

Original Research Article

Prevalence, practice, and determinants of self-medication among the common public in a village of Northern Kerala, India

Narayanan Namboothiri G.^{1*}, Lamees K. C.², Tamanna Latheef³, Thasleema M. M.³,
Thameem Muhammed N.³, Swathi R.³

¹Department of Community Medicine, MES Medical College, Perinthalmanna, Kerala, India

²Badr Al Salam Hospital, Oman

³MES Medical College, Perinthalmanna, Kerala, India

Received: 26 September 2023

Accepted: 02 November 2023

*Correspondence:

Dr. Narayanan Namboothiri G.,

E-mail: narayanang1990@gmail.com

Copyright: © the author(s), publisher and licensee Medip Academy. This is an open-access article distributed under the terms of the Creative Commons Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original work is properly cited.

ABSTRACT

Background: Self-medication, managing health issues without professional guidance, poses significant risks to individuals and public health. Prevalence rates vary globally, often higher in low-income countries due to limited healthcare access. While self-medication offers cost-effective solutions for minor ailments, it may lead to misuse, adverse effects and financial burdens. Identifying factors driving self-medication is crucial for tailored interventions. This study aims to assess self-medication prevalence, practice, and influencing factors in a Kerala village.

Methods: A community-based cross-sectional study included 212 participants (≥18 years) selected via convenient sampling. A pre-tested questionnaire collected socio-demographic data, self-medication prevalence, and influencing factors. Self-medication was defined as OTC drug use without consulting a medical graduate. Data were analyzed using SPSS 26, with chi-square tests for bivariate analysis ($p \leq 0.05$).

Results: Participants (mean age: 38.13±15.56) reported 53.8% self-medication. Acute illness individuals self-medicated more (80.7% purchased from independent pharmacies). Time constraints (24.5%) and expired prescriptions (42.1%) drove self-medication. Medication choice was influenced by cost (54.3%), brand reputation (21.1%), and both (24.6%), with pharmacist recommendations (36.0%) playing a role. Self-medication was common among ages 41-60 (64.3%) and those with lower education levels (77.8% primary, 70.5% middle). Acute illness individuals self-medicated more (66%) than chronic cases (34%).

Conclusions: This rural Kerala study identifies a 53.8% self-medication rate, affected by age, education, and healthcare preferences. Targeted interventions are needed for ethical self-medication and improved healthcare practices.

Keywords: Self medication, Over the counter drugs, Healthcare costs, Prevalence, Cross-sectional study, Epidemiologic determinants

INTRODUCTION

Self-medication is the act of someone managing their own health issues, symptoms, or illnesses without the aid of a qualified healthcare provider. It entails the utilization of over-the-counter treatments, herbal remedies, conventional medicines, or even prescription drugs obtained without a legitimate prescription.^{1,2} Due to its

effects on patient safety and public health, self-medication is common and has attracted a lot of attention. The development of focused interventions and policies aimed at promoting responsible healthcare practices can benefit from understanding the variables affecting self-medication habits, the types of pharmaceuticals frequently used, and the effects of this practice.³

Around the world, different nations and areas have different rates of self-medication. According to many literatures, self-medication is a significant public health issue that is practiced globally and has prevalence rates that range from 11.5% to 90%.⁴⁻⁶ Self-medication is widespread in high-income nations including the United States, Canada, Greece, and European nations. Some research indicate that between 31% and 88% of people in high-income nations practice self-medication.⁷⁻⁹ For instance, a survey carried out in India revealed that almost 52% of city people used self-medication. On the incidence of self-medication in low-income nations, little information is known. However, it's thought that these regions' high rates of self-medication are also a result of the region's poor access to medical treatment.¹⁰ Self-medication rates might differ greatly between countries and even between different areas. These variations are influenced by elements like cultural attitudes, medical infrastructure, educational attainment, and drug accessibility.

Self-medication offers people a practical and affordable way to manage minor health conditions without having to see a doctor. This is especially important in areas with poor access to healthcare facilities or where budgetary limitations make routine medical checkups difficult. Without enough understanding, self-medication can result in the absurd use of medications, which can have a major detrimental influence on one's health as well as raise one's financial burden. A greater likelihood of improper, inaccurate, or excessive therapy, missed diagnoses, delays in effective treatment, pathogen resistance, and increased morbidity may result from widespread irrational drug use without medical supervision.¹¹

A major factor in encouraging the use of over-the-counter drugs without a prescription is their accessibility. People may turn to self-medication as a more practical and reasonable solution if they have difficulty accessing healthcare services due to long wait periods, high expenses, or a lack of facilities. People may self-medicate to treat their symptoms because they believe they have minor or self-limiting diseases that don't need medical attention. People who rely on self-medication without obtaining professional assistance may do so due to a lack of information about the proper use of pharmaceuticals, including the risks and adverse effects. People may choose to self-medicate due to cultural norms, conventional treatments, and habits that favor self-care and self-treatment.^{12,13}

Due to its effects on patient safety and public health, self-medication is common and has attracted a lot of attention. The development of focused interventions and policies aimed at promoting responsible healthcare practices can benefit from an understanding of the variables affecting self-medication habits, the types of pharmaceuticals frequently used, and the effects of this practice. Accurate information and resources can be distributed to the public by working together with neighborhood pharmacists,

healthcare practitioners, and community leaders. Stricter regulations, such as those requiring identification or prescriptions for particular pharmaceuticals, can help discourage improper self-medication. Healthcare practitioners can also take an active part by giving patients the right advice, stressing the significance of safe prescription use, and clearing up any misconceptions or anxieties about seeking medical attention.

Therefore, the main goal of our study is to determine the prevalence and practice of self-medication among common people in a village in Kerala, India, as well as the determinants that are related to it.

METHODS

Self-medication, which is the use of over-the-counter drugs or conventional treatments without the supervision of a healthcare provider, is a widespread practice everywhere in the world. It has a big impact on how people seek out healthcare, especially in rural places where access to professional healthcare services could be scarce. Self-medication is common in India, notably in the state of Kerala, for several reasons, including affordability, convenience, cultural norms, and a lack of competent healthcare infrastructure.

Study design, setting, duration

The current community-based descriptive cross-sectional study was carried out in the rural field practice area of MES medical college, Perinthalmanna in Northern Kerala, India. Data was gathered from June 2021 to December 2021 over a six-month period.

Study population and sample size

The study participants consisted of individuals who were above 18 years of age and were present at their residences during the house-to-house survey. To ensure representation from each household, one individual per household was included in the study. In situations where there were multiple individuals above 18 years of age in a household during the survey, the interview was conducted with the oldest available adult participant who expressed willingness to participate in the study.

Exclusion criteria

Individuals who were deemed unable to comprehend the study due to cognitive or language limitations. Additionally, households in which only individuals below 18 years of age were present at the time of the survey were excluded from the study. Furthermore, the criteria extended to individuals who displayed non-cooperative behavior or the outright refused to participate in the research.

Based on a study conducted in Puducherry by Selvaraj et al the sample size was estimated using the formula

$$\frac{4 \times p \times q}{d^2}$$

Where p is prevalence and d is precision, and the target confidence level was 95% and the relative precision was 5%.¹⁴ In the suggested study, self-medication was 11.9% prevalent. The formulas yielded a minimal sample size of 168. The actual sample taken, though, was 212. The convenient sampling was applied.

Method of data collection

Data collection was conducted through face-to-face interviews. We employed a pre-designed, semi-structured, and pretested questionnaire that incorporated a blend of questions sourced from previously validated questionnaires in studies with similar objectives to ours, thereby leveraging established measurement constructs.^{4,10,14,16} To further bolster its validity, we conducted a pilot study within the same village before the commencement of our main study. This pilot allowed us to fine-tune the questionnaire based on the local context and the responses received.

The questionnaire served as the data collection tool and consisted of three distinct parts.

The first part of the questionnaire focused on gathering the socio-demographic details of the participants. The second part included questions related to the prevalence of self-medication, while the third part explored the practice of self-medication and its determinants.

To define self-medication, the operational definition used in this study referred to the utilization of over-the-counter drugs or any allopathic medication for self-treatment without prior consultation with a certified doctor holding at least a medical graduate degree.¹⁵

This study employed a cross-sectional design and utilized a pre-designed semi-structured questionnaire. The data collection process involved conducting a house-to-house survey and applying the proposed questionnaire to the study subjects, from whom relevant information was obtained.

The collected data were broken down into percentages and cross-tabulated for several variables. Version 26 of the SPSS software was used for the analysis. Where applicable, chi-square values were generated for bivariate analysis, and a p=0.05 or less was regarded as statistically significant.

Ethical consideration

All participants in the study were given guarantees of total confidentiality and anonymity, and participation was entirely voluntary. Potential participants were fully told about the study's nature and goals before participation,

and their written informed consent was obtained. Ethics clearance was obtained before the study.

RESULTS

Sociodemographic features

In our study, we had a diverse range of participants aged between 18 and 85 years, with a mean age of 38.13±15.56. The largest age group was between 21 and 40 years, accounting for 53% of the participants. Regarding gender distribution, 69% were female. Occupation-wise, our participants encompassed various backgrounds, with 51% being homemakers, 17% skilled workers, and 11% professionals. In terms of education, 34% had completed a degree, while 28% had up to high school education. When it came to healthcare preferences, an overwhelming majority of 96% opted for modern medicine as their primary health facility. Only a small percentage showed a preference for alternative practices, with 3% choosing Ayurveda and 1% favoring homeopathy, 66 participants in the study had a chronic illness, 142 participants experienced at least one incident of an acute illness within previous 12 months (Table 1).

Table 1: Socio-demographic details, (n=212).

Descriptive features	N	Percentages (%)
Age (In years)		
<20	20	9.4
21-40	112	52.8
41-60	56	26.4
>60	24	11.4
Sex		
Male	66	31.0
Female	146	69.0
Education		
Primary	28	13.2
Middle	24	11.3
High/higher	58	27.3
Graduate	32	15.1
Postgraduate	70	33.1
Occupation		
Homemaker	108	50.9
Unskilled	24	11.3
Skilled	36	17.1
Student	16	7.5
Professional	28	13.2

Prevalence of self-medication

The prevalence of self-medication in our study came out to be 53.8%, 114 among 212 used to self-medicate. For participants with chronic diseases (n=68), 22 individuals reported self-medicating when the disease was present, which accounts for 30% of the participants with chronic conditions. For participants with acute diseases (n=144) in past one year, a larger proportion of individuals engaged in self-medication when the disease was present,

with 96 individuals reporting self-medication. This represents 66% of the participants with acute conditions. In our study, self-medication practices were more prevalent among individuals with acute diseases compared to those with chronic diseases. In the past one year, 39% of the study subjects consumed drugs by self-medication between 5-10 times, 93% of subjects faced no difficulties in procuring such drugs.

Practice of self-medication

It covers various aspects related to self-medication behavior, reasons, drug selection, habits, and experiences. The majority of participants (80.7%) obtained self-medication drugs from private pharmacy stores, with a smaller percentage sourcing from government primary healthcare centers (10.6%) or through family members/neighbors (7.1%). The main reasons for self-medication included the availability of old prescriptions (42.1%), time issues (24.5%), and financial constraints (14.1%). When selecting drugs, 54.3% considered low price, 21.1% emphasized good brand/pharmaceutical company, and 24.6% weighed both factors. The decision to choose a particular drug was influenced by recommendations from pharmacists (36.0%), previous healthcare professionals (18.4%), peers/relatives (12.2%), and by advertisements and media (15.8%). Around 68.4% of participants had a habit of storing medicines at home, and 45.6% checked online regarding the drug. However, only 32.5% checked the expiry date of the drug. Additionally, 57.9% admitted to suggesting self-medication to others, and 88.5% reported stopping medication once symptoms improved without completing the full course. Regarding side effects, 20.1% experienced them with self-medication, while 79.9% did not. The majority of participants self-medicate for symptoms like headache (61%), fever (55%), nasal discharge (42%), and aches (40%). The vast majority (86%) of people will visit a doctor if a condition persists for longer than a week despite self-medication. Antipyretic and analgesic medications are frequently used for self-medication. About 56.7% of study participants are unaware of any risks that could emerge from self-medication.

Determinants of self-medication

Participants aged 41-60 had the highest proportion of self-medication (64.3%), followed by those aged 21-40 (48.2%), and those below 20 years (50.0%). The differences in self-medication prevalence across these age groups were statistically significant (p=0.016). A higher proportion of participants with primary and middle education engaged in self-medication (77.8 and 70.5 %), followed by graduates (56.2%) and postgraduates (40%). The p=0.049, indicating a significant relationship between education level and self-medication. As education level increases there is a decrease in practice of self-medication among our study population. 100% of the study population following health systems like Ayurveda

and homeopathy self-medicate. Participants with acute diseases had a higher self-medication rate (66%) compared to those with chronic diseases (34%), and this difference was statistically significant (p=0.041). Doctor-related issues like attitude and satisfaction also influenced the participants to self-medicate along with the availability of old prescriptions, distance, time, and financial issues. Although additional variables that may affect the frequency that a person practices self-medication, such as gender, occupation, type of drugs, diseases, awareness of side effects, regular doctor visits, and accessibility to doctors, were examined, none of them proved to be statistically significant (Table 2).

Table 2: Determinants of self-medication.

Determinants	Self-medication, n (%)		P*
	Yes	No	
Age (In years)			
<20	10 (50.0)	10 (50.0)	0.016
21-40	54 (48.2)	58 (51.8)	
41-60	36 (64.3)	20 (35.7)	
>60	14 (58.3)	10 (41.7)	
Education			
Primary	18 (77.8)	10 (22.2)	0.049
Middle	17 (70.5)	07 (29.5)	
High/higher	36 (62.0)	22 (38.0)	
Graduate	18 (56.2)	14 (43.8)	
Postgraduate	28 (40.0)	42 (60.0)	
Type of health system			
Allopathy	104 (51.5)	98 (48.5)	0.041
Ayurveda	8 (100)	00 (00)	
Homeopathy	2 (100)	00 (00)	
Nature of disease			
Acute (exclusive)	95 (66)	49 (34)	0.003
Chronic (exclusive)	20 (30)	48 (70)	
Reasons for self-medication			
Time issues	28 (82.4)	06 (17.6)	0.021
Distance	04 (66.7)	02 (33.3)	
Financial	16 (15.7)	86 (84.3)	
Doctor related	18 (100)	00 (00)	
Old prescription	46 (92.3)	06 (7.7)	

*Chi-square test

DISCUSSION

The prevalence and use of self-medication have drawn more and more attention from the medical community in recent years. This study was intended to investigate the extent to which people use self-medication and the variables that affect this behavior. We can create savvy tactics to encourage responsible drug use and enhance general healthcare outcomes by studying the prevalence and causes of self-medication.

The prevalence of self-medication varies significantly across different studies conducted in various regions and populations. In our study, the prevalence of self-medication was found to be 53.8%, which falls within the

range of the reported prevalence rates. Several studies showed lower prevalence rates, such as the study by Selvaraj et al in Puducherry (11.9%), Shankar et al in Nepal (48.3%), Deshmugh et al in rural Goa (37.8%), Lal et al in urban Delhi (31.3%), Durga et al in an urban slum (34.5%), Jimenez et al (28.5%), Montastruc et al (30%), and Sarahroodi et al in Iran (45.8%).^{14,16-22} On the other hand, studies conducted by Rawan et al in Syria (67.3%), Sharma R et al in Jammu (59.5%), Bennadi et al (61%), Yousef et al in Jordan (71%), El Ezz et al in Egypt (76.3%) and Rathod et al in Central India (60%) reported higher prevalence rates.²³⁻²⁸ It has been hypothesized that these discrepancies are caused by behavioral traits related to socioeconomic status. The regional and cultural variations among the populations may provide an explanation for this variation in prevalence.

The large proportion of participants who purchased self-medication pharmaceuticals from private pharmacy stores is consistent with an earlier study by Hassali et al which emphasizes the simple accessibility and availability of over-the-counter medications at such businesses.²⁹ The usage of outdated prescriptions and time restrictions are among the self-medication causes, which are similar to the study conducted by Abay et al in terms of convenience and perceived cost-effectiveness.³⁰ The fact that many participants stopped taking their medicine once their symptoms got better rather than finishing the entire course is challenging since it may lead to antibiotic resistance and treatment failure. Grigoryan et al.'s investigation also revealed similar findings.³¹ The impact of low cost and brand preference on medication choice is consistent with findings from research by Al-Azzam et al and Kotwani et al which show that cost and pharmaceutical marketing have a big impact on self-medication decisions.^{32,33} According to Zafar et al the influence of medical experts' and pharmacists' recommendations on drug choice highlights the need of enhancing their involvement in patient education and counselling to support appropriate self-medication practices.³⁴ As mentioned by Jamshed et al there is a need for public awareness campaigns on proper storage and trustworthy sources of drug information. This is supported by the large percentage of participants in our study who store medications at home and check the internet for drug consumption.³⁵ However, the low proportion of participants who checked the drug's expiration date is alarming, according to Saddique et al., and it highlights the need for public education about the dangers of using expired prescriptions.³⁶ In addition, the high percentage of participants who recommended self-medication to others emphasizes the need for interventions designed to discourage this behavior, which, in the opinion of Haque et al may result in improper drug use and negative impacts.³⁷

According to research by Al-Azzam et al and Sado et al self-medication is more common among older age groups, which is in line with the conclusion that participants aged 41 to 60 had the largest percentage of

it.^{32,38} Higher education is linked to a decreased prevalence of self-medication, indicating a substantial relationship between education level and self-medication that is consistent with the notion that more educated people are more inclined to seek competent medical assistance. According to research by Klemenc-Ketis et al individuals with acute disorders self-medicate at a higher rate than those with chronic diseases, which may represent the belief that some acute conditions may be treated without the assistance of a doctor. The results of a study by Kassie et al and Klemenc-Ketis confirmed this.³⁹ It is important to note that individuals who practiced Ayurveda and Homeopathy had a 100% self-medication rate. Gyawali et al confirm this observation by suggesting that this finding may be related to the cultural practices and beliefs connected with these ancient medical systems.⁴⁰ It is notable that our study found that doctor-related factors including attitude and satisfaction had an impact on self-medication behavior. This emphasizes the value of patient-centred care and excellent doctor-patient communication in minimizing self-medication habits, as discussed Gyawali et al.⁴⁰ Additionally, in previous research by Haque et al and Abay et al it was shown that variables such the availability of outdated prescriptions, the distance to medical facilities, time restraints, and financial concerns were also major drivers of self-medication.^{30,37} Consideration must be given to the potential risks of self-medication, including incorrect drug usage, a delay in diagnosis, and negative effects, as demonstrated by these studies. According to Haque et al promoting responsible self-medication practices through public awareness campaigns, healthcare provider education, and drug sales regulation is essential to ensure patient safety and appropriate healthcare utilization. Self-medication can be convenient and cost-effective.³⁷

Overall, the results of our study demonstrate the complexity of self-medication behavior, which is influenced by factors such as age, education, health system preferences, disease nature, and access to healthcare. These variables can be addressed through focused interventions, resulting in safer pharmaceutical practices and better healthcare results.

Limitations

Our capacity to demonstrate causation and comprehend temporal correlations between self-medication behavior and associated factors may be constrained by the study's cross-sectional methodology. More reliable proof would be provided in this area by longitudinal investigations. Additionally, due to social desirability or memory issues, individuals may not accurately recall or reveal their self-medication behaviors, which could lead to self-reporting bias and recall bias. Additionally, the sample used in the study might not accurately reflect the complete adult population of common individuals, which could result in selection bias. Additionally, the study may not be generalizable to other cultural or regional contexts, which would reduce the external validity of the findings.

Despite these drawbacks, the study offers insightful information about adults' self-medication behavior and establishes the foundation for future research in this crucial area.

CONCLUSION

In conclusion, this study sheds light on the prevalence and practice of self-medication among the study population, with a prevalence rate of 53.8%. The findings reveal the multifaceted nature of self-medication behavior, influenced by various factors such as age, education, health system preferences, disease type, and healthcare access. The majority of participants obtained self-medication drugs from private pharmacy stores, and the main reasons for self-medication included the availability of old prescriptions, time constraints, and financial limitations. Drug selection was often influenced by price considerations and brand preferences. The study also highlighted the role of healthcare professionals and pharmacists in influencing drug choices. However, there were concerning trends, such as a lack of attention to checking the expiry date of drugs and the high percentage of participants suggesting self-medication to others.

These findings underscore the need for targeted interventions to promote responsible self-medication practices, focusing on improving public awareness, healthcare provider education, and patient-centered care. Additionally, enhancing the availability and accessibility of professional healthcare services may help reduce the reliance on self-medication for managing health issues. By addressing these factors, we can work towards ensuring the safe and effective use of medications, ultimately leading to better healthcare outcomes and overall public health.

ACKNOWLEDGMENTS

Author would like to thanks to Dr. N. M. Sebastian, head of the department of community medicine, MES Medical college, for his important advice and help during the course of this research. The faculties of the department of community medicine at the MES medical college are also to be recognized and thanked for their unflagging support and encouragement, which were essential to the successful completion of this research. They all worked together to shape this work of art, and we are incredibly grateful for their contributions.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

REFERENCES

1. World Health Organization (WHO). 2000. Guidelines for the Regulatory Assessment of Medicinal Products for Use in Self-Medication.

Available at: <https://apps.who.int/iris/handle/10665/66453>. Accessed on 15 October, 2023.

2. World Self-Medication Industry (WSMI). 2021. Responsible Self-Care and Self-Medication: A Worldwide Review of Consumer Surveys. Available at: <https://www.wsmi.org/wp-content/uploads/2021/01/WSMI-Review-of-Consumer-Surveys.pdf>. Accessed on 15 October, 2023.
3. Montastruc JL, Bagheri H, Geraud T, Lapeyre-Mestre M. Pharmacovigilance for self-medication. *Expert Opin Drug Safety.* 2019;15(7):897-900.
4. Limaye D, Limaye V, Fortwengel G, Krause G. Self-medication practices in urban and rural areas of western India: a cross sectional study. *Int J Community Med Public Health.* 2018;5:2672-85.
5. Väänänen MH, Pietilä K, Airaksinen M. Self-medication with antibiotics-does it really happen in Europe? *Health Policy.* 2006;77:166-71.
6. Deshpande SG, Tiwari R. Self medication-a growing concern. *Indian J Med Sci.* 1997;51(3):93-6.
7. Grigoryan L, Haaijer-Ruskamp FM, Johannes GMB, Reli M, Reginald D, Arjana T-A et al. Self-medication with antimicrobial drugs in Europe. *Emerging Infect Dis.* 2017;13(12):1607-16.
8. Grigoryan K, Flora MH-R, Johannes GMB, Reli M, Reginald D, Arjana T-A et al. Self-medication with antimicrobial drugs in the United States. *Antimicrob Agents Chem.* 2006;50(3):876-83.
9. Kelesidis T. Prevalence of self-medication practices among health care workers in Greece according to the type of health care setting. *Prevent Med.* 2010;50(6):519-23.
10. Kumar N. Self-medication practices and associated factors among urban dwellers in Delhi, India. *Indian J Community Med.* 2018;43(4):275-8.
11. Bennadi D. Self-medication: a current challenge. *J Basic Clin Pharm.* 2013;5(1):19-23.
12. Alhomoud F. Self-medication and self-prescription with antibiotics in the Middle East-do they really happen? A systematic review of the prevalence, possible reasons, and outcomes. *Int J Infect Dis.* 2017;57:3-12.
13. Fleming ML. The magnitude of and health system responses to the pharmaceuticalization of daily life in families in the United States. *Social Heal Illness.* 2015;37(6):917-32.
14. Selvaraj K, Kumar SG, Ramalingam A. Prevalence of self-medication practices and its associated factors in Urban Puducherry, India. *Perspect Clin Res.* 2014;5(1):32-6.
15. Guidelines for the regulatory assessment of medicinal products for use in self-medication. Geneva, World Health Organization, 2000. Available at: https://apps.who.int/iris/bitstream/handle/10665/66154/WHO_EDM_QSM_00.1_eng.pdf. Accessed on 10 June, 2023.
16. Shankar PR, Partha P, Shenoy N. Self-medication and non-doctor prescription practices in Pokhara valley, Western Nepal: A questionnaire-based study. *BMC Family Practice.* 2002;3(1):17.

17. Deshmukh V, Verekar M. Evaluation of self-medication practices in rural area of Goa: An observational study. *Int J Med Sci Publ Heal.* 2018;7(7):560-64.
18. Lal V, Goswami A, Anand K. Self-medication among residents of urban resettlement colony, New Delhi. *Indian J Public Health.* 2007;51:249-51.
19. Durgawale PM. Practice of self medication among slum-dwellers. *Indian J Public Health.* 1998;42:53-5.
20. Jimenez-Torres NV, Calderón-Espino D, Cedillo-Cogollo P, González-Robledo MC, Pérez-Ramírez IF. Prevalence and factors associated with self-medication in children aged 8 to 12 years in Cartagena, Colombia. *BMC Public Health.* 2014;14(1):491.
21. Montastruc JL, Bondon-Guitton E, Abadie D, Isabelle L, Aurélie B, Grégory P et al. Pharmacovigilance, risks and adverse effects of self-medication. *Therapies.* 2016;71(2):257-62.
22. Sarahroodi S, Arzi A, Sawalha AF, Ashtarinezhad A. Antibiotic self-medication among southern Iranian university students. *Int J Pharmacol.* 2010;6(1):48-52.
23. Abdelwahed RNK, Jassem M, Alyousbashi A. Self-medication practices, prevalence, and associated factors among Syrian adult patients: A cross-sectional study. *J Environmental Publ Heal.* 2022;9274610.
24. Sharma R, Verma U, Sharma CL, Kapoor B. Self-medication among urban population of Jammu city. *Indian J Pharmacol.* 2005;37(1):40-43.
25. Bennadi D. Self-medication: A current challenge. *J Basic Clin Pharmacy.* 2013;5(1):19-23.
26. Yousef AM, Al-Bakri AG, Bustanji Y, Wazaify M. Self-medication patterns in Amman, Jordan. *Pharmacy World Sci.* 2008;30(1):24-30.
27. El Ezz NF, Ez-Elarab HS. Knowledge, attitude and practice of medical students towards self-medication at Ain Shams University, Egypt. *J Prevent Med Hyg.* 2011;52(4):196-200.
28. Rathod P, Sharma S, Ukey U, Sonpimpale B, Ughade S, Narlawar U et al. Prevalence, Pattern, and Reasons for Self-Medication: A Community-Based Cross-Sectional Study From Central India. *Cureus.* 2023;15(1):e33917.
29. Hassali MA, Alrasheedy AA, McLachlan A, Nguyen TA, Al-Tamimi SK, Ibrahim MI et al. The experiences of implementing a pharmacy practice research grant scheme in three Asian countries: A qualitative study. *PLoS ONE.* 2019;14(3):e0213294.
30. Abay SM, Amelo W. Assessment of Self-medication practices among Medical, Pharmacy, and Health Science students in Gondar University, Ethiopia. *J Young Pharmacists.* 2010;2(3):306-10.
31. Grigoryan L, Haaijer-Ruskamp FM, Burgerhof JG, Mechtler R, Deschepper R, Tambic-Andrasevic A et al. Self-medication with antimicrobial drugs in Europe. *Emerging Infect Dis.* 2006;12(3):452-9.
32. Al-Azzam SI, Alzoubi KH, Alhusban A, Mukattash TL, Al-Zubaidy S, Alomari NM. Self-medication with antibiotics in Jordanian population. *Int J Occupational Med Environm Heal.* 2017;30(4):601-12.
33. Kotwani A, Wattal C. Study on the drug pricing pattern in India and its implications. *J Pharmacol Pharmacotherap.* 2011;2(4):275-80.
34. Zafar SN, Syed R, Waqar S, Zubairi AJ, Vaqar T, Shaikh M et al. Self-medication amongst university students of Karachi: Prevalence, knowledge, and attitudes. *J Pak Med Ass.* 2008;58(4):214-7.
35. Jamsheed SQ, Ibrahim MIM, Hassali MAA, Masood I, Low BY, Shafie AA et al. Perception and attitude of general practitioners regarding generic medicines in Karachi, Pakistan: A questionnaire-based study. *Southern Med Rev.* 2012;5(1):22-30.
36. Saddique R, Muhammad Hussain WM, Ikram H, Qamar ul A, Riaz H. Patients' knowledge, attitude and perception of dispensed medicines in Lahore. City Hospital, Pakistan. *Int J Pharmaceut Sci Res.* 2018;9(7):2942-6.
37. Haque M, Rahman NAA, McKimm J, Sartelli M, Dhingra S, Naha K et al. Self-medication of antibiotics: Investigating practice among university students at the Malaysian National Defence University. *Infect Drug Resistance.* 2017;10:257-264.
38. Sado E, Gedif T, Balcha F, Shibeshi W. Prevalence of self-medication with antibiotics and associated factors in the community of Asendabo town, Jimma zone, southwestern Ethiopia. *Canadian J Infect Dis Med Microbiol.* 2019;2019:7898191.
39. Kassie AD, Biftu BB, Mekonnen HS. Self-medication practice and associated factors among adult household members in Mekot district, Northeast Ethiopia, 2017: A cross-sectional study. *BMC Pharmacol Toxicol.* 2018;19(1):15.
40. Gyawali S, Rathore DS, Shankar PR, Kumar V, Kc V, Lamsal M et al. Self-medication practice among preclinical university students in a medical school from the city of Pokhara, Nepal. *BMC Pharmacol Toxicol.* 2018;19(1):19.

Cite this article as: Namboothiri GN, Lamees KC, Latheef T, Thasleema MM, Muhammed NT, Swathi R. Prevalence, practice, and determinants of self-medication among the common public in a village of Northern Kerala, India. *Int J Res Med Sci* 2023;11:4369-75.