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PREVALENCE AND DETERMINANTS OF SELF-MEDICATION AMONG PATIENTS ATTENDING THE OUTPATIENT DEPARTMENT AT A RURAL PRIMARY HEALTH CENTRE: A CROSS-SECTIONAL STUDY

Dr. Hibba Dar[1], Dr. Iram Kahkashan[2], Dr. Suhaib Qayoom[3*], Dr. Zaid Bin Feroz[4]

[1]Department of Pharmacology, Government Medical College, Srinagar, Jammu and Kashmir, India
[2]Department of Pharmacology, Government Medical College, Handwara, Jammu and Kashmir, India
[3*]Clinical Research Unit, Department of Medicine, Carilion Clinic, Roanoke, Virginia, USA
[4]Holy Family Red Crescent Medical College and Hospital, Dhaka, Bangladesh

Corresponding Author: Name: Dr. Suhaib Qayoom
Affiliation: Clinical Research Unit, Department of Medicine, Carilion Clinic, Roanoke, Virginia, USA, Email: suhaibqayoom@gmail.com, Contact no.: +1(540) 9868787

Abstract

Background: Self-medication, the use of medicines without professional advice, is a common global phenomenon. In developing countries like India, it is especially prevalent in rural settings due to limited healthcare access and easy drug availability. This study assessed the prevalence, pattern, and determinants of self-medication among patients attending the outpatient department (OPD) of a Primary Health Centre (PHC) in a rural block of Jammu & Kashmir, India.

Methods: A facility-based cross-sectional study was conducted over 5 months (August–December 2022) among 215 adult OPD attendees selected by convenience sampling. Data were collected through a pretested questionnaire by medical officers. Sociodemographic data, details of self-medication, and awareness regarding drug safety were recorded. Descriptive statistics and Chi-square tests were used for analysis.

Results: Of the 215 participants, 60.5 % had self-medicated in the past 12 months, and 39.5 % in the past 3 months. Common indications included headache (68.5 %), fever (54.6 %), musculoskeletal pain (40.8 %), and cough/cold (35.4 %). The most frequently used drugs were analgesics/NSAIDs (72.3 %), antipyretics (51.5 %), cough/cold preparations (22.3 %), and antibiotics (15.4 %). Pharmacists (46.2 %) were the main source of drugs. Major reasons for self-medication were minor illness (54.6 %), time-saving (48.5 %), prior experience (40.8 %), and quick relief (30 %). Awareness of antibiotic resistance was poor (13 %). Higher education was significantly associated with self-medication (OR 1.95, 95 % CI 1.12–3.41, p = 0.018).

Conclusion: Self-medication is common among OPD attendees at this rural PHC. Low awareness of risks and notable antibiotic use highlight the need for public education, regulation of drug dispensing, and strengthened counseling at primary care level.

Keywords: Self-medication; Rural health; Primary Health Centre; Prevalence; India; Antibiotic misuse.

Introduction

Self-medication (SM) refers to the use of medicines by individuals to treat self-diagnosed ailments or symptoms without consulting a qualified healthcare provider. The World Health Organization (WHO) recognizes that responsible SM for minor conditions may improve access to treatment and reduce healthcare burden [1]. However, unsupervised medication carries potential risks including incorrect diagnosis, masking of serious diseases, adverse drug reactions, drug interactions, and development of antimicrobial resistance [2,3].

Globally, self-medication is highly prevalent. Studies in Europe have reported rates between 30–60 % [4], while in low- and middle-income countries, prevalence often exceeds 70 %. In Pakistan and Nigeria, for instance, reported rates reach 84 % and 67 %, respectively [5]. In India, estimates vary widely from 30 % to 80 %, reflecting differences in literacy, health access, and socioeconomic conditions [6,7].

Several Indian studies indicate that rural populations are especially vulnerable to irrational self-medication due to factors such as inadequate health infrastructure, long travel distances to hospitals, high consultation costs, and widespread availability of drugs without prescription [8,9]. A rural Maharashtra study found a prevalence of 49 %, while Andhra Pradesh and Haryana reported rates exceeding 60 % [10–12]. Analgesics and antibiotics are among the most commonly misused medicines [13].

Pharmacist-based drug access, prior prescription reuse, and peer or family recommendations have been consistently identified as major sources of self-medication [14,15]. Commonly cited reasons include convenience, previous good experience, time constraints, minor illness, and perceived cost savings [16,17].

Despite numerous community-based studies, there is limited literature focusing specifically on facility-based populations in rural areas—patients who actively seek medical care but may have practiced SM before their visit. Understanding SM patterns among this group helps clinicians anticipate drug interactions and guides health education programs at the primary care level.

The present study therefore aimed (1) to estimate the prevalence of self-medication among OPD attendees at PHC Konibal, Pampore, Jammu & Kashmir; (2) to describe patterns of drugs, symptoms, and reasons involved; and (3) to identify sociodemographic factors associated with the practice.

Materials And Methods

Study Design and Setting

A facility-based cross-sectional study was conducted at the Out-Patient Department (OPD) of the Primary Health Centre (PHC), Konibal, Pampore, Jammu & Kashmir over a period of five months (August–December 2022). The study aimed to determine the prevalence and determinants of self-medication practices among patients attending the OPD.

Study Population

All adult patients attending the OPD during the study period were considered for inclusion.

Inclusion Criteria

- Age ≥18 years
- Attending the PHC OPD for non-emergency complaints
- Able to understand and respond to questions
- Provided verbal informed consent

Exclusion Criteria

- Healthcare professionals and paramedical staff (to avoid bias due to medical knowledge)
- Patients presenting with emergency conditions who could not be interviewed
- Individuals with cognitive impairment or communication difficulties

Sampling Technique and Sample Size

A convenience sampling method was used. Eligible participants were enrolled consecutively during OPD hours until the target sample size was achieved.

The sample size was determined using the formula for estimating a single proportion:

$n = Z^2 p(1-p) / d^2$

Assuming a prevalence (p) of 0.54 based on prior Indian studies, a 95% confidence interval (Z = 1.96), and a 7% margin of error (d = 0.07), the minimum sample size was calculated to be ~200. Accounting for possible non-responses, the final sample size was set at 215 participants.

Data Collection Tool and Procedure

Data were collected using a pre-tested structured questionnaire, developed after reviewing existing literature on self-medication practices. The questionnaire comprised sections on:

1. Sociodemographic profile
2. Details of self-medication practices
3. Reasons for self-medication
4. Awareness about risks and adverse effects

A pilot survey was conducted among 20 participants to ensure clarity and reliability of questions; those responses were excluded from the final analysis. Medical officers conducted the interviews in the local language. Each interview lasted approximately 10–15 minutes.

Study Variables

Sociodemographic variables that were recorded included age, sex, marital status, education level and employment status.

Self-Medication variables assessed were whether participants had practiced self-medication in the past 12 months and past 3 months, frequency of self-medication, symptoms/indications for which drugs were taken, drug classes used, source of drugs/advice, reasons for self-medication, and awareness and attitudes towards self-medication. Self-medication practices were assessed for two recall periods—past 12 months (annual prevalence) and past 3 months (recent behavior)—to capture both infrequent and habitual patterns while minimizing recall bias.

Ethical Considerations

Ethical clearance was obtained from the Institutional Ethics Committee. Verbal informed consent was obtained from all participants after explaining the purpose, voluntary nature, and confidentiality of the study.

Statistical Analysis

Data were entered into and analyzed using IBM SPSS (version 21).

Descriptive statistics: Categorical variables were expressed as frequencies and percentages. Continuous variables such as age were summarized using mean ± standard deviation (SD) or median (IQR) as appropriate. Prevalence: The proportion of participants who reported practicing self-medication was calculated with 95% confidence intervals (CIs). Association testing: The relationship between self-medication practice (yes/no) and selected sociodemographic variables (age group, sex, education, employment status) was assessed using the Chi-square test (or Fisher's exact test where applicable). Results were expressed as Odds Ratios (ORs) with 95% CIs. A p-value of <0.05 was considered statistically significant.

Results

Sociodemographic Characteristics

A total of 215 participants were included (mean age 38.6 ± 12.4 years; range 18–75). Most were female (57.7 %) and married (75.3 %). In terms of education levels, 18.6 % had no formal

schooling, 23.3 % were educated upto primary level, 37.2 % upto secondary, and 20.9 % had higher education. 59.5 % of participants were employed and 40.5 % were unemployed (Table 1).

Table 1. Sociodemographic profile (n = 215)

Variable	Category	n (%)
Age group (years)	18–29	60 (27.9)
	30–44	85 (39.5)
	45–59	50 (23.3)
	≥ 60	20 (9.3)
Sex	Male	91 (42.3)
	Female	124 (57.7)
Marital status	Single	35 (16.3)
	Married	162 (75.3)
	Widowed/Divorced	18 (8.4)
Education	No formal	40 (18.6)
	Primary	50 (23.3)
	Secondary	80 (37.2)
	Higher	45 (20.9)
Employment	Employed	128 (59.5)
	Unemployed	87 (40.5)

Prevalence and Frequency of Self-Medication

Out of 215 participants, 130 (60.5 %) reported SM in the past 12 months (95 % CI 53.7–67.3 %), while 85 (39.5 %) did so in the past 3 months (Table 2).

Among self-medicators (n = 130), 30.8 % used drugs once, 38.5 % 2–3 times, and 30.8 % ≥ 4 times. (Table 2)

Table 2. Prevalence of self-medication among participants

Period considered	n (%) Yes	95 % CI
Past 12 months	130 (60.5)	53.7–67.3
Past 3 months	85 (39.5)	33.0–46.3

Indications / Symptoms for Self-Medication

Headache (68.5 %), fever (54.6 %), musculoskeletal pain (40.8 %), and cough/cold (35.4 %) were the most frequent indications (Table 3).

Table 3. Common symptoms prompting self-medication (n = 130, multiple responses)

Symptom / condition	n (%)
Headache	89 (68.5)
Fever	71 (54.6)
Musculoskeletal pain	53 (40.8)
Cough / cold	46 (35.4)
Dyspepsia / abdominal discomfort	32 (24.6)
Diarrhea	15 (11.5)
Other (skin/urinary etc.)	12 (9.2)

Drugs Used and Sources

Analgesics/NSAIDs were most common (72.3 %), followed by antipyretics (51.5 %), cough/cold preparations (22.3 %), and antibiotics (15.4 %) (Table 4).

Pharmacies were the predominant source of drugs (46.2 %), followed by leftover prescriptions (22.3 %) and advice from friends/family (15.4 %).

Table 4. Drug classes and sources of medicines among self-medicators

Category	n (%)
Drug class used	
Analgesics / NSAIDs	94 (72.3)
Antipyretics	67 (51.5)
Cough / cold preparations	29 (22.3)
Antacids / PPIs	24 (18.5)
Antibiotics	20 (15.4)
Vitamins / supplements	16 (12.3)
Herbal / homeopathic	10 (7.7)
Source of drugs / advice	
Pharmacist / medical shop	60 (46.2)
Leftover prescription	29 (22.3)
Friends / family	20 (15.4)
Media / internet	11 (8.5)
Others	10 (7.7)

Reasons for Self-Medication

The top reasons (multiple responses permitted) were: minor illness (54.6 %), time-saving (48.5 %), previous good experience (40.8 %), quick relief (30.0 %), and ease of access (28.5 %) (Table 5).

Table 5. Reasons for self-medication (n = 130)

Reason	n (%)
Illness not serious	71 (54.6)
Time-saving / busy schedule	63 (48.5)
Previous successful experience	53 (40.8)
Quick relief desired	39 (30.0)
Easy access to pharmacy	37 (28.5)
Long waiting time at facility	32 (24.6)
Cost of consultation	25 (19.2)
Influence of peers / media	20 (15.4)

Awareness and Safety Practices

Only 17.2 % checked expiry dates before using a drug; 13 % were aware of antibiotic resistance; 25.6 % believed self-medication was harmless.

Association between Sociodemographic Factors and Self-Medication

(Chi-square results summarized in Table 6.)

Table 6. Association between sociodemographic factors and self-medication (past 12 months)

Variable	SM Yes n (%)	SM No n (%)	OR (95 % CI)	p value
Age group (yrs)				
18–29 (n = 60)	42 (70.0)	18 (30.0)	2.10 (0.92–4.77)	0.073
30–44 (n = 85)	55 (64.7)	30 (35.3)	1.69 (0.77–3.73)	0.192
45–59 (n = 50)	26 (52.0)	24 (48.0)	0.97 (0.42–2.26)	0.945
≥ 60 (n = 20)	7 (35.0)	13 (65.0)	Ref (1.00)	—
Sex				
Male (n = 91)	55 (60.4)	36 (39.6)	1.00 (ref)	
Female (n = 124)	75 (60.5)	49 (39.5)	1.00 (0.61–1.64)	0.99
Education				

No formal / Primary (n = 90)	46 (51.1)	44 (48.9)	1.00 (ref)	0.018 *
Secondary / Higher (n = 125)	84 (67.2)	41 (32.8)	1.95 (1.12–3.41)	
Employment				
Employed (n = 128)	78 (60.9)	50 (39.1)	1.00 (ref)	
Unemployed (n = 87)	52 (59.8)	35 (40.2)	0.97 (0.55–1.70)	0.92

** Significant at $p < 0.05$.*

Self-medication prevalence showed a declining trend with increasing age. It was highest among participants aged 18–29 years (70 %), followed by 30–44 years (64.7 %), 45–59 years (52 %), and lowest among those aged ≥ 60 years (35 %). Although the association did not reach statistical significance (p = 0.07), younger adults demonstrated a clear tendency toward greater self-medication compared with older individuals.
Only education showed a significant association; higher education increased the likelihood of SM.

Discussion

The present study revealed that 60.5% of participants had practiced self-medication within the previous year. This prevalence is comparable to several Indian studies reporting rates between 49% and 68% in rural areas [8–11]. Rathod et al. observed a 60% prevalence among mixed urban–rural populations in Western India [6], while Jogdand et al. in rural Maharashtra reported 49% [10]. In Andhra Pradesh, Rangari et al. documented a prevalence of 68.1% [11]. These variations likely reflect differences in accessibility of healthcare facilities, educational status, and socioeconomic context.
Both 12-month and 3-month recall periods were used to ensure comparability with earlier studies and to differentiate habitual from occasional self-medicators. The shorter recall window minimized memory bias, while the 12-month estimate reflected the broader annual burden of the practice.
The leading reasons cited for self-medication in our study—minor illness, time constraints, prior experience, and the need for quick relief—mirror findings from earlier studies in India and abroad [12–14]. In northern India, Ahmad et al. found that high consultation costs and long waiting times were common motivators [9]. Similarly, a Sri Lankan study observed that “mild illness” and “time-saving” were dominant drivers [15]. These reasons highlight both perceived convenience and gaps in primary healthcare delivery.
Symptom patterns were also consistent with previous literature: headache, fever, musculoskeletal pain, and cough/cold remain the most common triggers for self-medication [8,10,11,16]. Analgesics and antipyretics formed the major drug classes used, reflecting their easy availability and familiarity to patients [17]. Notably, 15% of participants reported antibiotic use without prescription—lower than urban estimates (25–30%) but still clinically significant [18]. The irrational use of antibiotics is particularly alarming given the growing burden of antimicrobial resistance in India.
Pharmacies were the predominant source of medicines (46%), similar to findings from Rangari et al. (72.6%) [11] and Kumar et al. in Delhi (68%) [12]. The ease of over-the-counter purchase and weak enforcement of prescription laws likely sustain this trend [18].
Awareness about the potential risks of self-medication was low—only 13% were aware of antibiotic resistance, and fewer than one in five checked expiry labels. Comparable results were seen in studies from coastal South India [16] and Sri Lanka [15], where less than 20% of participants demonstrated adequate knowledge regarding drug safety. This underlines a critical need for educational interventions to promote responsible drug use.
A significant association was observed between education level and self-medication, with educated participants almost twice as likely to self-medicate. Age also appeared to influence self-medication behavior, with higher prevalence among younger adults. Although this association was not statistically significant, the trend is consistent with earlier studies from Maharashtra [9] and Western

India [12], where individuals aged 20–40 years were the most frequent self-medicators. Younger people are generally more inclined to self-diagnose and self-treat, more exposed to online health information, and less risk-averse than older adults, which may explain this pattern. Similar results were reported by Limaye et al. in Western India [13] and Klemenc-Ketiš et al. in Slovenia [5]. Educated individuals may feel more confident diagnosing themselves and using previous prescriptions. However, other studies, such as Thenmozhi et al. in Tamil Nadu, have found higher prevalence among the less educated, possibly due to misinformation and limited risk awareness [14]. This variation suggests that both high and low educational groups require tailored interventions.

No significant gender or employment differences were noted, consistent with observations from Balamurugan and Kumar in South India [16]. The overall pattern indicates that self-medication transcends demographic boundaries and remains an ingrained cultural and behavioral phenomenon.

Public Health Implications

While responsible self-care can be beneficial for minor illnesses, widespread irrational self-medication poses challenges. In India, where pharmacies are often the first point of contact for patients, strengthening drug-dispensing regulations and ensuring pharmacist accountability are essential [18]. PHCs can serve as focal points for rational drug use education, counseling, and awareness regarding antibiotic resistance. Routine physician inquiries about over-the-counter medication use during OPD visits may help identify potential drug interactions or adverse events early.

Strengths and Limitations

The study's strengths include its focus on a facility-based rural population, structured questionnaire, and trained interviewers ensuring data quality. Limitations include its cross-sectional design (which cannot infer causality), convenience sampling (which may introduce selection bias), and reliance on self-reporting, which may cause recall bias. Despite these, the findings provide valuable insight into patterns of self-medication among patients accessing primary care in rural Kashmir.

Recommendations

- Conduct regular awareness campaigns at PHCs and through Accredited Social Health Activists (ASHAs) to educate about dangers of unsupervised drug use.
- Implement strict enforcement of Schedule H and H1 drug sale regulations to curb antibiotic misuse.
- Encourage community pharmacists to provide brief counseling before dispensing OTC medications.
- Introduce rational drug use modules in primary healthcare training and school health education programs.

Conclusion

Self-medication is common among OPD attendees at PHC Konibal, with over half reporting recent use. Analgesics and antibiotics were most frequently used, often without awareness of potential harm. Education level was a significant determinant. Public health interventions emphasizing safe medication practices and regulatory enforcement are urgently warranted.

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