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A comparative study on prevalence and pattern of self-medication in urban and rural population in Palakkad District, Kerala

Sahya S Dev[1]*, Pradeesh CB[2], Anish jojo Philip[2], K Reshmi[3], Siju V[4]

[1] *Public Health Consultant Sobha health care, vadakkencherry, Palakkad, India*

[2] *Department of Community Medicine P K Das institute of medical sciences, Vaniyamkulam, India*

[3] *Orange skin care clinic, shoronur, India*

[4] *Department of Anesthesiology Government medical college, Thrissur, India*

*Corresponding author: Sahya S Dev, **Address:** India-Palakkad-Nadakkavae house, Palakkad, **Email:** sahyasdev121@gmail.com, **Tel:** +918086422431

Abstract

Background & Aims: Self-medication refers to the consumption of medicines to treat self-diagnosed disorders without consulting a medical practitioner. This study was conducted to estimate the prevalence and pattern of self-medication using modern medicines in selected rural and urban areas of the Palakkad district.

Materials &Methods: A community-based cross-sectional study was conducted in Ottapalam Municipality and Vaniyamkulam Panchayat of Palakkad district, Kerala, India. Study participants were selected through a multi-stage sampling method. Data were cleaned, coded, and entered into Excel before being exported to the SPSS version 26 for analysis. Descriptive statistics, including frequencies, proportions, and summary statistics, were calculated to examine the distribution of independent variables. Chi-square tests were performed to assess associations between demographic factors and self-medication practices.

Results: A total of 131 participants were included in the study. The overall prevalence of self-medication was 67.2% (n=88), while 32.8% (n=43) did not practice self-medication. Among those who self-medicated, 88.6% (n=78) cited previous experience as the deciding factor for their self-medication practices.

Conclusion: This study revealed a high prevalence of self-medication in the studied population, with previous experience being a major influencing factor. These findings highlight the need for targeted educational interventions and stricter regulation of over-the-counter medications. Future research should explore the potential risks associated with self-medication practices and develop strategies to promote responsible medication use in this region.

Keywords: Cross-sectional, Healthcare professionals, Rural, Self-medication, Urban

Introduction

Self-medication refers to the consumption of medicines to treat disorders diagnosed by oneself without consulting a medical practitioner (1). This practice extends beyond over-the-counter (OTC) medications to include the use of retention drugs, the

reuse of prescription drugs, or the direct purchase of drugs that are not available over the counter, all without medical consultation (1).

In India, the estimated prevalence of self-medication is 31% (2), with variable prevalence reported in other studies (3). This prevalence raises significant concerns regarding the irrational use of drugs in self-medication in India (4). Inappropriate and uncontrolled self-medication can result in increased resistance to pathogens, wastage of resources, and serious health hazards such as adverse drug reactions, prolonged suffering, and drug dependence. However, when done appropriately, self-medication can offer benefits such as saving time spent waiting to consult a doctor, readily relieving acute medical problems and emergencies, potential economic savings, and even saving lives in acute conditions. It is crucial to note that responsible self-medication must be accompanied by appropriate health information (5).

Pharmacists and pharmacy attendants play an important role in fostering self-medication among the public (6). Although OTC drugs are meant for self-medication and are of proven efficacy and safety, their improper use due to a lack of knowledge about the correct dose, side effects, and interactions could have serious implications. These risks are particularly pronounced in extremes of age (children and the elderly) and special physiological conditions like pregnancy and lactation (7,8).

Despite its prevalence, there are several rationales against self-medication, including the lack of proper diagnosis, misdiagnosis, drug interactions, allergic reactions, masking of symptoms, overuse and abuse, and delay in seeking medical help (8). Consulting a healthcare professional ensures that patients receive the right guidance and appropriate medication, benefiting from their knowledge and expertise in prescribing the most suitable medication and monitoring its effectiveness and safety.

While previous studies have explored self-medication practices in various settings, there remains a gap in understanding the specific patterns and motivations for self-medication in both rural and urban areas of Kerala, particularly in the Palakkad district. Our project aims to provide useful insights into the reasons why patients resort to this practice and to assess the safety issues with over-the-counterdrugs. With this background, the present study will estimate the prevalence and pattern of self-medication with modern medicine drugs in selected rural and urban areas of the Palakkad district.

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Materials & Methods

Study design and setting: A community-based cross-sectional study was conducted in Ottapalam Municipality and Vaniyamkulam Panchayat of Palakkad district, Kerala, India, to identify the prevalence and pattern of self-medication with modern medicine drugs. These locations were chosen to represent urban and rural populations, respectively, providing a comparative perspective on self-medication practices in different settings within the Palakkad district.

Study population: The study population included randomly selected individuals aged 18 years and above from the general population, surveyed from 10th September to 10th October 2023. Individuals who were seriously ill or mentally challenged were excluded from the study.

Sampling method: The study participants were selected through a multi-stage sampling method. In the first stage, ward number 16 was randomly selected from wards 1 to 18 of Vaniyamkulam Panchayat using a random number generator. Similarly, ward number 9 was randomly selected from wards 1 to 33 of Ottapalam Municipality. In the second stage, every second house was systematically selected from a randomly chosen starting point in both wards, until the required sample size was met.

Sample size: The sample size was calculated using MedCalc software, based on previously reported self-medication prevalence of 51.5% in rural populations and 7.7% in urban populations(2). Assuming a significance level of 1%, a study power of 95%, and a dropout rate of 25%, the estimated minimum sample size was 50 in each group.

Data collection tools and procedures: A new questionnaire was developed based on various validated data collection checklists on the prevalence and pattern of self-medication among people residing in rural and urban areas. Some questions were adapted from these existing checklists, and new questions were added. The newly added questions were pretested before inclusion in the study. Data were collected through interviews using a Google Form. The data collected in Excel sheets were cleaned, coded, and rechecked before data analysis.

Data processing and analysis procedure: Data were cleaned, coded, and entered into Excel, then exported to the Statistical Package for the Social Sciences SPSS version 26 for analysis. Descriptive statistics (frequency, proportion, and summary statistics) were carried out to examine the distributions of independent variables. Associations between variables were tested using the Chi-square test. *P-values* less than 0.05 were considered significant.

Ethical Considerations: Digital informed consent was obtained from all participants. Anonymity of the participants was maintained. The information collected from them was solely used for the purpose of the study and kept confidential.

Results

Socio-demographic characteristics of study participants:

Out of 131 participants, 18.3% were aged between 18 and 30, 46.6% were aged between 31 and 50, 26.7% were aged between 51 and 70, and 8.4% were aged 71 and above. The mean age of the participants was 45.66, with a standard deviation of 15.769 and a range of 22–69. Among the participants, 74% were females and 26% were males. Of the total, 85.5% were married, 7.6% were unmarried, and 6.9% were widows or widowers. Out of the 131 participants, 71% had school-level education, 24.4% were graduates, 3.8% were postgraduates, and 0.8% were professionals.

Of the 131 participants, 60.3% had health insurance, while 39.7% did not have health insurance. Table 1 shows the sociodemographic characteristics of the study participants. Among the 65 participants from rural areas, the majority had a white ration card (43.1%), followed by pink (24.6%), blue (23.1%), and yellow (9.2%) ration cards. Among the 66 participants from the urban population, the majority had a pink ration card (45.5%), followed by blue (24.2%), white (18.2%), and a minority with yellow (12.1%).

A yellow ration card was provided for the most economically backward sections of society. The pink card was issued for below-poverty-line families, the blue ration card was for non-priority families who received subsidies and the white card is for above poverty line (APL) non-priority families.

Table 1. Sociodemographic characteristics of study participants(n=131)

AGE	Overall n=131(%)	Rural n=65	Urban n=66
Gender			
Female	97(74)	45(62.2)	52(78.8)
Male	34(26)	20(30.8)	14(21.2)
Marital status			
Married	112(85.5)	52(80)	60(90.9)
Unmarried	10(7.6)	7(10.8)	3(4.5)
Widow/widower	9(6.9)	6(9.2)	3(4.5)
Educational qualification			
School level	93(71)	31(47.7)	62(93.9)
Graduate	32(24.4)	28(43.1)	4(6.1)
Post graduate	5(3.8)	5(7.7)	0(0)
Professional	1(0.8)	1(1.5)	0(0)
Religion			
Christian	5(3.8)	5(7.7)	0(0)
Hindu	81(61.8)	60(92.3)	21(31.8)
Muslim	45(34.4)	0(0)	45(68.2)
Ration card			
Yellow	14(10.7)	6(9.2)	8(12.1)

Pink	46(35.1)	16(24.6)	30(45.5)
Blue	31(23.7)	15(23.1)	16(24.2)
White	40(30.5)	28(43.1)	12(18.2)
Health insurance			
Yes	79(60.3)	38(58.5)	41(62.1)
No	52(39.7)	27(41.5)	25(37.9)
Chronic illness			
Yes	71(54.2)	32(49.2)	39(59.1)
No	60(45.8)	33(50.8)	27(40.9)

The results showed that 67.2% of participants practiced self-medication, while 32.8% did not take any self-medication. Among the 65 participants from rural areas, 67.7% had taken self-medication, while 32.3% had not. Among the 66 participants from the urban areas, 66.7% had taken self-medication, while 33.3% had not. Table 2 shows the reasons for self-medication among the study participants.

Table 2. Reason for self-medication among study participants(n=131)

Reason for self-medication	Overall n=131(%)	Rural n=65	Urban n=66
Previous successful experience	61(46.6%)	33(50.8%)	28(42.4%)
Fear of medical diagnosis	3(2.3%)	2(3.1%)	1(1.5%)
Lack of access to health care services	5(3.8%)	4(6.2%)	1(1.5%)
Reluctance to visit a doctor	20(15.3%)	9(13.8%)	11(16.7%)
Cost savings	19(14.5%)	14(21.5%)	5(7.6%)
Others	5(3.8%)	0	5(7.6%)

Among the study participants, 62.6% used self-medication for fever, 33.6% for cough and cold, 27.5% for body aches, and 8.4% for gastro intestinal issues (Figure 1). Of the 88 participants who had self-medicated, 93.2% used paracetamol,33% used cough syrups,20.5% used antacids 3.4% used antibiotics, and 3.4% used other medications. Among the 44 participants from rural areas, 93.2% used paracetamol, 43.2% used cough syrup, 25% used antacids, and 6.8% used antibiotics for self-medication.

Among the 44 participants from urban areas who had self-medicated, 93.2% used paracetamol, 22.7% used cough syrup, 15.9% used antacids, and 6.8% used other drugs for self- medication, such as home remedies, Ayurveda, etc. Table 3 shows the distribution of study participants based on the drugs used as part of self-medication.
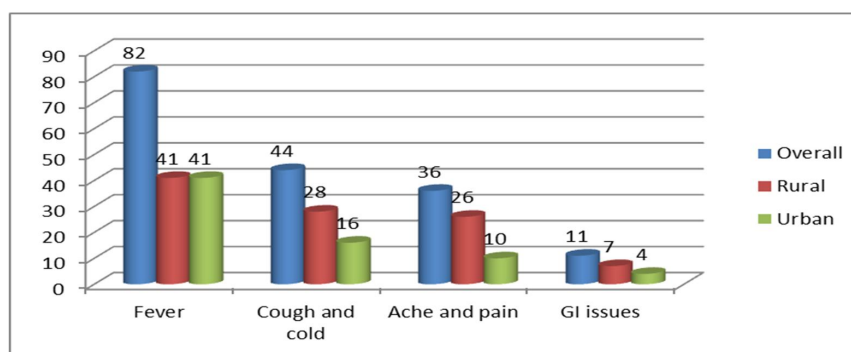
*multiple options

Fig. 1. Distribution of conditions associated with self-medication

Table 3. Distribution of study participants based on drugs used as part of self-medication

Drugs used	Overall n=131(%)	Rural n=65	Urban n=66
Paracetamol	82 (93.2)	41 (93.2)	41 (93.2)
Antacid	18 (20.5)	11 (25. 0)	7 (15.9)
Antibiotics	3 (3. 4)	3 (6.8)	0
Cough Syrups	29 (33. 0)	19 (43. 2)	10 (22.7)
others	3 (3.4)	0	3 (6.8)

*multiple options

Out of the 88 participants who self-medicated, 88.6% cited previous experience as the deciding factor for self-medication. For 26.1% of the participants, recommendations from a pharmacy worker were the triggering factor, while 20.5% decided on self-medication after consulting a health care professional other than a doctor. Additionally, 17.0% took recommendations from friends and family, and 4.5% were influenced by online research (Table 4).

Table 4. Table showing triggering factor for self-medication

Triggering factors for self-medication	Overall n=88(%)	Rural n=44	Urban n =44
Based on previous experience	78(88.6)	41(93.2)	37(84.1)
Recommendation from friends or family	15(17.0)	12(27.2)	3(6.8)
Online research	4(4.5)	3(6.8)	1(2.3)
Consultation with pharmacist	23(26.1)	12(7.3)	11(25.0)
Consultation with health care professional other than doctors	18(20.5)	13(29.5)	5(11.4)

Among 88 participants, 54.5 % preferred self-medication because it saves time by avoiding the need for a physician consultation, 25% opted for self-medication to cut costs on physician consultations due to financial issues, 6.8% due to peer pressure, 5.7% due to social media influences like advertisements and 23.4% for to other reasons. Table 5 shows the preference for self-medication over consulting a doctor.

As shown in Figure 2, 74% of participants know that self-medication is not a safe practice, 7.6% think it is a safe practice, and 18.3% are unsure. Among the 65 participants from rural areas 9.2% think that self-medication is safe, 63.1% think it is not safe, and 27.7% do not know much about self-medication. Among 66 participants from urban areas, 6.1% think that self-medication is safe, 84.8% think it is not safe, and 9.1% do not know much about self-medication. There is no significant association between the practice of self-medication and demographic factors in both urban and rural areas, as shown in Table 6.

Table 5. Table showing preference of self-medication over a doctor

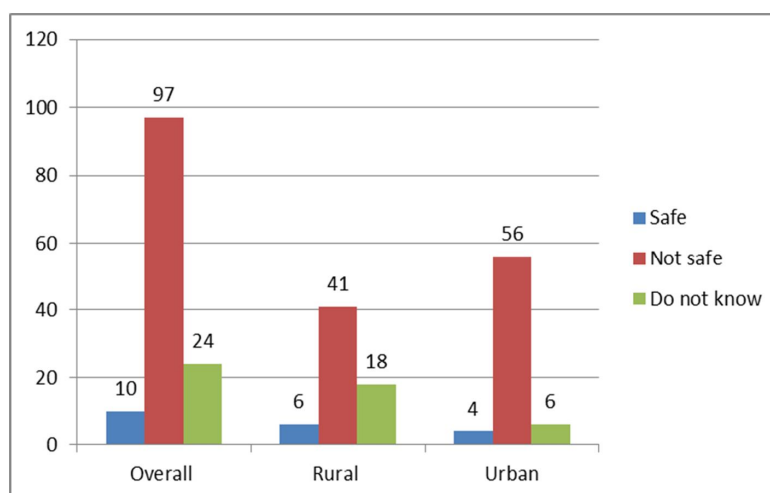| Factors contributing to self-medication	Overall n = 88(%)	Rural n =44	Urban N =44
Time saving	48 (54.5)	25(56.8)	23(52.3)
Financial issues	22 (25.0)	18(40.9)	4(9.1)
Peer pressure	6(6.8)	3(6.8)	3(6.8)
Social media	5(5.7)	4(9.1)	1(2.3)
Others	21(23.4)	5(11.2)	16(33.8)

Fig. 2. Showing the perceived safety aspects of self-medication by the study participants

Table 6. Association of practice of self-medication with social demographics in rural area and urban area

Demographic factors	Practice of self-medication-rural		Chi^2	P-value
	Yes	no		
1.Age				
18-30	10	3		
31-50	21	2	0.313	43.814
51-70	11	11		
More than 70	2	5		
2.Gender				
Female	32	13	0.377	0.782
Male	12	8		
3.Marital status				
Married	38	14	0.117	4.284
Unmarried	4	3		
Widow/widower	2	4		
4.Education				
School level	21	7	0.598	1.877
Graduate	3	2		
Post graduate	1	0		
School level	19	12		
5.Religion				
Hindu	41	19	0.702	0.147
Christian	3	2		
6.Ration card				
Blue	10	5	0.739	1.257
Pink	12	4		
White	19	9		
Yellow	3	3		
7.Health insurance				
Yes	16	11		
No	28	10	0.22	1.502
8.Chronic illness				
Yes	24	9	0.378	0.777
No	20	2		
Demographic factors	Practice of self-medication-urban		Chi^2	P-value
	yes	no		
1.Age				
18-30	7	4		
31-50	28	10	0.499	34.35
51-70	8	5		
More than 70	1	3		
2.Gender				

Demographic factors	Practice of self-medication-rural		Chi^2	P-value
	Yes	no		
Female	34	18	0.67	0.181
Male	10	4		
3.Marital status				
Married	39	21		
Unmarried	2	1	0.455	1.575
Widow/widower	3	0		
4.Education				
School level	41	21	0.715	0.133
Graduate	3	1		
5.Religion				
Hindu	13	8	0.575	0.314
Muslim	31	14		
6.Ration card				
Blue	10	6		
Pink	21	9	0.648	1.65
White	9	3		
Yellow	4	4		
7.Health insurance				
Yes	15	10	0.37	0.805
No	29	12		
8.Chronic illness				
Yes	17	10	0.595	0.282
No	27	12		

Discussion

This study was conducted among 131 individuals residing in urban and rural areas of central Kerala to determine the prevalence and patterns of self-medication.

In the current study, 67.17% of the respondents had taken allopathic drugs without advice from a medical practitioner in the past 6 months. Among those, 67.7% were from the rural population and 66.7% from the urban population, with the highest prevalence for paracetamol (82%). The figures seem to be lower when compared to the study conducted by Hussain et al. in Afghanistan, which reported a prevalence of 73.2% (9). According to the study conducted by Mamo et al. among 269 people,40.5% reported that they had self-medicated in the past, which is lower than the current study (10).

In the study conducted by Maria Eneida et al with prevalence 16.1% (Brazil) Limaye et al. among 462 families (212 from rural and 250 from urban areas) in western India, the total prevalence was 29.1%, which is comparatively lower than the current study(11,12). The rural self-medication prevalence of 67.7% in our study is substantially higher than the study conducted by Kumar et al., which reported a prevalence of 51.75%

(13).The result of the study conducted by Selvaraj et al. in the urban population indicated that the prevalence was higher for fever (31%), which is comparatively lower than the current study (81%) (14).

According to the studies conducted by Roien et al. with a prevalence of 16.1% (Brazil)(11), Arrais et al. with a prevalence of 15%(Spain)(15), and Figueiras et al. with a prevalence of 52.1% (UAE)(16),these figures are lower than the current study, indicating the role of a country's development on self-medication practices among the general population.

A community-based cross-sectional study was carried out in the urban population in Tripunithura Municipality by Limaye et al.in 2018, and the prevalence of antibiotic self-medication was found to be 3.31%, which is similar to our study (3%) (12).

Conclusion

The Study finds that the prevalence of self-medication is high in both urban and rural areas. The proportion of participants practicing self-medication in the rural area is 67.7%, and in the urban area, it is 66.7%. This indicates that the practice of self-medication is high in both the urban and rural areas of Palakkad. The major factors contributing to the

increased practice of self-medication were found to be previous successful experiences and reluctance to visit a doctor. The main drug used for self-medication is paracetamol.

Limitation

Data collection was done in a short period, involving a smaller portion of the district, which could reflect in the results. White coat bias, due to the face-to-face survey conducted, may also be reflected in the study. Other comorbidities could not be quoted separately.

Recommendations

It is important to raise awareness about the potential risks and dangers associated with self-medication. It is always recommended to consult with a healthcare professional before taking any medication, even over-the-counter ones.

Education and awareness campaigns: Develop educational materials, such as brochures, posters, and online resources, to educate the public about the risks and consequences of self-medication.

Online consultations through government and private providers should be encouraged for those who are unable to travel or are facing financial issues so that such patients can receive the appropriate medications.

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Author contribution

All authors contributed equally.

Ethical statement

Digital informed consent was obtained from all the participants. The anonymity of the participants was maintained. The information collected from them was solely used for the purpose of the study and kept confidential.

Data availability

None declared.

Conflict of interest

None declared.

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None declared.

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