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A prospective observational study on drug utilization pattern in dermatology OPD at a tertiary care centre in South India

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ABSTRACT

Introduction: Drug utilization research plays an important role in assessing prescription quality and promoting rational drug use, thereby minimizing adverse drug reactions, drug–drug interactions, and unnecessary financial burden on patients. Since the skin is the largest organ of the body, dermatology outpatients are often prescribed a wide range of medications. This study aims to analyze the prescribing trends in a dermatology outpatient department (OPD).

Methods: A prospective, cross-sectional study was carried out in the dermatology OPD of a tertiary care hospital in Chennai. A total of 600 electronic prescriptions were collected over a three-month period and evaluated for drug utilization using patient demographics and World Health Organization (WHO) core prescribing indicators.

Results: Males constituted 55% of the study population. The majority of patients were between 31 and 40 years of age. Antihistamines emerged as the most frequently prescribed drug class. The mean number of drugs per prescription was 3.58. Generic prescribing accounted for 36.47%. Antibiotics were used in 21.6% of prescriptions, while injectable drugs appeared in 2.1%. Overall, 36.5% of drugs were prescribed from the National List of Essential Medicines (NLEM).

Conclusion: The findings highlight the need for dermatologists to increase generic prescribing and adopt drugs from the NLEM to ensure rational prescribing, minimize adverse events, and provide cost-effective therapy for dermatology outpatients.

Keywords: Drug utilization, dermatology, rational prescribing, adverse drug reactions

Introduction

The World Health Organization (WHO) first described drug utilization research in 1977 as the study of how medicines are marketed, distributed, prescribed, and consumed in society, with an emphasis on their medical, social, and economic outcomes. [1]

Such studies are crucial for evaluating prescription quality and encouraging rational drug use. By promoting the appropriate selection of medicines, drug utilization research helps reduce the risk of adverse reactions, drug–drug interactions, and unnecessary healthcare expenses. [2,3]

The skin, being the largest organ of the human body, is continuously exposed to environmental, chemical, and infectious factors, as well as intrinsic influences such as genetics, metabolism, and immunity. [4] Globally, skin conditions rank as the fourth most common non-fatal disease category, which explains the extensive drug use in dermatology practice. [5,6] A prescription serves as a written directive from a physician, intended to ensure appropriate treatment. It reflects the clinician's knowledge, clinical judgment, and consideration of both the patient's medical condition and financial capacity. The core determinants of a good prescription include affordability, availability, quality, rationality, and completeness, all of which are encompassed in drug utilization studies. [7] Rational prescribing requires clarity on drug name, dosage, frequency, duration, and diagnosis, along with complete patient details. [8]

Therefore, drug utilization studies are considered an effective approach to promote the rational use of medicines and act as a valuable guide for healthcare professionals. [9] Prior studies in dermatology have pointed out issues such as irrational prescribing and widespread polypharmacy. However, evidence on drug utilization trends in dermatology from India remains limited.

Methodology:

This investigation was designed as a prospective, cross-sectional observational study conducted in the Dermatology outpatient department (OPD). Individuals aged 18 years and above, regardless of gender, were included, while patients unwilling to participate were excluded. The study was carried out over a three-month period, from April 1, 2024, to June 30, 2024, at a tertiary care hospital in Chennai. A convenience sampling strategy was employed.

The required sample size was determined based on WHO guidelines, which recommend a minimum of 600 prescriptions to adequately assess prescribing trends. Accordingly, more than 600 prescriptions were collected from the dermatology OPD by reviewing patient visits approximately three days per week on alternate days over the study period. [10]

Study procedure:

The study was initiated after obtaining approval from the Institutional Ethics Committee. Written informed consent was secured from all participants aged ≥18 years. Prescriptions were retrieved electronically from the hospital pharmacy system using patient identifiers. A structured case record form was utilized to document patient demographics, diagnoses, and World Health Organization (WHO) core prescribing indicators, including:

- Average number of drugs per prescription
- Proportion of medicines prescribed by generic name
- Percentage of prescriptions containing antibiotics
- Percentage of prescriptions with injectable formulations
- Proportion of drugs prescribed from the National List of Essential Medicines (NLEM) [11]

For fixed-dose combinations (FDCs), each component drug was counted individually when calculating the total number of drugs prescribed. Data entry was performed using Microsoft Excel 2021, and descriptive statistics were applied for analysis.

A total of 600 electronic prescriptions were reviewed, and demographic as well as prescribing details were analyzed using WHO core indicators. Out of the study population, 329 patients (55%) were male (Figure 1).

Age Distribution

More than 70% of dermatology outpatients were within the age range of 21–50 years. The largest proportion belonged to the 31–40 year group (31%), followed by 21–30 years (23%) and 41–50 years (16%) (Figure 2).

Drug Classes and Dosage Forms

Antihistamines represented the most frequently prescribed therapeutic class (36.4%), with second-generation agents such as cetirizine and levocetirizine being predominant. Other commonly prescribed groups included antimicrobials (18%), corticosteroids (14.7%), proton pump inhibitors (9.5%), immunomodulators (4.8%), comedolytics (4.3%), keratolytics (3.7%), vitamin supplements (3.2%), sunscreen preparations (2.9%), and demelanizing agents (2.5%).

Regarding dosage forms, oral tablets were most widely prescribed (48.4%), followed by topical creams (21.2%), ointments (17.8%), lotions (10.5%), and injectable formulations (2.1%) (Tables 1 and 2).

WHO Core Prescribing Indicators

Across the 600 prescriptions, a total of 2,152 individual drugs were prescribed. The average number of drugs per encounter was 3.59. Of these, 63.53% were written by brand name, while only 36.47% were prescribed using generic names. Antibiotics appeared in 26.8% of prescriptions, whereas injectable drugs were recorded in 2.1%. Overall, 36.5% of prescribed medicines were from the National List of Essential Medicines (NLEM) (Table 3).

Table 1: Drug class prescribed in Dermatology OPD

S.No	Drug class	Percentage
1	Antihistamines	36.4%
2	Antimicrobials	26.8%
3	Glucocorticoids	11.9%
4	Proton pump inhibitors	7.5%
5	Immunomodulators	4.8%
6	Comedolytics	4.3%
7	Keratolytics	2.7%

8	Vitamin supplements	2.2%
9	Sunscreen lotion	1.9%
10	Demelanizing agents	1.5%

Table 2: Different dosage forms

S.No	Drug class	Percentage
1	Tablets	48.4%
2	Creams	21.2%
3	Ointments	17.8%
4	Lotions	10.5%
5	Injections	2.1%

Table 3: Drug Utilization pattern in Dermatology OPD

S.No	WHO Core Prescribing Indicators	Result
1	Average number of drugs per prescription	3.586
2	Percentage of drugs prescribed by generic names	36.47%
3	Percentage of prescriptions with antibiotics	21.8%
4	Percentage of prescriptions with injectables	2.1 %
5	Percentage of drugs prescribed from National list of Essential Medicines (NLEM)	36.5%

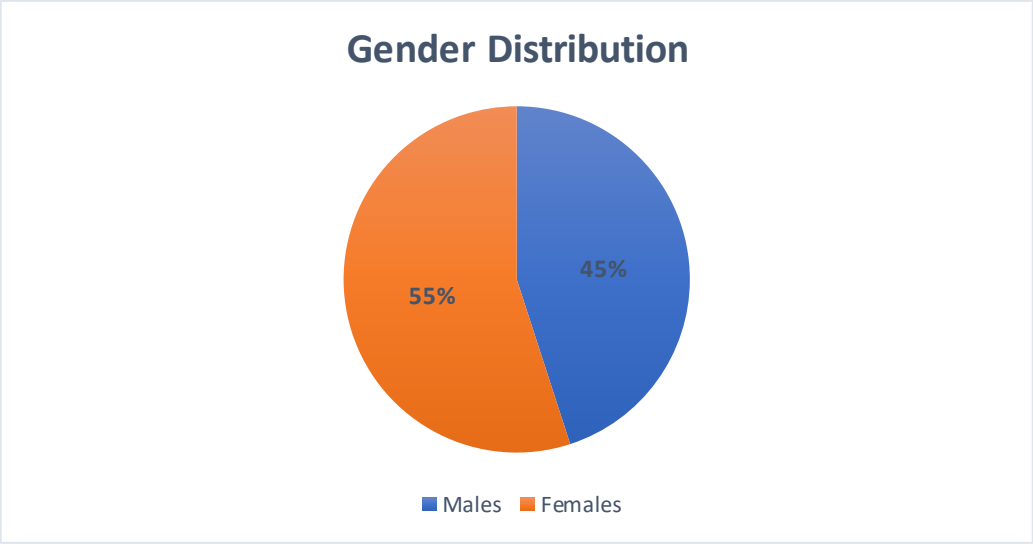

Figure 1: Gender Distribution

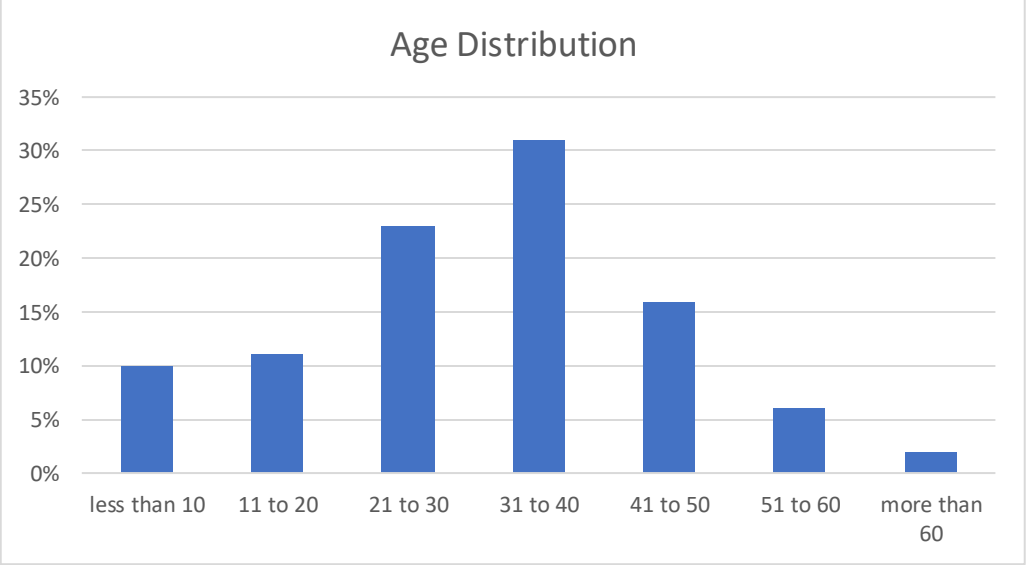

Figure 2: Age distribution

Discussion

A prescription serves as a reflection of a physician's knowledge, judgment, and prescribing attitude, considering both the clinical needs and the financial circumstances of the patient. [12] The present study assessed drug utilization trends in the dermatology OPD of a tertiary care center in South India by analyzing 600 electronic prescriptions with respect to patient demographics and WHO prescribing indicators.

In this study, the proportion of male patients (55%) was higher than that of females (45%), which is consistent with findings reported by Ashraf et al. [13] and Narwane et al. [14] The majority of patients belonged to the 31–40 year age group (31%), a proportion slightly higher than that reported by Pathak et al. (26.9%). [15] Antihistamines were the most frequently prescribed drug class, a finding comparable to the results of Patil et al. [15] Similarly, tablets were the most common formulation, which aligns with the study of Vakade et al. [16]

The average number of drugs per prescription (3.59) was also in agreement with earlier studies by Patil et al. [14] However, multiple drug use in dermatology often contributes to polypharmacy, which raises concerns about potential drug interactions and adverse events.

In the current analysis, only 36.47% of medicines were prescribed by generic name, suggesting a need to reduce brand-name prescribing in order to enhance cost-effectiveness. This rate was slightly higher than the 31.1% reported by Patil et al. [15] Antibiotics were included in 21.8% of prescriptions, a considerably higher percentage compared to Patil et al. (11.08%) and Pathak et al. (15.01%). [15,8] The higher frequency of antibiotic use in our study may predispose to inappropriate prescribing and antimicrobial resistance.

Injectable formulations accounted for 2.1% of prescriptions, while 36.5% of the prescribed drugs were from the National List of Essential Medicines (NLEM). This proportion was lower than in the study by Patil et al. [14] Prescribing from the NLEM is important to ensure continuous drug availability and affordability.

Limitations of the study:

This study was limited by its single-center design, which restricts generalizability. In addition, being conducted during a defined three-month period, seasonal variations in dermatological conditions may have influenced prescription patterns. Larger, multicentric studies over extended durations are needed for more comprehensive and representative findings.

Conclusion

The present study highlights the prescribing trends in the dermatology OPD, where antihistamines were identified as the most frequently prescribed drug class. The average number of medicines per prescription indicates that polypharmacy was relatively controlled. However, the proportion of antibiotic prescriptions was higher than expected, underscoring the need for more judicious and rational use to prevent antimicrobial resistance. The findings further emphasize the importance of promoting generic prescribing and greater adherence to the National List of Essential Medicines (NLEM) to ensure safe, rational, and cost-effective dermatological care.

Conflict of Interest: The authors declare that they have no conflict of interest.

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