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Original Research Article

# Study on Prescribing Pattern of Drugs and Rationality of Prescription in Patients Attending Outpatient Departments of Tertiary Care Hospital at Rewa, Madhya Pradesh, India

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**Abstract:**

Pharmacotherapy has been the mainstay of treatment since ages. Drug prescription pattern studies not only gives an insight to current trends of diseases that are commonly encountered in day today practice but also forms the basis of modifications in drug policies and rational use of medicines. The present study was aimed to describe the prescription pattern and rationality of various drugs and in patients attending the OPDs of various clinical specialties. Data regarding prescription was collected randomly in the prospective manner of 1000 outdoor patients visiting the tertiary care hospital affiliated to Medical College. Prescription of various groups, classes and individual drugs are described in percentage. The rationality of prescription was also analyzed by using WHO/INRUD core indicators of prescription. Vitamins were the most frequently prescribed class of drugs (18.1%) followed by NSAIDs (17.1%). Polypharmacy and frequent prescription of antimicrobials was a major concern found in this study. 98.1% of total prescribed drugs were by their generic name and were from NLEM, 2022. More judicious use of drugs, especially antimicrobials, will help in improving the rational use of medicines.

**Keywords:** Prescription Patten, Rational Use Of Medicines, Polypharmacy, WHO/INRUD Core Indicators.



## Introduction

Drugs play an important role in restoring, maintaining and protecting the health of an individual. Prescription writing is a science and an art, as it conveys the message from the prescriber to the patient. The treatment of diseases by the use of essential drugs, prescribed by their generic names, has been emphasized by the WHO and National Health Policy of India. [1] Irrational use of Medicine is a worldwide issue, therefore WHO is advocating rational use of Medicines.

Worldwide, half of the medicines are prescribed, dispensed or sold improperly and half of the patients fail to take them correctly. Moreover, about one third of the world's population lacks access to essential medicine. [2] Many developing countries have an essential drug list with the aim to achieve availability and affordability of drug therapy at various levels of health care. However, the quality of care delivered to patients depends on giving the right drugs, for correct indications, in a way that encourages the patient to take the medications. [3] Drug utilization research holds a crucial place in clinical practice as it forms the basis for making amendments in the drug dispensing policies at local and national levels. The ultimate goal of such research is to facilitate rational drug use. [4]

So, this study was conducted to describe the current trend of prescription patterns of various drugs prescribed to patients attending outdoors of various clinical specialty departments in a tertiary care hospital at Rewa, Madhya Pradesh, India. Also, this study was intended to analyze the prescriptions as per WHO/INRUD guidelines using core group indicators of prescription.

## Methods

After getting the approval from the Institutional Ethics Committee dated 08.01.2021, the study was

carried over a period of one year from July, 2021 to June, 2022.

**Study Design:** Cross Sectional Study.

**Inclusion Criteria:** Prescriptions for allopathic medicines.

**Exclusion Criteria:**

- Prescriptions with non-pharmacotherapy advice only.
- Prescriptions for vaccination only.

After informed consent from patient/guardian, photocopies of 1000 prescriptions were randomly collected from the patient/guardian visiting the pharmacy of affiliated hospitals after their consultation from outdoors of various clinical speciality departments of Shyam Shah Medical College, Rewa (M.P.).

All prescriptions were analyzed for demographic details; pattern of prescribed classes of drugs and individual drug and WHO core drug use indicators as per following WHO/INRUD prescribing drug indicators:

- Average number of medicines prescribed per patient.
- Percentage of medicines prescribed by generic names.
- Percentage of encounters with an antibiotic prescribed.
- Percentage of injections prescribed.
- Percentage of medicines prescribed from essential drug lists. (EDL)

The above collected data are presented as percentage and average. No statistical hypotheses were tested.

**Results and Discussion**

A total of 1000 prescriptions which contained a total 3110 drug or drug combinations were collected and analyzed during this study. Most of the patients attending the OPDs (25%) were between the age group of 21-30 years. The distribution of various outpatients was almost similar for males (45.3%) and females (54.7%).

Maximum number of prescriptions were from general medicine (26.9%) followed by dermatology (14%) and orthopedics (13%) departments. (Fig. 1)

Major Classes of drugs prescribed are shown in Fig.2. Most prescribed drugs were vitamins and minerals (27.4%) followed by drugs acting on the autacoid system (23.0); GIT (21%) and antimicrobials (17.4%). In a study by Hussain S et al., the most common group of drugs prescribed was drugs acting on gastrointestinal tract (26.38%) followed by vitamins & minerals (23.12%) and drugs acting on cardiovascular system (11.56%). [5] In another study by Bhavesh K. Lalan et al., the most common group of drugs prescribed was vitamins & minerals (24.44%) followed by analgesics (17.76%) and antimicrobials (16.59%). [6] In another study by Tripathi JP et al. Antimicrobials were prescribed in 45.3% of prescriptions followed by vitamins (34.8%) and Nonsteroidal anti-inflammatory drugs (33.9%). [7]

Frequency of major groups and classes of various drugs prescribed are shown in Table 1. Among various classes of drugs frequency of individually prescribed drugs are shown in Table 2. Among vitamins & minerals the most commonly prescribed was vitamin B complex (62.7%) followed by calcium supplements (20.2%). In a study by Mohanty BK et al., 66.61% of prescriptions contained at least one multivitamin or iron. [8]

Among drugs acting on autacoid system, NSAIDs (74.3%) was the most frequently prescribed class of drug followed by antihistaminics (25.7%), of which ibuprofen+paracetamol prescription constitutes 43.1% followed by cetirizine 22.6%, diclofenac 14.1% and paracetamol 13.7% of all prescribed drugs in this broad group. In a study by R Vaishnavi et al., NSAIDs were prescribed in 30.83% of encounters and the most frequently prescribed NSAID was paracetamol (39.45%) [9].

Among drugs acting on the gastrointestinal system, the most commonly prescribed class of drugs were anti peptic ulcer drugs, of which pantoprazole constitutes 60% of total prescribed drugs that act on GIT. In a study by Madi L et al., esomeprazole and pantoprazole were most frequently prescribed proton pump inhibitors (34% and 31% respectively). [10]

Among antimicrobials, the most commonly prescribed class of drugs were beta lactams, of which Amoxycillin+clavulanic acid constitutes 16.2% prescriptions followed by cefixime 14.7% of total antimicrobials prescribed. In a study by Sanmukhpriya S et al., out of 138 antimicrobials prescribed 22.5% were of cefuroxime, 11.6% were of azithromycin, 11.5% were of cefixime. [6]. Another study by Bilal AI et al., of total 1426 medicines prescribed, 49.6% were antibiotics, with amoxicillin (33.3%) and co-trimoxazole (16.0%) being the most frequently prescribed agents. [11]

Among the drugs acting on endocrine system, glucocorticoids were most frequently prescribed (65.3%) followed by antidiabetic agents (19.8%), of which mometasone cream (45.4%), prednisolone (11.6%) and metformin (10.7%) respectively were the most frequently prescribed drugs.

Among the drugs acting on the cardiovascular system, anti-hypertensive agents (98.3%) constitute the entire prescriptions analyzed followed by anti-arrhythmic agents (1.7%). Among the antihypertensives, angiotensin receptor blockers/

combinations (35.1%) followed by calcium channel blockers (22.8%) were most frequently prescribed classes, of which telmisartan (31.6%) and amlodipine (22.8%) were the most frequently prescribed drugs. In a study by Dutta S et al., calcium channel blockers/ combinations (72.3%) were the most frequently prescribed antihypertensive class, of which amlodipine (55.6%) was the most frequently prescribed drug. [12] Among the drugs acting on central nervous system, antiepileptics (27.8%) followed by central acting anticholinergic agent (20.9%) were the most frequently prescribed classes, of which trihexyphenidyl (20.9%) and sodium valproate (11.3%) were the most frequently prescribed drugs.

Analysis of prescriptions as per WHO/INRUD core drug prescription indicator is shown in Table 3. In this study, among total 1000 prescriptions, 3110 drug/combinations were prescribed with the average of 3.1 drugs per prescription found; the ideal range is 1.6-1.8. The number of medicines prescribed by generic name was found to 98.1% (3050/3110), ideal value is 100%. The Number of encounters with an antibiotic prescribed was 41.6% (416/1000), the ideal range being 20-26.8%. The number of encounters with an injectable preparation prescribed was 1% (10/1000), the ideal range is 13.4-24.1%. Number of drugs prescribed from the national EDL is 98.4% (3059/3110), the ideal value is 100%. In a study conducted by Yimer YS et al.; on average, 1.95 drugs were prescribed per prescription. Percentage of encounters by generic name, encounters with antibiotics and injection, and drugs from essential drug list were 99.9%, 35.4%, 15.3%, and 100%, respectively.[13]

In another study by Shanmugapriya S et al.; A total of 700 prescriptions were analyzed and the average number of drugs per prescription was 2.955 ± 1.32. Amongst the prescribing indicators, generic prescribing was appallingly low (6.42%). In contrast, antibiotic prescribing and prescription of injections showed an appreciably rational trend with 15.42% and 8.14%, respectively. Furthermore, the prescription of the drugs enlisted in the essential drugs list was determined to be 90.67%.[6]

In another study by Shrestha R et al.; Out of total 770 prescriptions, The average number of drugs per encounter was 3.2. The percentage of encounters with antibiotic and injection was 37.9% (n = 292) and 0.7% (n = 5), respectively. The percentage of drugs prescribed by generic and from an essential medicine list of Nepal was 2.9% (n = 72) and 21.3% (n = 521), respectively. [14]

In a study by Atif M et al.; Amongst the prescribing indicators, the average number of drugs per prescription was 2.8 (SD = 1.3), the drugs prescribed by generic name were 56.6 %, the encounters with an antibiotic prescribed were 51.5%, no injections were prescribed and 98.8% of the drugs prescribed were from the Essential Drugs List (EDL). [15] In another Study by Ofori-Adjei YA et al.; Out of 678 prescriptions The average number of drugs prescribed per encounter was 4.4, drugs prescribed by generic name was 86.9%, patient encounters in which antibiotics prescribed were 6.5% (n= 44) and injections were prescribed in 3.2% (n=22) of patient encounters. 64.0% of all drugs prescribed were from the Ghanaian EML. [16]

In a study by Summoro TS et al.; out of 1440 prescriptions, the average number of drugs per prescription was found to be in the range of 1.82±0.90 to 2.28±0.90. The percentage of drugs prescribed by generic name was 95.8%. Percentage use of injectables was found to be 15 to 61.7. Drugs prescribed from the essential drug list was found to be 94.1%.[17]

In a Study carried by Hussain S et al.; Out of 1000 prescriptions, the average number of drugs per prescription was 2.91. The percentage of drugs prescribed by generic name, from the essential drug list (National) and as fixed dose combinations (FDCs) was 10.05%, 22.57%, and 49.22%, respectively. The total percentage of encounters with antibiotics, injectables, and FDCs was 19.70%, 2.20%, and 73.60%, respectively. [5]

In another Study by Tripathy JP et al.; Out of 1609 prescriptions, on an average, 2.2 drugs were prescribed per patient. Nearly 84% of the drugs were prescribed from the essential drug list (EDL). Antibiotics were prescribed in 45.3% of prescriptions, followed by vitamins (34.8%) and nonsteroidal anti-inflammatory drugs (33.9%). Drugs were prescribed in their generic names in 70% of cases. [18]

In a Study by Bilal AI et al.; Out of 636 prescriptions, the average number of medicines per prescription was 2.2 with standard deviation of 0.8. The proportion of medicines prescribed by generic name was 97 and 92% of the prescribed medicines were included in List of Essential Medicines for Ethiopia, Prescriptions containing antibiotics and injections constituted (82.5 and 11.2%) respectively. Of the total of 1426 medicines prescribed, 49.6% were antibiotics. [6]

In a study by Ata M et al.; Out of 300 prescriptions, the average no of drugs per encounter was 3.7 and Drugs by generic name were 42.7%. Encounters with an antibiotic prescribed 34.4%. Encounter with an injection prescribed 4%. Drug prescribed from essential drug list 94%.[19]

In a study by Bhavesh K. Lalan et al.; average no of drugs per encounter was 3.62. Drugs prescribed from the essential drug list were 81.6%. Total no of

prescriptions with an antibiotic was 46.17%. Total no. of prescriptions with an injection was 0.17%. Total number of prescriptions with an FDC was 46.67%.[7]

**Table 1: Frequency of prescription of major groups and classes of various drugs**

| Major Group | Classes | Number Prescribed (%) |
|---|---|---|
| Vitamins and minerals | | **852 (27.4)** |
| | Vitamins | 563 (66.1) |
| | Minerals ± Vitamins | 289 (33.9) |
| Drugs acting on Autacoid system | | **717 (23.1)** |
| | NSAIDs | 533 (74.3) |
| | Antihistaminics | 184 (25.7) |
| Drugs acting on GIT | | **652 (21.0)** |
| | Anti-peptic-ulcer | 496 (76.1) |
| | Antacids | 58 (8.9) |
| | Antiemetics | 47 (7.2) |
| | Antispasmodics | 34 (5.2) |
| | Laxatives | 17 (2.6) |
| Antimicrobials | | **543 (17.4)** |
| | Beta lactams | 223 (41.1) |
| | Antifungals | 91 (16.7) |
| | Quinolones | 73 (13.4) |
| | Macrolides | 38 (7.0) |
| | Tetracyclines | 32 (5.9) |
| | Antiamoebic | 24 (4.4) |
| | Lincosamide | 17 (3.1) |
| | Antihelminthic | 12 (2.2) |
| | Oxazolidinones | 03 (0.5) |
| | Urinary antiseptic | 01 (0.2) |
| Drugs acting on Endocrine system | | **121 (3.9)** |
| | Corticosteroids | 79 (65.3) |
| | Antidiabetics | 24 (19.8) |
| | Estrogens±Progestins | 09 (7.4) |
| | Thyroxine preparations | 05 (4.1) |
| | SERM | 03 (2.5) |
| | Antiandrogen | 01 (0.8) |
| Drugs acting on CNS | | **115 (3.7)** |
| | Antiepileptics | 32 (27.8) |
| | Antipsychotics | 24 (20.9) |
| | Antiparkisonian | 24 (20.9) |
| | Antianxiety | 14 (12.1) |
| | Antidepressants | 13 (11.3) |
| | Cognition enhancer | 03 (2.6) |
| | Antimanic | 02 (1.7) |
| | Opioid analgesics | 02 (1.7) |
| Drugs acting on CVS | | **58 (1.9)** |
| | Antihypertensives | 57 (98.3) |
| | Antiarrhythmics | 01 (1.7) |
| Drugs acting on Respiratory system | | **52 (1.6)** |
| | Anti-asthmatic/COPD | 30 (57.7) |
| | Cough suppressant | 22 (42.3) |
| **Total** | | **3110 (100)** |

**Table 2: Frequency of prescription of various classes and individual drugs**

| Classes | Drug | Number Prescribed (%) [N=3110] |
|---|---|---|
| Vitamins | | **563 (18.1)** |
| | Vit. B Complex | 534 (94.8) |
| | Vit. D | 10 (1.8) |
| | Vit. C | 08 (1.4) |
| | Vt. E | 07 (1.3) |

| | | |
|---|---|---|
| | Folic Acid | 04 (0.7) |
| NSAIDs | | **533 (17.1)** |
| | Ibuprofen + Paracetamol | 309 (58.0) |
| | Diclofenac | 101 (18.9) |
| | Paracetamol | 98 (18.4) |
| | Aspirin | 14 (2.6) |
| | Diclofenac + Paracetamol | 07 (1.3) |
| | Aceclofenac + Paracetamol | 03 (0.6) |
| | Piroxicam | 01 (0.2) |
| Anti-peptic Ulcer | | **496 (15.9)** |
| | Pantoprazole | 391 (78.8) |
| | Ranitidine | 104 (21.0) |
| | Sucralfate | 01 (0.2) |
| Antihistaminics | | **184 (5.9)** |
| | Cetirizine | 162 (88.0) |
| | Levocetirizine | 22 (12.0) |
| Minerals | | **182 (5.8)** |
| | Calcium | 172 (94.5) |
| | Iron | 10 (5.5) |
| Cephalosporins | | **125 (4.0)** |
| | Cefixime | 80 (64.0) |
| | Cefpodoxime | 44 (35.2) |
| | Cefuroxime | 01 (0.8) |
| Combination of Vitamins & Minerals | | **107 (3.4)** |
| | Calcium + Vit. D | 65 (60.7) |
| | Iron + Folic acid | 42 (39.3) |
| Penicillins | | **98 (3.1)** |
| | Amoxicillin + Clavulanic acid | 88 (89.8) |
| | Amoxicillin | 09 (9.2) |
| | Benzathine penicillin | 01 (1.0) |
| Antifungals | | **91 (2.9)** |
| | Clotrimazole | 44 (48.3) |
| | Fluconazole | 42 (46.2) |
| | Ketoconazole | 04 (4.4) |
| | Itraconazole | 01 (1.1) |
| Glucocorticosteroids | | **79 (2.5)** |
| | Mometasone | 55 (69.5) |
| | Prednisolone | 14 (17.7) |
| | Triamcinolone | 04 (5.1) |
| | Fluticasone | 03 (3.8) |
| | Dexamethasone | 01 (1.3) |
| | Clobetasol | 01 (1.3) |
| | Budesonide + Formoterol | 01 (1.3) |
| | | |
| Fluroquinolones ± other drugs | | **73 (2.3)** |
| | Moxifloxacin | 34 (46.6) |
| | Levofloxacin | 12 (16.4) |
| | Ciprofloxacin | 10 (13.7) |
| | Ofloxacin + Ornidazole | 10 (13.7) |
| | Ofloxacin | 04 (5.5) |
| | Ciprofloxacin + Dexamethasone | 02 (2.7) |
| | Ofloxacin + Betamethasone | 01 (1.4) |
| Antacids | | **58 (1.9)** |
| | Magaldrate | 58 (100.0) |
| Antiemetics | | **47 (1.5)** |
| | Ondensateron | 41 (87.2) |
| | Domperidone | 06 (12.8) |

| | | |
|---|---|---|
| Macrolides | | **38 (1.2)** |
| | Azithromycin | 38 (100.0) |
| Aminoglycosides | | **34 (1.1)** |
| | Neomycin | 10 (34.5) |
| | Tobramycin | 09 (31.1) |
| | Tobramycin + Dexamethasone | 05 (17.2) |
| | Tobramycin | 05 (17.2) |
| | Framyceitin | 05 (17.2) |
| Antispasmodics | | **34 (1.1)** |
| | Dicyclomine | 34 (100.0) |
| Tetracyclines | | **32 (1.0)** |
| | Doxycycline | 32 (100.0) |
| Antiepileptics | | **32 (1.0)** |
| | Sod. Valproate | 13 (40.6) |
| | Clonazepam | 11 (34.4) |
| | Phenytoin | 03 (9.4) |
| | Pregabalin | 02 (6.2) |
| | Carbamazepine | 01 (3.1) |
| | Phenobarbitone | 01 (3.1) |
| | Gabapentin | 01 (3.1) |
| Antiamoebics | | **24 (0.8)** |
| | Metronidazole | 22 (91.7) |
| | Secnidazole | 02 (8.3) |
| Antidiabetics | | **24 (0.77)** |
| | Metromin | 13 (54.1) |
| | Metformin + Vildagliptin | 07 (29.1) |
| | Glimepiride | 01 (4.2) |
| | Sitagliptin | 01 (4.2) |
| | Vildagliptin | 01 (4.2) |
| | Metformin + Glimepiride | 01 (4.2) |
| Antipsychotics | | **24 (0.77)** |
| | Risperidone | 12 (50.0) |
| | Olanzapine | 09 (37.5) |
| | Flupenthixol + Melitracen | 03 (12.5) |
| | Clozapine | 01 (4.2) |
| Central anticholinergics | | **24 (0.77)** |
| | Trihexyphenidyl | 24 (100.0) |
| Antitussive | | **22 (0.7)** |
| | Dextromethorphan | 22 (100.0) |
| Leukotriene antagonist | | **22 (0.7**) |
| | Montelukast | 22 (100.0) |
| ARBs | | **18 (0.6)** |
| | Telmisartan | 18 (100.0) |
| Laxatives | | **17 (0.5)** |
| | Lactulose | 15 (88.2) |
| | Liquid Paraffin | 02 (11.8) |
| Lincosamides | | **17 (0.5)** |
| | Clindamycin | 17 (100.0) |
| Antianxiety | | **14 (0.4)** |
| | Alprazolam | 07 (50.0) |
| | Lorazepam | 07 (50.0) |
| Antidepressants | | **13 (0.4)** |
| | Amitriptyline | 10 (76.9) |
| | Escitalopram | 03 (13.1) |
| CCBs | | **13 (0.4)** |
| | Amlodipine | 13 (100.0) |
| | | |
| Antihelminthics | | **12 (0.4)** |

| | | |
|---|---|---|
| | Albendazole | 08 (66.7) |
| | Ivermectin | 04 (33.3) |
| Beta blockers | | **11 (0.35)** |
| | Propranolol | 05 (45.5) |
| | Metoprolol | 05 (45.5) |
| | Bisoprolol | 01 (9.0) |
| Bronchodilators | | **08 (0.3)** |
| | Etophylline + Theophylline | 04 (50.0) |
| | Salbutamol | 01 (12.5) |
| | Levosalbutamol | 01 (12.5) |
| | Etophylline | 01 (12.5) |
| | Salbutamol + Ambroxol | 01 (12.5) |
| Progestins | | **07 (0.3)** |
| | Medroxyprogesterone | 03 (42.8) |
| | Norethisterone | 03 (42.8) |
| | Progesterone | 02 (28.6) |
| ACEIs | | **07 (0.3**) |
| | Ramipril | 07 (100.0) |
| Diuretics | | **06 (0.2)** |
| | Furosemide | 04 (66.7) |
| | Furosemide + Spironolactone | 02 (33.3) |
| Thyroxine analogue | | **05 (0.2)** |
| | Levothyroxine | 05 (100) |
| Oxazolidinones | | **03 (0.1)** |
| | Linezolid | 03 (100.0) |
| SERM | | **03 (0.1)** |
| | Tamoxifen | 03 (100) |
| Cognition enhancers | | **03 (0.1)** |
| | Piracetam | 02 (66.7) |
| | Donepezil | 01 (33.3) |
| Antimanic | | **02 (0.06)** |
| | Lithium | 02 (100.0) |
| Opioid Analgesic | | **02 (0.06)** |
| | Tramadol | 02 (100.0) |
| ARBs Combination | | **02 (0.06)** |
| | Telmisartan + Hydrochlorothiazide | 02 (100.0) |
| Urinary Antiseptics | | **01 (0.03)** |
| | Nitrofurantoin | 01 (100.0) |
| Combined Oral Contraceptives | | **01 (0.03)** |
| | Ethinylestradiol + Levonorgestrel | 01 (100.0) |
| 5 $\alpha$ reductase inhibitors | | **01 (0.03)** |
| | Dutasteride | 01 (100.0) |
| Antiarrhythmic | | **01 (0.03)** |
| | Amiodarone | 01 (100.0) |
| **Total** | | **3110 (100)** |

**Table 3: Analysis of prescriptions as per WHO/INRUD core drug prescription indicator**

| S. No. | Parameter | Observation | Optimal/Ideal Value (%) |
|---|---|---|---|
| 1. | Average Number of Drugs Per Prescription | 3.1 (3110/1000) | 1.6-1.8 |
| 2. | Number of Drugs Prescribed by Generic name | 98.1% (3050/3110) | 100 |
| 3. | Number of Encounters with an Antibiotic Prescribed | 41.6% (416/1000) | 20-26.8 |
| 4. | Number of Encounters with an Injectable Preparation Prescribed | 1% (10/1000) | 13.4-24.1 |
| 5. | No of Medicines Prescribed from National List of Essential Medicines, 2022 | 98.4% (3049/3110) | 100 |

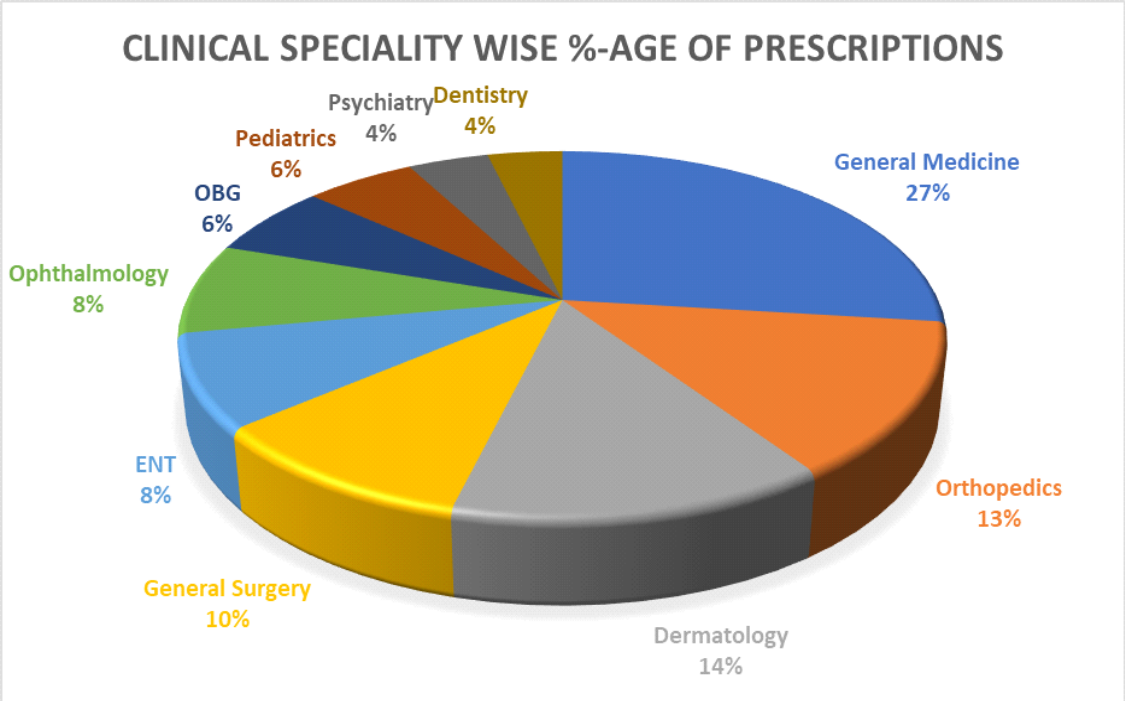


**Figure 1: Clinical Specialties wise distribution of prescriptions**

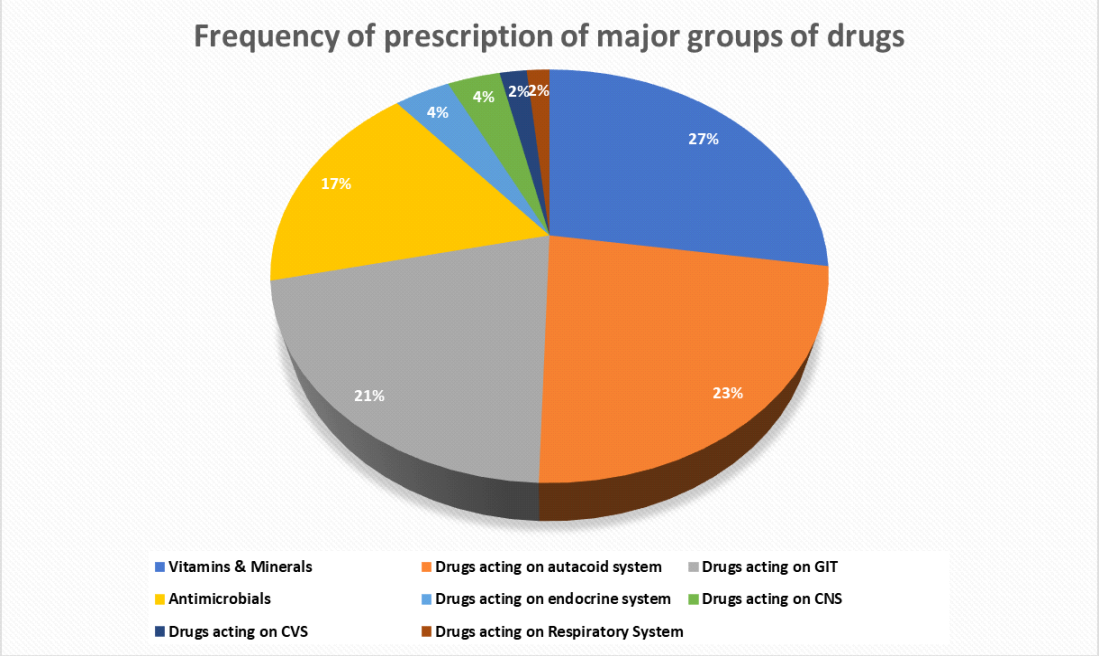


**Figure 2: Frequency of prescriptions of major groups of drugs**

## Conclusion

In this study, the average number of drugs per prescription was found to be 3.1, that was more than optimal range as per WHO/INRUD indicators was evident in this study. Polypharmacy can be reduced by rational drug prescription according to co-morbid conditions and strictly following the standard treatment guidelines. Overuse of antimicrobials was also found in this study but other prescription parameters such as prescription of generic name, injectables prescribed and drugs prescribed among essential list of medicines were within ideal range as per WHO/INRUD indicators. Among antimicrobials, most commonly prescribed drugs were Amoxicillin + Clavulanic acid and cefixime and among NSAIDs, most commonly prescribed drugs were Ibuprofen + Paracetamol and Diclofenac. A constant watch should be kept on the medicines based on their consumption rate and pattern to avoid inadequacy or expiry of these medicines and necessary action for procurement,

storage and redistribution of drugs should be meticulously exercised.

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