Original Research Article

PREVALENCE OF SELF- MEDICATION PRACTICES AMONG RESIDENTS OF RURAL AND URBAN PRAYAGRAJ

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A B S T R A C T

Background: Self-medication (SM) is defined by the World Health Organization (WHO) as the utilization of prescription medications for chronic or recurrent conditions, whether on an occasional or frequent basis, or to manage symptoms or physical issues that an individual has self-diagnosed.
Objective: To determine the prevalence of self- medication practices among residents of rural and urban Prayagraj.
Materials and Methods: This community-based cross-sectional study was conducted among adults living in Prayagraj rural and urban districts who are at least 18 years old make up the study population.
Results: A total of 400 participants were distributed equally between rural and urban areas, with 200 participants in each group. The age-wise distribution showed notable differences between the two residential categories. Out of 400 participants, 144 were female and 256 were male. Married individuals formed the predominant group in both rural and urban settings. The occupational distribution of the 400 study participants, equally divided between rural and urban residences, revealed distinct patterns reflective of their socio-economic settings. Iliteracy was significantly more prevalent among rural participants (18%) compared to urban participants (5.5%). The socioeconomic status (SES) of the 400 study participants, equally divided between rural and urban areas, showed a stark contrast in distribution. The analysis of self-medication practices among the 400 participants, evenly distributed between rural and urban areas, showed that allopathic medicine was the most commonly followed form of self-medication in both groups. It was reported by 89.5% of rural and 89% of urban participants, with no statistically significant difference ($p = 0.87$ $\chi^2 = 0.02$), indicating uniform reliance on modern medicine across settings.
Conclusion: Self-medication is prevalent in both settings, albeit driven by distinct motivations. Rural populations, relied heavily on analgesics, antipyretics, and traditional remedies, Conversely, urban populations, particularly from regions like Punjabi Colony, Alopibag, and Sohabatiya Bagh, exhibited a greater tendency to use homeopathic medications and branded allopathic drugs, influenced by digital platforms, advertisements, and convenience-driven behavior.
Keywords: Self-medication, Prevalence, Rural, Urban, Prayagraj, Public Health.

INTRODUCTION

Self-medication is often acknowledged that self-medication is a crucial strategy for treating minor medical conditions. In its 1978 global adoption of the "Physique for All by Year 2000" plan, WHO highlighted the significance of self-care. Self-medication has advantages, but there are hazards involved as well. Self-medication habits are influenced by organizational, psychological, and environmental variables, according to Study.[1,2]

Self-medication refers to the procurement and utilization of pharmaceuticals for as a diagnostic, therapeutic, or monitoring purposes without the guidance of a qualified healthcare professional. It involves selecting, acquiring, and administering medications for self-diagnosed conditions or providing them to family members. Self-medication has emerged as a significant social issue, attributed to the accessibility of pharmaceuticals and the proliferation of online resources. Medicine contribute to curing small infections and serious health conditions by aiding in the protection of life and lowering suffering.

Self-medication has increased in popularity in today's culture as people try to handle their physical and mental physique conditions on their own. This includes the use of over-the- counter medicines without medical advice, the consumption of prescription drugs without a proper prescription, the intake of herbal remedies or supplements without understanding their potential risks, and the utilization of expired medications. Self-medication can provide short-term benefits; however, it may pose risks to long-term physical health and overall wellbeing.

Self-medication prevalence rates range from 11.7% to 92% worldwide, making it a rising public physique concern.[3,4] It is especially common in underdeveloped countries, where individuals utilize over-the-counter and prescription medications to address various health issues, including fever, headaches, throat infections, gastrointestinal disorders, respiratory conditions, skin ailments, and ear problems. Even though self-medication is quite common, many nations have different traditions.[5] Compared to poor countries, where high consultation prices, a lack of physique insurance, and easy access to prescription pharmaceuticals contribute to its increase, the use of antibiotics and prescription drugs for the SM is less widespread in developed nations.[6]

Self-medication is a widespread practice influenced by various socioeconomic, cultural, and healthcare accessibility factors. In India, the easy availability of OTC drugs, lax regulations, and limited healthcare access especially in rural areas have led to the prevalence of self-medication. While SM can provide relief for the minor ailments, it poses significant risks, including drug resistance, adverse drug reactions, incorrect dosages, and delayed diagnosis of underlying diseases.

Understanding self-medication patterns and the factors influencing them is essential for designing public health interventions and policies to promote rational drug use. This study analyses the prevalence of self-medication practices in the rural and urban population of Prayagraj.

MATERIALS AND METHODS

This community-based cross-sectional study was conducted among adults living in Prayagraj rural and urban districts who are at least 18 years old make up the study population. Ethical clearance was obtained from the Institutional Ethics Committee (IEC), M.L.N. Medical College, Prayagraj.

A number of demographic characteristics, such as age, gender, education, occupation, financial level, and prior medical experiences, have an impact on self-medication practices. The income level of rural and urban is followed by the BG Prashad Scale. By including a diverse adult population, the study aims to identify key trends and risk factors contributing to self-medication.

Inclusion Criteria

To maintain the relevance and validity of the study, the following inclusion criteria will be applied:

- **Individuals aged 18 years and above**: As adults are more responsible for their healthcare decisions and medication use.
- **Residents of Prayagraj district for at least six months**: To ensure that participants have sufficient exposure to local healthcare systems and medication practices.
- **Individuals willing to participate and provide informed consent**: Ethical considerations necessitate voluntary participation.

Exclusion Criteria

Participants meeting any of the following criteria will be excluded:

- **Individuals who do not provide consent**: Voluntary participation is a fundamental ethical principle of Study.
- **Individuals with severe cognitive impairments or communication difficulties**

Sample Size Determination

According to earlier research, the incidence of self-medication was 73.2% in urban regions and 50.8% in rural areas[7]. The following standard formula for determining sample size in cross-sectional research was applied in order to obtain the minimum required sample size.

$$\frac{Z^2\alpha/2\, p(1-p)}{d^2}$$

Where:

- n = Required sample size

- Z = 1.96 (Standard normal value for 95% confidence interval)
- p = 50.8% (minimum estimated prevalence, expressed as 0.508)
- d = 10% relative precision (0.10 × 0.508 = 0.0508)

$$n = 372$$

For consideration of non-responses and potential dropouts, the final sample size has been rounded up to 400 participants.

This sample size will be equally divided between rural and urban populations, ensuring representative participation across different socio-economic and healthcare backgrounds.

Sampling Technique

To guarantee a representative sample, a multistage random sampling procedure was utilised:

- **Step 1:** One urban ward was selected randomly from the list of **100 urban wards** in Prayagraj.
- **Step 2:** Four colonies were randomly selected from the chosen urban ward.
- **Step 3:** One rural block was randomly selected from 23 rural blocks in Prayagraj.
- **Step 4:** Four villages were randomly selected from the chosen rural block.
- **Step 5:** Fifty participants for each colony and 50 from each village were selected starting from one house at random and then moving in a particulars direction all the eligible subjects were included in study till design size of 50 was achieved.

By applying multistage sampling, this study achieves a balanced and systematic approach to data collection, ensuring that findings accurately reflect self-medication trends across different population groups in Prayagraj.

The study used a semi-structured questionnaire, which was developed based on existing literature and expert consultations.

Statistical Analysis

The collected data were systematically processed and analyzed using advanced statistical tools to ensure accuracy, reliability, and meaningful interpretation of results. The following analytical methods were employed: **IBM SPSS Statistics 20.0**, a widely used statistical software for social and medical Study and MS-Excel were used to perform various statistical analysis. **Mean, standard deviation (SD), frequencies, and percentages** were computed to summarize demographic variables and self medication practices. **Chi-square tests** were employed to examine associations between categorical variables such as age group, gender, education level, and self-medication behavior. A **p-value < 0.05** was considered statistically significant, indicating strong evidence against the null hypothesis.

RESULTS

The study included a total of 400 participants, equally distributed between rural and urban areas. Of these, 200 participants (50.0%) were from rural regions and 200 participants (50.0) % were from urban regions.

A total of 400 participants were distributed equally between rural and urban areas, with 200 participants in each group. The age-wise distribution showed notable differences between the two residential categories. Among urban participants, the majority belonged to the younger age groups 30% were aged (31–40) years and 22.5% were aged ≤30 years. Conversely among the rural participants were more concentrated in the older age groups 19% were aged (61–70) years and 14% were aged (51–60) years. Notably, the ≥70 years' age group had a higher representation in urban areas (10.5%) compared to rural areas (3.5%).

The 31–40-year group constituted the largest overall age group (27.25%), followed by 41–50 years (20.5%) and ≤30 years (19.75%). The findings suggest that in urban area most of the participants were of young age group as compared to rural area.

Table 1: Gender- Age Wise Distribution of Study Participants

	Female		Male	
Age	Rural	Urban	Rural	Urban
≤ 30	8 (12.9%)	15 (18.3%)	26 (18.8%)	30 (25.4%)
31 - 40	17 (27.4%)	26 (31.7%)	32 (23.2%)	34 (28.8%)
41 - 50	12 (19.4%)	20 (24.4%)	32 (23.2%)	18 (15.3%)
51 - 60	9 (14.5%)	4 (4.9%)	19 (13.8%)	16 (13.6%)
61 - 70	12 (19.4%)	8 (9.8%)	26 (18.8%)	8 (6.8%)
> 70	4 (6.5%)	9 (11.0%)	3 (2.2%)	12 (10.2%)
Total	62 (100%)	82 (100%)	138 (100%)	118 (100%)

Out of 400 participants, 144 were female and 256 were male. Among females, 62 were from rural areas and 82 from urban areas, while among males, 138 were rural residents and 118 were urban.

In both genders, the (31–40) age group represented the highest proportion: (27.4%) in rural females (31.7%) in urban females, (23.2%) in rural males, and 28.8% in urban males. Urban males had the highest proportion in the ≤30 age group (25.4%), while rural males also showed a considerable number (18.8%) in the same age group. Older age groups such as 61–70 and >70 years had more rural males (18.8% and 2.2%) than urban males (6.8% and 10.2%), whereas older urban females were more represented in the >70 group (11.0%) than their rural counterparts (6.5%). These findings suggest

age and gender-related migration or occupational patterns, with younger males and females more concentrated in urban areas and older populations relatively more present in rural settings.

The study participants were equally distributed across eight different locations, with four rural and four urban areas, comprising 50 participants each.

A Chi-square test value of 400 with a p-value of 0.0001 indicates a highly significant association between location and type of residence. These results affirm the clear-cut classification of study participants strictly according to the rural or urban nature of their respective localities, thereby eliminating any overlap and enhancing the internal validity of urban–rural comparisons in the study.

Residents from rural areas were grouped under the category of "Rural (Block)," which includes four specific villages: Durjanpur, Lekhrajpur, Tulapur, and Poore Suradas. On the other hand, residents from urban areas were classified under "Urban (Ward)" and are further subdivided into four specific colonies: Matiyara, Alopibag, Punjabi Colony, and Sohabatiya Bagh.

Among the female participants (n = 144), a majority, 82 (56.9%), resided in urban areas, while 62 (43.1%) were from rural areas. In contrast, out of the male participants (n = 256), a larger proportion, 138 (53.9%), belonged to rural areas, and 118 (46.1%) were from urban areas.

Among the 400 study participants, marital status was assessed in relation to their place of residence. In rural areas, the majority of participants were married (84%), followed by widowed individuals (9%) and unmarried individuals (7%). Similarly, in urban areas, a large proportion were also married (82%), with a higher proportion of unmarried individuals (13%) and a lower percentage of widowed individuals (5%) compared to the rural group.

While married individuals formed the predominant group in both rural and urban settings, the higher number of unmarried participants in urban areas may reflect social factors such as delayed marriages due to education, employment, or lifestyle preferences, whereas the higher widowed proportion in rural areas may indicate age-related demographic patterns.

The occupational distribution of the 400 study participants, equally divided between rural and urban residences, revealed distinct patterns reflective of their socio-economic settings. In rural areas, the most common occupation was self-employment (32%), followed by homemakers (27.5%) and agriculture workers (17%). In contrast, urban participants showed the highest representation in homemakers (27.5%) as well, followed by those self-employed (20%), in service jobs (14%), and students (12%).

Notably, agricultural work was predominantly rural (17% vs. 3.5% in urban), whereas business occupations were concentrated in urban areas (16% vs. only 1.5% in rural). The proportion of

homemakers and retired individuals was equal in both groups. Urban areas also had a higher percentage of students (12% vs. 5.5%) and unemployed individuals (5% vs. 2.5%).

The religious distribution of the 400 study participants revealed a predominantly Hindu population across both rural and urban areas. In the rural group, 198 participants (99%) identified as Hindu and 2 (1%) as Muslim. In the urban group, all 200 participants (100%) were Hindu, with no representation from other religions.

Among rural residents, the highest proportion had completed high school (23%), followed by those who were illiterate (18%) and had completed intermediate education (17%). In contrast, urban participants had the highest representation among graduates (34%), followed by those with intermediate education (22%) and high school education (15%).

Notably, illiteracy was significantly more prevalent among rural participants (18%) compared to urban participants (5.5%). Similarly, higher educational attainments such as graduation and postgraduate degrees were more common in urban residents (34% and 4%, respectively) than in rural counterparts (17% and 4%, respectively). Only urban participants held diploma qualifications (1%).

The most common family sizes ranged from 3 to 6 members. Specifically, families of 4 members (26.5%) and 5 members (25.75%) were the most prevalent, with near-equal distribution between rural and urban participants.

Among rural participants, the overwhelming majority (89.5%) lived in nuclear families, while only 10.5% belonged to joint families. In contrast, urban participants had a comparatively higher proportion of joint families (22%), although nuclear families still predominated at 78%. There is a statistically significant association between type of family and place of residence.

In the rural population, the majority of participants belonged to the lower middle (41%) and middle (39%) socioeconomic classes, with a small percentage in the upper middle (17%) and upper (2.5%) classes. One participant (0.5%) was classified under the lower socioeconomic group.

In sharp contrast, the urban group was predominantly represented by the upper middle (57%) and upper (41.5%) classes, with minimal representation in the middle category (1.5%) and none in the lower or lower middle categories. A p-value of 0.0001 confirms a strong association between socioeconomic status and place of residence.

The study examined the proximity of the nearest healthcare facility government or private in relation to participants' residence. Among rural participants, 34.5% reported having access to a government healthcare facility closest to them, while a majority (65.5%) indicated a private facility as their nearest option. In urban areas, 24% of participants were closest to a government healthcare facility, whereas

76% relied on private healthcare providers in their vicinity.

Overall, private healthcare facilities were more commonly the nearest option in both rural and urban settings. However, the proportion was significantly higher among urban participants (76%) compared to rural (65.5%). Government facilities were relatively more accessible in rural areas than in urban areas. A p-value of 0.021 indicates a statistically significant association between the type of nearest healthcare facility and the place of residence.

The availability of transportation facilities among the 400 study participants revealed a significant difference between rural and urban residents. In rural areas, 174 participants (87%) reported having access to transportation, while 26 participants (13%) did not. In contrast, nearly all urban participants (99.5%) had transportation access, with only 1 participant (0.5%) reporting unavailability.

Table 2: Distribution of Study Participants by Personal Habits

Personal Habits		Residence		P Value	χ² Value
		Rural	Urban		
Tobacco		99 (49.5%)	93 (46.5%)	0.83	0.05
Smoking		67 (33.5%)	64 (32%)	0.41	0.66
Alcohol		45 (22.5%)	53 (26%)	0.35	0.86
Diet Preference	No Veg	1 (0.5%)	2 (1%)	0.07	3.28
	Occasionally Non veg	44 (22%)	29 (14.5%)		
	Veg	155 (77.5%)	166 (83%)		
Total		200 (100%)	200 (100%)		

Tobacco use was reported by 49.5% of rural and 46.5% of urban participants, while smoking was noted in 33.5% of rural and 32% of urban participants. Alcohol consumption was slightly higher in urban areas (26%) compared to rural areas (22.5%).

Dietary preferences also showed comparable trends across the groups. The majority of participants in both settings preferred a vegetarian diet 77.5% in rural and 83% in urban areas. A smaller proportion reported occasional non-vegetarian consumption (22% rural and 14.5% urban), while very few identified as regular non-vegetarians (0.5% rural and 1% urban). (p > 0.05)

Overall, the data suggest that personal habits such as tobacco use, smoking, alcohol consumption, and dietary choices were fairly consistent across rural and urban populations, reflecting possible cultural and lifestyle similarities in the study region.

Table 3: Self-Medication Practices

Self-medication you are most commonly following	Residence		P value	χ² Value
	Rural	Urban		
Allopathic	179 (89.5%)	178 (89%)	0.87	0.02
Ayurvedic	25 (12.5%)	31 (15.5%)	0.47	0.52
Homeopathic	3 (1.5%)	18 (9%)	0.002	9.85
Total	200 (100%)	200 (100%)		

Allopathic medicine was the most commonly followed form of self-medication in both groups. It was reported by 89.5% of rural and 89% of urban participants. (p > 0.05)

Ayurvedic self-medication was more commonly practiced in urban areas (15.5%) than in rural areas (12.5%). (p >0.05)

In contrast, a notable difference was observed in the use of homeopathic medicine, with a significantly higher proportion of urban participants (9%) using it compared to rural participants (1.5%). (p <0.05)

Overall, the data suggest that while allopathic medicine remains the dominant form of self-medication in both rural and urban populations, urban residents tend to explore a broader range of alternative therapies particularly homeopathy possibly due to increased awareness, accessibility, or cultural acceptance.

Table 4: Study Participants of Self-Medication in the Last Six Months

How often did you practice self-medication in last 6 months	Residence		P Value	χ² Value
	Rural	Urban		
Always	54 (27%)	49 (24.5%)	0.065	3.81
Never	1 (0.5%)	6 (3%)		
Sometimes	145 (72.5%)	145 (72.5%)		
Total	200 (100%)	200 (100%)		

The Study Participants of self-medication practices over the last six months was assessed among 400 participants, equally divided between rural and urban areas. In both groups, the majority of participants reported "sometimes" practicing self-medication, with an identical proportion of 72.5% in both rural and urban residents, indicating a widespread but occasional usage pattern.

A slightly higher percentage of rural participants (27%) reported "always" using self-medication compared to urban participants (24.5%). On the other hand, "never" practicing self-medication was more common among urban participants (3%) than rural participants (0.5%). (p-value>0.05), suggesting a statistically non-significant association between Study Participants of self-medication and residence. Although not statistically significant, the findings hint at a slightly higher habitual use of self-medication in rural areas and a relatively higher tendency among urban participants to abstain altogether.

DISCUSSION

In this study, a total of 400 participants were equally divided between rural (n = 200; 50%) and urban (n = 200; 50%) areas, ensuring an unbiased and comparative analysis of self-medication practices. This stratification minimizes sampling bias and allows for a direct comparison of healthcare behaviors across geographic locations.[8]
Previous research shows that rural populations often resort to self-medication due to limited access to healthcare infrastructure, whereas urban populations do so out of convenience and availability of pharmacies.[9,10]
The age distribution between rural and urban resident, Urban participants were predominantly younger, with 30% aged (31–40) and 22.5% aged ≤30 yrs. Conversely, rural participants were more concentrated in older age brackets, with 19% aged (61–70) and 14% aged (51–60) yrs. This distribution suggests that younger individuals tend to reside in urban settings—likely due to education, employment, or lifestyle—while older adults remain in rural areas, possibly due to post-retirement preferences.[11,12]
The total participants, 256 were male (64%) and 144 were female (36%). Rural areas had more male participants (69%) than urban (59%), while females were more prevalent in urban areas (41% vs. 31% rural).
Most participants were married, with (84)% in rural and (82)% in urban areas. The proportion of unmarried individuals was higher in urban areas (13%) compared to rural (7%), and the widowed proportion was slightly higher in rural (9% vs. 5% urban).[13,14]
The socioeconomic stratification between rural and urban populations was stark and statistically significant (χ^2 = 264.82; p = 0.001). Most rural participants were from lower middle (41%) and middle (39%) socioeconomic classes, with only (2.5)% in upper and (17)% in upper middle. In contrast, (57)% of urban participants were in the upper middle class, and (41.5)% in the upper class, with almost no representation in lower categories.
Rural areas were dominated by self-employed (32%), homemakers (27.5%), and agricultural workers (17%). In contrast, urban participants included homemakers (27.5%), self-employed (20%), and service sector employees (14%). The urban business class accounted for (16)%, compared to just (1.5)% in rural.
This occupational divergence highlights the rural dependence on agriculture and informal work, while urban dwellers engage in business and professional services, influencing accessibility to pharmacies and Study Participants of self-medication.[15,16]
Nuclear families were more prevalent in both settings but especially in rural areas (89.5%) compared to urban (78%). Joint families were significantly more frequent in urban settings (22% vs. 10.5%), with a statistically significant association (χ^2 = 8.89; p = 0.02). These findings suggest urban economic interdependence and shared living spaces support joint family setups, while rural households are transitioning toward nuclear structures.[17]
Urban residents showed higher levels of education with 34% graduates and 4% postgraduates, while rural participants had more high school (23%) and intermediate (17%) education, and a higher illiteracy rate (18% vs. 5.5% urban). This disparity may affect awareness regarding drug safety and influence self-medication decisions.[18]

Self-Medication Practices
Allopathic medicine was the most commonly used form of self-medication in both groups: 89.5% in rural and 89% in urban participants. There was no statistically significant difference (p = 1.0), reaffirming previous studies suggesting that allopathy is widely preferred due to its accessibility and rapid symptom relief (Mehta et al., 2021). This uniformity indicates a general reliance on modern medicine across both geographic settings.
Ayurvedic self-medication was reported by 12.5% of rural and 15.5% of urban participants (p = 0.471), showing a slight urban preference. Urban participants may have better access to branded Ayurvedic formulations or be influenced by wellness trends.

Study Participants of Self-Medication
The present study revealed that the most common pattern of self-medication across both rural and urban populations was occasional use, with (72.5)% of respondents in each group indicating that they self-medicated "sometimes" within the past six months. This finding aligns with the results of previous community-based studies that have documented sporadic self-medication behavior among the general population in India. However, a noteworthy difference was observed in the proportion of participants who reported "always" engaging in self-medication (27) % in rural areas versus (24.5)% in urban areas. Conversely, the "never" category had higher representation in urban areas (3%) compared to rural (0.5%). Although this distribution did not achieve statistical significance (χ^2 = 3.81; p = -65), it points toward a subtle trend of

habitual self-medication being more prevalent among rural residents.

This pattern may be attributable to limited healthcare infrastructure and fewer qualified medical practitioners in rural regions, compelling individuals to depend on previous prescriptions, local pharmacists, or traditional knowledge to address recurrent ailments (Pradhan et al., 2020; Chaturvedi et al., 2019). In contrast, urban respondents, despite having better access to healthcare services, may still occasionally prefer self-medication for minor ailments but are more cautious or better informed about the potential risks, which could explain the slightly higher percentage of individuals who reported "never" engaging in such practices.

Moreover, the Study Participants data underscore the growing normalization of self-medication practices as part of personal healthcare management in both settings. This finding raises public health concerns, especially in the context of over-the-counter availability of antibiotics, analgesics, and sedatives drugs which, if misused chronically, could contribute to resistance, toxicity, or masking of serious conditions.[15]

Therefore, while the marginal rural-urban difference in self-medication Study Participants observed in the study was not statistically significant, the behavioral trend indicates a need for targeted awareness programs and better healthcare outreach, particularly in underserved rural areas, to minimize the habitual reliance on unsupervised medication.

CONCLUSION

Self-medication is prevalent in both settings, albeit driven by distinct motivations. Rural populations, predominantly in villages such as Durjanpur, Lekhrajpur, and Poore Suradas, relied heavily on analgesics, antipyretics, and traditional remedies, often influenced by informal healthcare networks and limited access to professional medical care. Conversely, urban populations, particularly from regions like Punjabi Colony, Alopibag, and Sohabatiya Bagh, exhibited a greater tendency to use homeopathic medications and branded allopathic drugs, influenced by digital platforms, advertisements, and convenience-driven behavior.

The socioeconomic disparities observed in the study further explain these differences, as urban respondents, often from higher-income groups, demonstrated better access to pharmacies, a wider range of medication options, and greater awareness of alternative therapies. Meanwhile, rural populations in lower-income categories relied on cost-effective remedies and informal advice to address healthcare needs. The influence of occupation, with agricultural workers in rural regions relying on self-medication to minimize work disruptions and business professionals in urban areas favoring convenience-based medication practices, reinforces the complexity of this public health concern.

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