reason, checking of label and expiry date of the medicines before consumption, how long do they wait to visit the hospital if the illness has not subsided even after taking the drugs, experiencing any side-effects due to self-medication, awareness of the problems caused by self-medication. Technique is an interview method.

#### Methods of Data Collection

1. Houses were selected from Ward 15 of Kalanjoor Panchayath by systematic random sampling method
2. The selected people's consent was taken.
3. Data was collected using a semi-structured questionnaire by interview method.

#### Data Analysis:

Data obtained was coded and entered Microsoft Excel and analyzed using appropriate software. Descriptive

statistics like mean and standard deviation were calculated for continuous data and frequency and percentages for categorical characteristics of the study sample. Association between various qualitative variables was assessed using chi square test.

#### Ethical Considerations:

Clearance from the Institutional Ethics Committee was obtained to conduct the study. Written informed consent was obtained from the participants before the onset of the study. Confidentiality of the information was maintained during every stage of study.

#### RESULTS

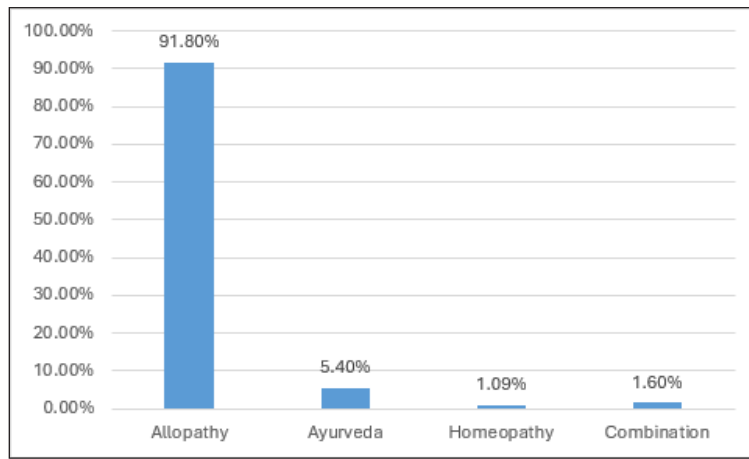
A cross-sectional study was conducted among 183 people in ward 15 of Kalanjoor Panchayat in Pathanamthitta district to assess the prevalence of self-medication and to find the association between socio demographic factors and self-medication.

**Table 1: Distribution of the Study Sample by Socio- Demographic Characteristics**

Items	Groups	Frequency	Percentage
Age	18-40	36	20%
	41-60	75	41%
	Above 60	72	39%
	Total	183	100%
Gender	Male	64	35%
	Female	119	65%
	Total	183	100%
Marital Status	Married	150	82%
	Not Married	11	6%
	Widower	4	2%
	Widow	18	10%
	Total	183	100%
Socio-Economic Class	Lower Middle Class	49	27%
	Upper Class	17	9%
	Upper Lower Class	17	9%
	Upper Middle Class	100	55%
	Total	183	100%
Poverty Level	Apl	112	61%
	Bpl	71	39%
	Total	183	100%
Healthcare Preference	Private	96	52%
	Government	87	48%
	Total	183	100%

Table 1 shows the distribution of study samples by demographic characteristics. Majority of participants belonged to 41 to 60 age group and are females. 82% of

participants are married. 61% of participants are above poverty level and 52% preferred private health care facilities.



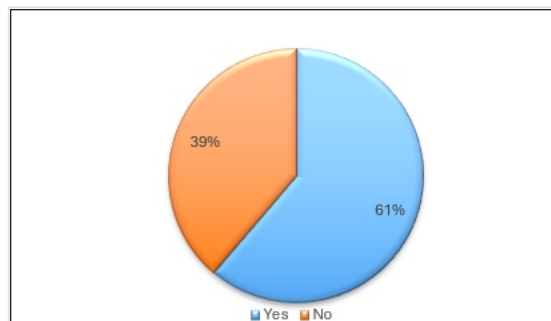
**Figure 1: Distribution of the Study Sample Based on the System of Medicine they Prefer**

Fig 1 shows the distribution of participants based on the system of medicine they prefer. The majority prefer allopathy followed by Ayurveda.

**Table 2: Distribution of the Study Sample is Based on the Time Required for them to Reach the Nearest Health Care Center**

Time	Frequency	Percentage
30 Minutes	29	16%
Less Than 30 Minutes	141	77%
More Than 30 Minutes	13	7%
Total	183	100%

Table 2 shows the distribution of the participants based on the time required for them to reach the nearby hospital. A larger part (141) of the people interviewed claimed it takes less than 30 minutes to reach the nearest hospital.



**Figure 2: Distribution of Study Sample Based on History of Chronic Disease**

Fig 2 shows the distribution of participants according to the history of chronic illness. Majority of the participants have a history of chronic illness. It includes Dyslipidemia (43.7%), Hypertension (34.4%), Diabetes mellitus (31.1%), and Joint disease (4.4%).

**Table 3: Distribution of the Study Sample Based on Whether they Checked the Label and Expiry Date of the Medicine before Consuming it.**

Expiry Date and Label Checking	Frequency	Percentage
Yes	158	86%
No	16	9%
Not Applicable	9	5%
Total	183	100%

Table 3 shows the distribution of the participants based on whether they checked the expiry date and label of the medicine before consuming it. 158 people out of the 183 participants check the label and expiry date before consuming it.

**Table 4: Distribution of the Study Sample Based on their Awareness of Effects of Self-Medication**

Awareness	Frequency	Percentage
Yes	102	56%
No	81	44%
Total	183	100%

Table 4 shows the distribution of the participants based on their awareness of the effects of self-medication. 56% of the participants are aware of the problems of self-medication, including drug resistance, can lead to drug abuse and drug interactions.

**Table 5: Distribution of the Study Sample Based on History of Self-Medication**

Self-Medication	Frequency	Percentage
Yes	119	65%
No	64	35%
Total	183	100%

Table 5 shows the distribution of the participants based on their history of self-medication. Majority of the participants take self-medication for common illnesses such as fever (55%), 119 people in the study population have a history of self-

**Table 6: Distribution of the Study Sample Based on the Frequency of Self-Medication in the Last 3 Months Among Those Who Have History of Self-Medication**

Self Medication in Last 3 Months	Frequency	Percentage
Zero	35	19%
Less Than 3times	73	40%
Greater Than or Equal to 3times	13	7%
Not Applicable	62	34%
Total	183	100%

Table 6 shows the distribution of the participants based on the frequency they tried self-medication in the last 3 months. The graph demonstrates that 73 of people who have a history of self-medication have done it less than 3 times in the last 3 months.

**Table 7: Distribution of the Study Sample Based on Whether they have Experienced any Side Effects After Self-Medication**

Side Effects	Frequency	Percentage
Yes	8	5%
No	136	74%
Not Applicable	39	21%
Total	183	100%

Table 7 shows the distribution of the participants based on whether they have experienced any side effects after self-medication. 74% of the participants claimed they have not experienced side effects after self-medication. 5% experienced side effects such as rashes and hypersensitivity.

**Table 8: Association between Sociodemographic Details and History of Self-Medication**

Sociodemographic Factors		Self-Medication		P Value
		No	Yes	
Age	18 To 40	7(3.8%)	29(15.8%)	<b>0.03</b>
	41 To 60	25(13.6%)	50(27.3%)	
	Above 60	32(17.4%)	40(21.8%)	
	Total	64(34.9%)	119(64.0%)	
Gender	Female	40(21.8%)	79(43.1%)	0.357
	Male	24(13.1%)	10(60.1%)	
	Total	64(34.9%)	119(65%)	
Socio Economic Status	Lower Middle Class	21(11.4%)	28(15.3%)	0.466
	Upper Class	5(2.7%)	12(6.5%)	
	Upper Lower Class	7(3.8%)	10(5.4%)	
	Upper Middle Class	31(16.9%)	69(37.7%)	
	Total	64(34.9%)	119(65%)	
Poverty Level	APL	35(19.1%)	77(42.07%)	0.122
	BPL	29(42%)	42(22.9%)	
	Total	64(34.9%)	119(65%)	
Preferred Health Care System	Government	27(14.7%)	60(32.7)	0.182
	Private	37(20.2%)	59(32.2%)	
	Total	64(34.9%)	119(65%)	
Preferred Medicine System	Ayurveda	7(3.8%)	3(1.6%)	0.060
	Allopathy	56(30.6%)	112(61.2)	
	Homeopathy	1(0.5%)	1(0.5%)	
	Combination	0	3(1.6%)	
Travelling Time to Health Care Center	Total	64(34.9%)	119(65%)	0.094
	30 Minutes	6(3.27%)	23(12.5%)	
	Less Than 30 Minutes	51(27.8%)	90(49.1%)	
	More Than 30 Minutes	7(3.8%)	6(3.27%)	
Problem Awareness	Yes	25(13.6%)	78(42.6%)	<b>0.001</b>
	No	39(21.3%)	41(22.4%)	
	Total	64(34.9%)	119(65%)	

Table 1 shows Association between sociodemographic details and the history of self-medication. People aware

of the problems caused by self-medication and age show a statistically significant association with the history of self-medication.

## DISCUSSION

A cross-sectional study was carried out on the prevalence of self-medication among the rural population in field practice area of a tertiary care Centre in South Kerala.

The prevalence of self-medication in our study population is 65%. A study carried out in Urban Kerala regarding antibiotic self-medication practice yielded a prevalence of just 3.31% [6]. A study carried out in Andhra Pradesh had a similar prevalence of 68.1% towards self-medication [3]. A study carried out in Tamil Nadu among the rural population had a high prevalence of 78.7% [9]. However, in a study conducted in Western India showed a low prevalence of 29.1% towards self-medication [2]. In a study conducted in rural and urban districts of Sri Lanka, they had a low prevalence of self-medication in rural and urban areas, 35.3% and 33.9% respectively [10]. A study conducted in Lagos; Nigeria showed a prevalence of 92.3% which is significantly higher than ours [1]. A higher prevalence of self-medication in our study may be due to easier and flexible distribution of drugs in a rural area.

Practice of self-medication is more among individuals of age group 41-60 compared to the younger and elder age group of this study. Similar findings were seen in other studies conducted in Puducherry by Selvaraj et al and in Bangladesh by Saha et al [11,12]. But the study conducted in Andhra Pradesh on self-medication showed that this practice was more prevalent among the age group 18-30[3]. In a study conducted in Sri Lanka on prevalence and predictors of self-medication in a selected urban and rural district, it was found that self-medication prevalence was high in children (85%) of urban mothers [10].

The results of our study indicated that 66.3% of the people who practiced self-medication were females. A study carried out in Urban Kerala showed that males (4.1%) practiced self-medication more than females (2.1%) [6] and remaining (94%) do not practice self-medication. Meanwhile, another study in Erode reported that both genders practiced self-medication to an equal extent [13]. A study conducted in the rural area of Andhra Pradesh showed that self-medication was more common among females [3]. A study conducted in Saudi Arabia showed that it was men who practiced self-medication more due to probably more purchasing power [14]. In a study conducted by WHO in the Eastern Mediterranean, the odds ratio of self-medication in females versus males was 1.45, denoting that more females practiced self-medication compared to males [15]. Higher prevalence of self-medication among females in our study may be since majority of our study population were females.

Our study observed that self-medication practices were more prevalent (64.7%) among individuals above the poverty line. A study conducted in Northern India found a higher prevalence of self-medication among Above Poverty Line (APL) individuals [16]. However, a cross-sectional study

from Ernakulam district of Kerala showed self-medication being more common amongst individuals below the poverty line engaging in self-medication [17].

Self-medication is more prevalent among the upper middle class in our study (58%). A study done in Urban Puducherry also showed a higher prevalence rate among the upper socioeconomic class. A study done in Bangladesh, Pakistan and Nigeria, however, showed higher tendency of self-medication among the lower socio-economic class [1,8,12]. These findings suggest that self-medication behaviors may be influenced by random factors rather than socio-economic status.

In the present study, 75.6% of people among those who practice self-medication require less than 30 minutes to reach the nearest health care center. However, a community based cross-sectional study carried out in Central India indicated higher prevalence of self-medication among those who take longer time to reach a healthcare center [18].

It was seen that out of 119 people taking self-medication in our study, 94.1% of the respondents use Allopathy, followed by other systems like Ayurveda, Homeopathy and a combination of these systems. A similar study conducted in Meghalaya by Apurba Marak et al had found that 55% of respondents had practiced self-medication using allopathic drugs [19]. However, a community based cross sectional study from Sri Lanka by Pushpa R et al had reported a contrasting low prevalence of 12.2% and 7.9% of self-medication to allopathic drugs from rural and urban areas respectively [10]. Majority of people prefer allopathic medicine for self-medication probably because it is easier to obtain, and its uses can be easily found as compared to other systems of medicine.

Fever, headache, common cold and cough were the most common causes for which people resorted to self-medication according to our study. The studies conducted in Urban Puducherry, Andhra Pradesh, urban and rural areas of Western India and Nigeria also stated their most common indications as fever, headache and abdominal pain as well as cold and cough [1,2,3,11]. 59.6% of the people who practice self-medication in our study have a history of chronic illnesses such as dyslipidemia, hypertension, diabetes, etc. However, a study conducted in Brazil reported a higher prevalence of self-medication among people with one or two or more chronic illnesses [20]. The drug most used for self-medication in our study was paracetamol, which is consistent with the findings of a study conducted in Urban Puducherry [11]. This is also in line with a study conducted in Nigeria, where participants reported procuring medicines directly from pharmacists by showing a previous prescription or simply stating a drug from one of their previous prescriptions [1]. 91.6% of our study sample who practice self-medication claimed to check the expiry date of the medicine before consuming it. Similarly, a study conducted in Andhra Pradesh found that 81.4% and 79.6% of participants checked the expiry date and labels, respectively, before consuming the drugs [3].

65.5% of people who practice self-medication in our study are aware of its problems. A study conducted in Andhra Pradesh showed that 69.9% of their participants claimed that self-medication was safe to use. Majority of these participants were not aware that these drugs can be abused [3]. Moreover, a study conducted in the rural areas of Sindh also showed that most of the participants were not aware of the side-effects caused by self-medication. Ahmed et al also found out the low awareness amongst the people regarding the drug interactions of common medications [8]. A study conducted in Nigeria showed that their rural residents had good knowledge about medicines and self-medication and even though they were not in support of the idea, a majority still practiced it [1]. Higher rates of self-medication even amongst those who are aware of its problems in our study may be because they have knowledge of which medication to use for basic illnesses such as headaches, etc.

We have gathered from this study that, majority of the participants claimed not to have any side effects after self-medication. Similarly, a cross-sectional study on prevalence of self-medication among population in Saudi also concluded that 79% have not faced any health issues due to self-medication while, 11% put an end to self-medication because they encountered issues such as skin problems, hypersensitivity, allergy etc. [14]. From a study carried out by Katherine M Harris and Mark E Edlund, it was concluded that self-medication of anxiety increases risk for mood disorders and substance use as well as suicidal behavior [21].

In the study we found a statistically significant association between the age groups and practice of self-medication ( $p=0.03$ ). Similar findings were found in the studies done by Raj N et al in post covid urban and rural Kerala ( $p=0.010$ ) and Namboothiri G N et al in northern Kerala ( $p=0.016$ ) [4,17]. There was association between self-medication practice and awareness of its side effects ( $p=0.001$ ). However, a similar study done by Saha et al found no significant association between the above factors [19]. There was no statistically significant association between the practice of self-medication and gender, socio-economic class, poverty level, time taken to reach the nearest health care center, preferred type of health care system. But there are some studies that have statistical significance between these parameters and self-medication. Significant association between gender and self-medication was found in the studies done by Selvaraj et al in urban Puducherry ( $p=0.0001$ ), Rathod P in Central India ( $p=0.003$ ) and Arrais et al in Brazil ( $p<0.001$ ) [11,18,20]. Studies done in Delhi, Meghalaya and in Saudi showed no association between socio-economic class and self-medication [22,19,14]. On the other hand, studies done by Juneja et al and Limaye et al showed association between these 2 parameters. As stated earlier, there was no statistically significant association between self-medication and poverty level, but in a study conducted by Raj N et al in Kerala, they found significant association ( $p<0.001$ )

[17]. A study conducted in Northern Kerala and Sri Lanka showed statistically significant association between self-medication and type of health care facility with their p values being 0.041 and 0.0001 respectively [4,10].

## CONCLUSION

To conclude, self-medication is found to be common among the participants of this study. Through this study, we were able to find various components of self-medication and their relevance to the study population. Many of them use medicines which were prescribed to them by doctors for past illnesses whereas some of them buy directly from the pharmacists. In some cases, they get information from family members who use the same medication. These people opted for self-medication due to the mild nature of the illness and lack of time. Self-medication, even though it helps solve various ailments, can cause problems such as resistance, misuse, etc. in the long run.

Awareness regarding the side effects of this practice and the importance of professional consultation before drug use should be imparted to the public. Since majority of the respondents were in favor of self-medication, ensuring restriction of distribution of drugs without proper prescription as well as strict regulation of pharmacies might be a way to reduce as well as curb this practice.

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## DECLARATIONS

Funding: Nil

Conflict of interest: Nil

## ABBREVIATIONS

1. WHO- World Health Organization
2. OTC- Over the counter

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