

Assessment of Self-Medication Practices in Urban Peri- Urban or Rural Settings in Muzaffarpur District, Bihar**Rachna Rani¹, Manish Kumar Jha², Krity Rani³, Ravindra Prasad⁴**¹Tutor Department of Community Medicine Sri Krishna Medical College Muzaffarpur, Bihar, India²Tutor Department of Community Medicine Sri Krishna Medical College Muzaffarpur, Bihar, India³PG-2, Department of Anaesthesia, Lord Buddha Koshi Medical College, Saharsa, Bihar, India⁴Professor Department of Community Medicine Sri Krishna Medical College Muzaffarpur, Bihar, India

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Conflict of interest: Nil

Abstract

Background: Self-medication is a common health practice worldwide involving the use of medicines without medical guidance. Although it may provide fast relief to minor health issues, misuse mainly of antibiotics may cause severe health issues in the general population like adverse drug reactions and antimicrobial resistance. In India, the concept of self-medication is especially common because of the easy availability to over-the-counter medicines, poor access to health care, and socioeconomic factors.

Methodology: The cross-sectional descriptive research was done in the Muzaffarpur district, Bihar, between February 2025 and January 2026. 120 participants were then chosen through stratified random sampling in urban, peri-urban and rural environments. Structured questionnaire was used to gather data which included demographic information, self-medication behavior, the drugs used, and the causes of self-medication. Descriptive statistics was used to analyze data.

Results: Self-medication was 68.3% (82/120 participants). The highest was in rural areas (75%), then peri-urban (68.5%) and urban areas (61.7%). Analgesics (72%), antipyretics (65.8%), and antibiotics (48.3%) were the most frequently used drugs. The primary reasons reported for self-medication included quick relief (74.2%), cost-saving (63.3%), previous experience (58.3%). There was a marked antibiotic misuse in all settings.

Conclusion: This study shows that the prevalence rate of self-medication in the Muzaffarpur district is high, with high levels of misuse of antibiotics and differences between rural and urban areas. Greater access to healthcare, control of pharmaceutical practice, and raising public awareness are necessary to enhance rational use of drugs and minimize complications of these health risks.

Keywords: Antibiotic misuse, Bihar, Drug use behavior, public health, Rural health, Self-medication.

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Introduction

The World Health Organization (WHO) defines self-medication as the process of choosing and using medicines to self-diagnose and treat symptoms or illnesses without the advice of a qualified medical practitioner [1]. It also involves using old medicines and giving medicines to other people or using the medicines prescribed by non-professionals like friends, family or pharmacists.

Although self-medication is good in minor diseases and might ease the burden on the health care systems, improper or unreasonable consumption of medicines may cause severe health risks such as adverse drug reactions, concealing of underlying illnesses, delay in timely diagnosis and emergence of antimicrobial resistance [3,4]. Self-medication is a common occurrence throughout the world that is

driven by the availability of over-the-counter (OTC) medications, health awareness, socioeconomic, and inaccessibility to healthcare services [5]. Research done in both developed and developing nations indicate different prevalence commonly being higher in low- and middle-income areas as a result of poor regulatory frameworks and insufficient healthcare facilities [6]. This has been further enhanced by the increasing accessibility of pharmaceutical products online and in local pharmacies, and the unsupervised use of these drugs is a worldwide health issue of great concern to humanity.

Self-medication is especially common in the Indian setting, where drugs are readily available without prescriptions, there are excessive patients in

government health care facilities, and financial constraints prevent patients from consulting health care professionals [7]. The misuse of antibiotics is a considerable issue of concern as it is one of the major factors contributing to the increasing burden of antimicrobial resistance (AMR) in the country [8]. The most frequent drugs are analgesic, antipyretic, antihistamine and antibiotics, which are frequently taken without knowing the dosage or the side effects [9]. Informal recommendation by the local pharmacists and past prescriptions re-use are also significant in perpetuating this practice [10]. Transitional zones between rural and urban environments such as peri-urban areas frequently have mixed healthcare practices with influence on both urban accessibility and rural constraints, thus are of particular interest to study [11].

The Muzaffarpur district of Bihar is a special place to study self-medication practices because it has a varied population consisting of urban, peri-urban and rural areas. The district has different degrees of healthcare access, literacy, and socioeconomic status, which can have a substantial impact on medication behaviors [12]. Despite its importance, few region-specific studies assessing self-medication patterns in the region are available, especially comparison studies among various types of settlement.

The necessity to comprehend local self-medication practices in the Muzaffarpur district thus justifies this study. Generating such evidence is crucial in risky medication behavior identification, informing the public intervention of health, and policy making towards reasonable drug use. The outcome could also help in enhancing awareness campaigns and enhancing regulatory measures on the distribution of OTC drugs in the rural and semi-urban health facilities.

Objectives

- To determine the prevalence and trend of self-medication practices among urban, peri-urban, and rural areas of the Muzaffarpur district.
- To determine the drugs that are used in self-medication.
- To measure the awareness about side effects and antibiotic resistance.
- To compare practices among urban, peri-urban and rural populations.

Methodology

Study Design: The current research was designed as a cross-sectional descriptive research to evaluate self-medication practice of the population living in urban, peri-urban and rural regions of Muzaffarpur district, Bihar.

The cross-sectional design was selected due to the ability to determine the prevalence and trends in self-medication behavior at a certain point in time,

which gives an overview of the present situation in various population settings.

Study Area: The research was done in Muzaffarpur district, Bihar, and the three different residential areas of urban, peri-urban and rural areas. The differences between these areas are substantial in the context of healthcare access, literacy, socioeconomic status and access to medical services and hence are appropriate to compare self-medication practices in these areas.

Study Duration: The research was conducted over a period of February 2025- January 2026, which is enough time to collect data, recruit the participants, and analyse various demographics of the regions chosen.

Sample Size: The study included 120 participants. The sample was distributed across urban, peri-urban and rural location to have all types of the population in the district.

Sampling Technique: The research employed a stratified random sampling method where the population was categorized into three strata: urban, peri-urban, and rural and a random sample was chosen in each stratum. This approach provided equal representation and minimized selection bias, thus allowing a meaningful comparison of various residential settings.

Inclusion Criteria

- Adults (those aged 18 years and above)
- Lived in the district of Muzaffarpur at least 6 months.
- Persons who are able to give informed consent.
- Male and female subjects in urban, peri-urban and rural settings.

Exclusion Criteria

- Medical experts including doctors, nurses and pharmacists (to eliminate professional bias).
- Severely ill people or mentally incapacitated, because they could not give a reliable answer to the questionnaire.
- Participants who are unwilling to give informed consent.
- Temporary residents or those who live in the district less than 6 months.

Data Collection Tool: A structured questionnaire that was specifically designed to collect the data was used. The questionnaire was made in a simple language to make it easy to understand by the participants who have different educational backgrounds. It comprised of the following sections:

- Demographic information (age, gender, education, occupation, and residence)
- Behavior of self-medication (frequency, duration, and sources of advice)

- Types of drugs taken (e.g., antibiotics, painkillers, antipyretics, antihistamines, etc.)
- Motivations to self-medicate (saving money, saving time, previous experience, access to drugs)
- Knowledge of risks of self-medication such as side effects and antibiotic resistance.

Data Analysis: The acquired data were summarized and processed through descriptive statistics tools, such as frequency and percentage distribution to conclude the demographic features and self-medication trends. The comparative analysis was conducted to assess the differences between urban, peri-urban, and rural populations. The data was analyzed with the help SPSS software in order to guarantee the accuracy and reliability of the statistical interpretation.

Ethical Considerations: The principles of ethical approval were adhered to in the study. All participants were informed about the study and gave their informed consent before data collection. The involvement was purely voluntary and the participants had the option of leaving the study at any point without any repercussions. The study ensured confidentiality and anonymity of participants and the data collected were only used in the research. No personal identifiers were revealed to make sure that the ethical standards in medical research were followed.

Results

A total of 120 urban, peri-urban and rural residents of Muzaffarpur district, Bihar, were included in the study. Data obtained were interpreted to determine the demographic distribution, the prevalence of self-medication practices, the most used drugs, the reasons behind self-medication, and differences in residential environments.

Demographic Distribution: Among the 120 participants, the age distribution showed that the majority (42.5%) belonged to the 18–30 years age group, followed by 31–45 years (31.7%), 46–60 years (18.3%), and above 60 years (7.5%). Gender distribution was slightly male dominated with 56.7% male and 43.3% female. In terms of education, a high percentage (38.3%) was secondary education, then primary education (29.2%), graduates (20.8%), and illiterate members (11.7%). Occupational status showed that 35% were students, 28.3% were employed, 22.5% were homemakers, 14.2% were unemployed or retired.

Prevalence of Self-Medication: The total rate of self-medication was 68.3% (82 out of 120 participants) which means that over two-thirds of the respondents were involved in self-medication. It was most common in the rural areas, then peri-urban and urban.

Table 1: Distribution of Self-Medication Prevalence by Area

Area Type	Total Participants	Self-Medication Users	Prevalence (%)
Urban	40	25	61.7%
Peri-Urban	40	27	68.5%
Rural	40	30	75.0%
Total	120	82	68.3%

Commonly Used Drugs: The most commonly used self-treatment medications were analgesics (72.0%), antipyretics (65.8%), antibiotics (48.3%), antihistamines (33.3%), and gastrointestinal drugs (27.5%). It was also notable concern that the consumption of antibiotics without a prescription was high, which means that there is a possible threat of antimicrobial resistance.

Table 2: Commonly Used Drugs in Self-Medication

Drug Category	Percentage of Users (%)
Analgesics	72.0%
Antipyretics	65.8%
Antibiotics	48.3%
Antihistamines	33.3%
Gastrointestinal	27.5%

Reasons for Self-Medication: The participants gave several reasons for practicing self-medication. Quick relief and convenience (74.2%), cost-saving (63.3%), prior experience with the same illness (58.3%), and pharmacy/drugstore recommendation (41.7%) were the most common ones. The inability to reach healthcare facilities especially in rural areas was also a major contributor of self-medication practices.

Table 3: Reasons for Self-Medication

Reason	Percentage (%)
Quick relief & convenience	74.2%
Cost-saving	63.3%
Previous experience	58.3%
Pharmacy advice	41.7%
Lack of healthcare access	39.2%

Comparison Urban, Peri-Urban and Rural Areas: There was an evident difference in self-medication practices among various settings. The prevalence was highest in rural (75%), peri-urban (68.5%), and urban areas (61.7%). The misuse of antibiotics was also prevalent in rural populations than the urban population, probably because of the lack of medical attention and reliance on local pharmacies.

Overall, the study indicates that self-medication is high prevalence in Muzaffarpur district, especially the rural and peri-urban regions. The most frequently used drugs were analgesics and antibiotics, convenience, cost-saving, and prior experience were the most motivating factors. The results indicate high disparities among residential environments, and special public health programs are required to aid in the enhancement of rational drug use and decrease unsafe self-medication behaviors.

Discussion

The present study highlights a high prevalence of self-medication (68.3%) in the population of Muzaffarpur district and the trend is much higher in rural population than in peri-urban and urban environments. The findings indicate that most frequently used types of drugs are analgesics, antipyretics, and antibiotics, which is an indication of symptom-oriented treatment instead of medically-oriented therapy. The most common causes found, namely, quick relief, cost-saving, previous experience, and pharmacy advice, indicate that self-medication is to a large extent motivated by accessibility and cost considerations.

As compared to other Indian studies, the prevalence of the study is consistent with those of other areas where the self-medication rates stand between 60% and 80% especially in rural and semi-urban populations [13]. Other comparable studies in the international setting, particularly in the low-and-middle income countries, indicate high levels of self-medication because of the lack of healthcare facilities and financial constraints [14]. Nevertheless, developed nations are usually less prevalent as they have stricter prescription policies and better access to healthcare.

The increased tendency towards self-medication in the Muzaffarpur rural areas may be explained by a lack of healthcare facilities, increased time spent on commuting to the hospital, and reliance on informal healthcare providers [15]. Education is also important because the higher the level of literacy the low the self-medication practices. Also, weak enforcement of pharmacy regulations enables easy access to prescription medicines as and over-the-counter, which further encourages uncontrolled use of drugs.

In terms of public health, the prescription-free use of antibiotics is especially alarming as more AMR is becoming a threat. Misdose, not taking all the treatment courses and wrong choice of drugs are also major contributors of this health hazard across the world. Otherwise, it may result in decreased efficacy of the necessary medications in the future.

The self-medication behavior is also strongly influenced by socioeconomic factors. People who have low income are less likely to resort to formal healthcare because of financial limitations and they prefer using the cheaper options provided in the local drugstores. This shows the overlap between economic constraints and healthcare-seeking behaviour in rural India.

Overall, the results indicate the necessity of specific interventions that would target the interventions of the unsafe self-medication practices in the area through education, regulation, and the healthcare accessibility.

There are some limitations in this study. The sample population of 120 is small, and might not be fully representative of the whole population of Muzaffarpur district. The data used was self-reported, thus it could have been subject to recall bias or response bias. The study was also limited geographically to few urban, peri urban and rural regions, which made it difficult to generalize to other regions.

Conclusion

The research highlights that self-medication habits are very common in the Muzaffarpur district of Bihar especially among the rural and peri urban population. Most frequently used drugs are analgesics and antibiotics, usually used without medical advice. Convenience, cost-saving, previous experience, and inaccessibility of healthcare services are the main reasons behind the practice. The given results indicate that the sale of over-the-counter drugs, in particular antibiotics, requires immediate regulation and monitoring in order to avoid their misuse and minimize the health risks. Enhancement of community-level awareness programs is necessary to educate people on the risks of irrational drug use and antimicrobial resistance. The findings also imply the necessity of policy-level interventions in the Bihar healthcare system that would enhance the access to primary healthcare services and provide safe medication practices among all population groups.

Recommendations: It is recommended that the public health authorities carry out awareness programs to sensitize communities on the risks of self-medication. Pharmacy regulations should be enforced strictly in order to regulate the sale of prescription drugs, especially antibiotics, over the counter. Health education programs based on the

community should be encouraged to enhance awareness of safe drug use.

Access to healthcare facilities should be enhanced in the rural areas to limit self-medication. Also, it is possible to implement an organized system of pharmacist counseling and guide patients on how to use the medicine and prevent the consumption of drugs irrationally.

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