World Journal of Pharmaceutical Science and Research

www.wjpsronline.com

Research Article

ISSN: 2583-6579
SJIF Impact Factor: 6.916
Year - 2026
Volume: 5; Issue: 11
Page: 412-419

PRESCRIBING PATTERN OF DRUGS IN THE OUTPATIENT DEPARTMENT OF A TERTIARY CARE GOVERNMENT HOSPITAL IN EASTERN MAHARASHTRA, INDIA - A CROSS SECTIONAL STUDY

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Article Received: 18 September 2026 || ***Article Revised: 09 October 2026*** || ***Article Accepted: 30 October 2026***

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DOI: https://doi.org/10.5281/zenodo.23945492

How to cite this Article: Dr. Girish K. Chavhan, Dr. Reena R. Giri, Dr. Patil Venkanagauda, Dr. Prashant B. Wankhade, Dr. Somesh P. Bokare, Dr. Sangram S. Wagh (2026) PRESCRIBING PATTERN OF DRUGS IN THE OUTPATIENT DEPARTMENT OF A TERTIARY CARE GOVERNMENT HOSPITAL IN EASTERN MAHARASHTRA, INDIA -A CROSS SECTIONAL STUDY.. World Journal of Pharmaceutical Science and Research, 5(11), 412-419.

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ABSTRACT

Background: Drug utilization studies (DUS) represent a promising instrument for evaluating healthcare systems. DUS are conducted to promote rational drug use. Practical prescription indicators evaluate a healthcare provider's performance across several key areas related to the appropriate use of medications. Therefore, the objective of the present study was to investigate the prescriptions issued by physicians at a tertiary care facility. **Methods:** The present study employs a prospective, cross-sectional, and observational design. The six-month study was conducted at the Government Medical College Akola, a tertiary care teaching hospital in Maharashtra, spanning from October 2025 to March 2026. Data was collected from 635 prescriptions. The data analysis was conducted using WHO prescribing indicators. **Results:** Among the 635 participants, the majority (50. 39%) were female, and most (71. 65%) resided in rural areas. The present study found that the average number of drugs per encounter were 3.3. Percentage of drugs prescribed by their generic name were 83.88%. Percentage of encounters with an antibiotic prescribed were 43.30%. Percentage of encounters with an injection prescribed were 48.03% and 92.65% of the prescribed medications were from the essential drugs list. **Conclusion:** The prescribing pattern can be improved by minimizing the number of medications, using generic names, selecting and using medications appropriately, and consciously keeping therapy costs low. Such studies help develop policies that promote responsible medication use by physicians.

KEYWORDS: Drug utilization studies, WHO prescribing indicators, Polypharmacy.

INTRODUCTION

The World Health Organization (WHO) defines a drug utilization study as an examination of the marketing, distribution, prescription, and use of medications within a society, with particular focus on the resulting medical, social, and economic impacts.[1]

Drug utilization studies (DUS), which examine prescribing patterns, have emerged as a valuable tool for evaluating healthcare systems. Research into drug use serves as an effective method for determining the role of drugs in society. They create a robust socio-medical and health-economic basis for making healthcare decisions. [2,3] The primary objective of drug use research is to promote the rational utilization of medications within communities. For an individual patient, rational drug use involves prescribing a well-researched medication at an optimal dose, accompanied by appropriate information and at a reasonable cost.[1]

To critically assess current hospital drug policies, develop tailored recommendations, and enhance future medication usage patterns, it is essential to conduct periodic studies of drug utilization across various hospital settings and patient populations. In resource-constrained nations like ours, this is particularly crucial to ensure that our limited resources are utilized as efficiently as possible.[4,5] The indicators of prescription in practice assess the performance of health care providers across several key dimensions related to the appropriate use of medications. Consequently, the current study was conducted to analyse the prescriptions of patients attending the Out-Patient Department of a tertiary care teaching hospital. These indicators are derived from practices observed in a sample of clinical encounters occurring at outpatient health facilities for the treatment of acute or chronic conditions.

The study was conducted in accordance with the following WHO prescribing indicators.

1. The average number of drugs per encounter serves as a measure of the degree of polypharmacy.
2. The percentage of drugs prescribed by their generic name, used to assess the tendency to prescribe medications generically.
3. Percentage of encounters with an antibiotic prescribed.
4. The percentage of encounters where an injection was prescribed, serving as a metric to assess the overall utilization of two significant yet frequently overused and expensive drug therapies.
5. The percentage of prescribed medications that are on the essential drugs list, serving as an indicator of how well clinical practices align with national drug policy.[6]

MATERIAL AND METHODS

Study Design

The present study was a cross-sectional, prospective, and observational study carried out at the outpatient department of a tertiary care government hospital located in Eastern Maharashtra, India. The study examined prescriptions over a six-month period, from October 2025 to March 2026, to find out common trends and patterns.

Study Setting

The study took place in a tertiary care government hospital that serves both urban and rural communities. The hospital has a well-functioning outpatient department with a large number of patients visiting regularly, making it a good place to look at how doctors write prescriptions.

Study Population

The study looked at all prescriptions written by doctors in the outpatient department of the hospital. Every prescription given to patients during the study period was included, regardless of the patient's condition, age, or gender, as long as the prescription was complete and easy to read.

Inclusion Criteria

- Prescriptions from the outpatient department of the tertiary care hospital.
- Prescriptions from doctors who specialize in different areas.
- Prescriptions that have full details, including the names of medicines, dosages, and other important information.

Exclusion Criteria

- Prescriptions that are incomplete or hard to read.
- Prescriptions from the emergency department or inpatient units.
- Treatments that are not related to medicines, such as referrals for surgeries or diagnostic tests.

Sample Size

A total of 635 prescriptions were picked for the study to make sure the results are reliable and show a true picture. The number of prescriptions was decided using a standard method for cross-sectional studies, taking into account how common drug prescriptions are expected to be and a 5% error allowed.

Data Collection

Prescriptions were chosen at random from the outpatient department during the study time.

The data collected included:

- Patient information like age, gender, and where they live,
- The medical condition diagnosed,
- The drugs given (including both brand and generic names, dosage form, dose, route of administration and frequency).

Data Analysis

Descriptive statistics were used to look at how drugs were prescribed. The results were shown as counts, percentages, and average numbers.

The data was checked against WHO prescribing standards.

The average number of drugs per encounter was found by dividing the total number of different drugs by the number of encounters. It doesn’t matter if the patient actually took the medicine.

To find out how often drugs were given by generic name, the number of generic drugs was divided by the total number of drugs prescribed and multiplied by 100.

The percentage of encounters with an antibiotic or injection was found by dividing the number of encounters where these were given by the total number of visits and multiplying by 100.

Whether prescriptions followed standard treatment guidelines was checked by comparing the drugs used with the list of essential medicines from the WHO. To find the percentage of drugs from the essential list, the number of essential medicines given was divided by the total number of drugs and multiplied by 100.[6]

For the average number of drugs per encounter, fixed dose combinations were counted as one drug, while other indicators split combinations into individual drugs and counted separately.

Ethical Considerations:

The study followed the ethical rules in the Declaration of Helsinki. Patient information was kept private, and only data that had been made anonymous was used. The study was approved by the Institutional Ethics Committee with letter no.146-B/2025 dated 17/09/2025.

Limitations

- The study only looked at the outpatient department and may not show how drugs are prescribed in hospital settings.
- It didn't separate prescriptions for short-term and long-term conditions, which can affect how drugs are used.
- The study period didn't consider how diseases and prescribing patterns change with the seasons.

RESULTS

In this study, out of the 635 participants, more than half (50.39%) were female, and most (71.65%) came from rural areas.

A total of 2110 drugs were prescribed across 635 prescriptions.

On average, each patient encounter involved 3.3 drugs, which shows a high level of polypharmacy.

About 83.88% of the drugs were prescribed by their generic names. Out of the 2110 drugs, 1770 were given as generic names, and this can be improved by encouraging healthcare providers.

Out of the 635 prescriptions, 305 included injections, which means that 48.03% of the encounters had injections, indicating that injections are used too often.

Antibiotics were included in 275 out of the 635 prescriptions.

Of the 2110 drugs, 1955 were from the essential medicines list, which is 92.65%.

This high percentage shows that prescriptions are being made more rationally. In our institute, many practitioners are already using medicines from the essential list.

Table 1: Distribution of study population according to their gender.

Gender	Number	Percentage
Male	315	49.60%
Female	320	50.39%
Total	**635**	**99.99%**

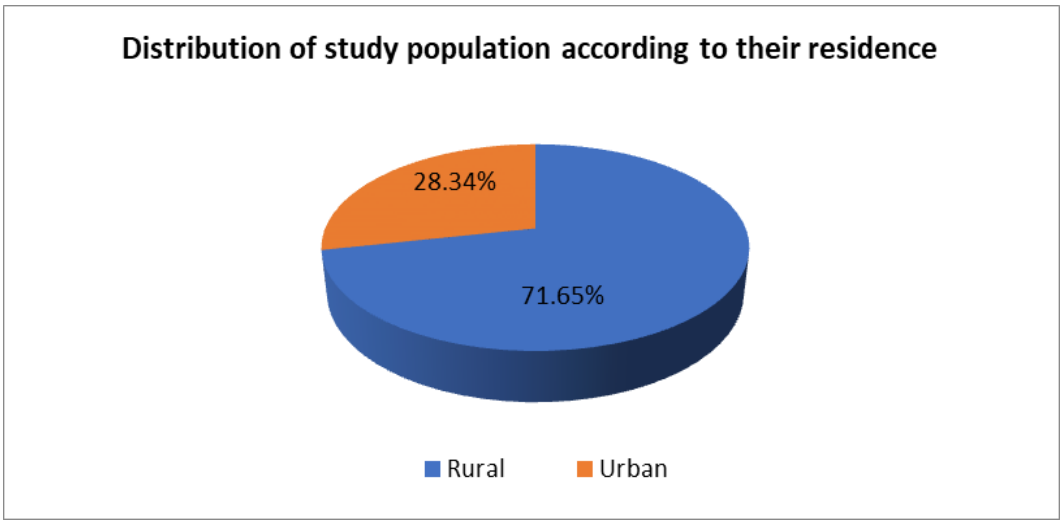

Fig. 1: Distribution of study population according to their residence.

Table 2: WHO Prescribing indictors.

Sr. No.	WHO Prescribing indictors	Results
1	Average number of drugs per encounter	3.3
2	Percentage of drugs prescribed by generic name	83.88%
3	Percentage of encounters with an antibiotic prescribed	43.30%
4	Percentage of encounters with an injection prescribed	48.03%
5	Percentage of drugs prescribed from essential drugs list	92.65%

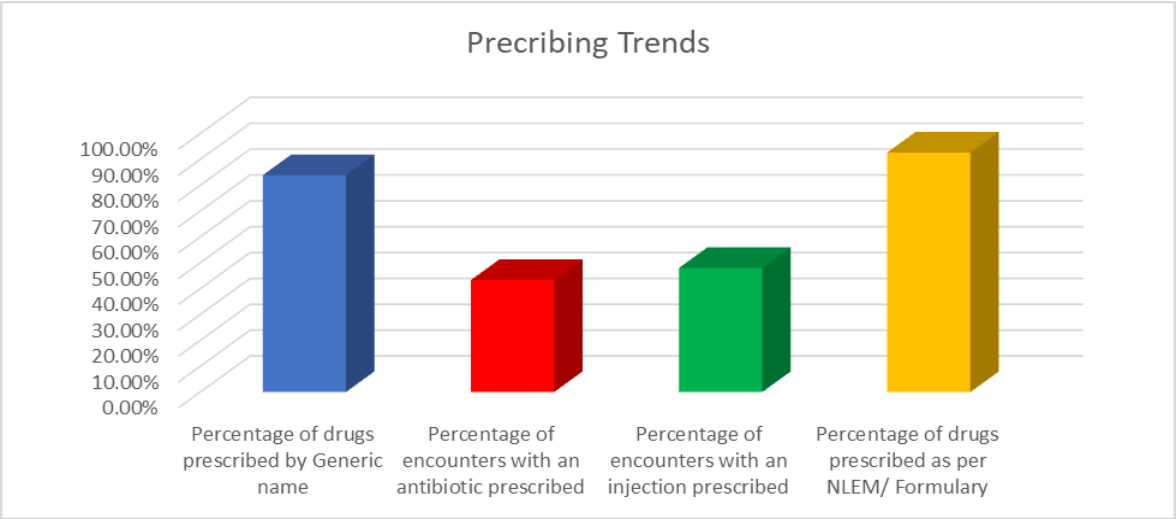

Fig. 2: Prescribing trends as per WHO prescribing indicators.

DISCUSSION

The current study found that on average, 3.3 drugs were used in each patient visit. Other studies reported an average of 3.42, 2.3, 2.22, 2.85, and 3.28 drugs for non-teaching clinicians, and 2.82 for teaching clinicians.[7-11] The results of this study are similar to those found in Simpson's research on educating clinicians.[10] The current study's results are higher than those from 2.3 and 2.22, and lower than those from 3.42 and 3.28 for non-teaching doctors.[7-11] If prescription drugs are not truly needed, using multiple medications can increase the cost of treatment. It can also reduce patient compliance, so medications should be used only when necessary. The risk of drug interactions rises from about 6% for those taking two medications to 50% for those taking five, and 100% for those taking ten.[12]

In this study, 83.88% of the medications were prescribed using generic names.

In a study by Chandra S et al., only 13.48% of medications were prescribed using generic names, while in Simpson's study, it was 5.41%.Other studies reported results as high as 30.70%.[7,10,11,13] The results of this study are higher than those from Ajapuje P et al., Chandra S et al., and B. K. Mohanty et al.[7,11,13] Using generic names for medications helps prevent confusion and makes treatment more cost-effective and logical. Medications are usually referred to by their generic names in textbooks, scientific journals, and medical education. However, most doctors still prefer to use brand names when prescribing. This may be due to tradition, strong marketing by pharmaceutical companies, and the availability of multi-ingredient fixed-dose combinations.[7] Many national and international organizations promote writing prescriptions under generic names to encourage responsible use of medication.[14] When medications are written using their generic names, pharmacists can choose cheaper alternatives for patients, reducing their financial burden. However, if pharmaceutical companies encourage doctors to prescribe more expensive medications, this can cause issues. Therefore, prescription writing under generic names needs more regulation and support from prescribers.[14]

The current study showed that 43.30% of interactions involved the prescription of an antibiotic. In another study by Chandra S et al., the percentage was 60%, while in other studies, it was 78.15%. [7,11] Antibiotics should be used carefully and only as needed. Overuse of antibiotics leads to resistance. This is a global problem, especially in developing countries where infectious diseases are common and the cost of more expensive medicines is a barrier. Studies have found high levels of resistance.[15] Antimicrobial-resistant infections, such as multidrug-resistant tuberculosis, can result from improper use of antibiotics. The WHO is working to prevent this and promote the rational use of antibiotics. The WHO said, "No action today, no cure tomorrow" on April 7, 2011, World Health Day.[16]

In our study, 48.03% of patient visits involved an injection, which is higher than the 4.33% found in Chandra S et al.'s study, and 10% and 14.10% in other studies.[11,17,18] Injections should only be used when absolutely necessary. Otherwise, they can spread blood-borne diseases like HIV, malaria, and hepatitis B and C. A skilled person, such as a doctor or nurse, is required for this method of drug administration. Compared to the oral route, injections cause more frequent acute side effects and increase the cost of treatment.[15]

The current study found that 92.65% of the medications prescribed came from the EML (essential medicine list). In a study by Chandra S et al., this percentage was 72.91%, and in a study by B. K. Mohanty et al., it was 57.70%, both lower than our study.[11,13]

Essential medicines are those that satisfy the priority health care needs of a population. They are selected with due regard to disease prevalence and public health relevance, evidence of efficacy and safety and comparative cost-effectiveness. They are intended to be available in functioning health systems at all times, in appropriate dosage forms, of assured quality, and at prices individuals and health systems can afford. Selection of a limited number of essential medicines as essential, taking into consideration national disease burden and clinical need can lead to improved access through streamlined procurement and distribution of quality-assured medicines, support more rational or appropriate prescribing and use and lower costs for both health care systems and for patients. [19] When writing prescriptions, these essential drugs should be given priority.

CONCLUSION

There is an opportunity to improve how doctors prescribe medications by cutting down on the use of multiple drugs at once, using the generic names of medicines instead of brand names, and making sure antibiotics are used only when needed. By carefully choosing treatments and keeping costs low, doctors can make their prescriptions more rational. The results from this study suggest that such research can help in shaping better policies and encourage doctors to write prescriptions in a more thoughtful and reasonable way.

ACKNOWLEDGEMENTS

We are grateful to the Head of the Department of Pharmacology at Government Medical College Akola, Maharashtra, for her invaluable advice and assistance throughout the research.

Funding: Nil

Conflict of interest: There are no conflicts of interest whatsoever.

Ethical approval: The Institutional Ethics Committee approved the study via letter no. 146-B/2025 dated September 17, 2025

REFERENCES

1. WHO publication. What is drug utilization research and why is it needed? Introduction to drug utilization research, 2003; 8.
2. Bakassas I, Lunde PKM. National drug policies: the need for drug utilization studies. Trends Pharmacol sci, 1986; 7: 331-4.
3. Nehru M, Kohli K, Kapoor B, Sadhotra P, Chopra V, Sharma R. Drug utilization study in outpatient ophthalmology department of government medical college Jammu. JK Sciences, 2005; 7: 149-51.
4. Sharma R, Kapoor B, Verma U. Drug utilization pattern during pregnancy in North India. Indian J of Medical Sciences, 2006; 60(7): 277-87.
5. Jadhav PR, Moghe VV, Deshmukh YA. Drug utilization study in ophthalmology outpatients at a tertiary care teaching hospital, ISRN Pharmacology, Article ID 768792, 2013; 22.
6. W.H.O Geneva. How to investigate drug use in health facilities EMD Research, 1993; 7: 3-27.
7. Ajapuje P, Dhengre P, Giri VC, Khakse GM. Drug Prescription Practices among Paediatric Patients in Yavatmal, Central India. International Journal of Recent Trends in Science and Technology, ISSN 2277-2812 E-ISSN 2249-8109, 2012; 5(2): 104-6.
8. Sanz EJ, Boada JN. Drug utilization by children in Tenerif Island, Spain. Eur J Clin Pharmacol, 1998; 34: 495-9.
9. Torvi JR, Dambal S. Drug prescription pattern in paediatric outpatient clinic in a tertiary hospital. Curr Pediatr Res, 2011; 15(2): 77-80.
10. Simpson GB, Choudary GN. Comparative Analysis of Prescription Writing by Teaching and Non - Teaching Clinicians in and around Guntur. International Journal of Recent Trends in Science and Technology, ISSN 2277-2812 E-ISSN 2249-8109, 2012; 5(2): 100-3.
11. Chandra S, Khan IN, Mateenudin M, Chandrakapure A, Maaz S, Mubin F. Drug utilization study in OPD of a tertiary care hospital in a rural area of Jalna, Maharashtra, India by using WHO prescribing indicators. Int J Basic Clin Pharmacol, 2018; 7(1): 55-58.

12. Johnson AG, Seidmann P, Day RO. NSAID related adverse drug reaction interaction with clinical relevance: an update. Int J Clin Pharmacol Ther, 1994; 32(10): 509-32.
13. Mohanty BK, Ashwini M, Hasamnis AA, Patil SS, Murty KSN, Jena SK. Prescription pattern the department of a tertiary care hospital in Rajamundry, India. Journal of Clinical and Diagnostic Research, 2010 Feb; (4): 2047-51.
14. Bajait CS, Pimpalkhute SA, Sontakke SD, Jaiswal KM, Dawri AV. Prescribing pattern of medicine in chronic kidney disease with special emphasis on phosphate binders. IJP, 2014; 46: 35-9.
15. Global Antibiotic Resistance Partnership (GARP) - India Working Group. Rationalizing antibiotic use to limit antibiotic resistance in India Indian J Med Res, 2011; 134: 281-94.
16. World Health Day- 7 April 2011. Available at: http://www.who.int/worldhealthday/ 2011/en/.
17. Bhatnagar T, Mishra CP, Mishra RN. Drug prescription practices: A household study in rural Varanasi' Indian J Prev Soc Med, 2003; 34(1,2).
18. Toppo M, Verma N, Sinha T, Agrawal S. Prescription analysis report in Chhattisgarh SHRC Indian J Pharmacol, 2004; 31: 151-3.
19. The selection and use of essential medicines, 2025: WHO Model List of Essential Medicines, 24th list, 5 September 2025 [https://www.who.int/publications/i/item/B09474]