



DRUG UTILIZATION PATTERN OF SKIN DISORDERS IN DERMATOLOGY OUTPATIENT DEPARTMENT OF A TERTIARY CARE HOSPITAL

Pharma

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ABSTRACT

Objectives: The study aims to assess the drug utilization prescription pattern in the dermatology outpatient department. **Methods:** Observational cross-sectional study conducted in the Dermatology OPD of a tertiary centre in collaboration with the Department of Pharmacology. **Results:** 700 prescriptions of adult patients were analysed. Majority being middle-aged (40.57%), with male preponderance (57.6%). The largest socio-economic group was the lower class (52.3%). Most common diagnosis was fungal infections (38.28%) followed by acne, eczema and Psoriasis. 44% diagnoses had infective aetiology. 2575 medicines were prescribed in total where antihistamines topped the list. 85.09% were prescribed as single drug therapy. 59.22% medicines were prescribed for oral consumption whereas 40.78% for topical application. 64.58% medicines were prescribed under generic names. 89.44% medicines were supplied by the hospital pharmacy. 70.41 % belonged to the NLEM 2022. 52% prescriptions included four medicines. The most commonly reported ADR was Fixed Drug Eruption (26.92 %). **Conclusion:** The high prevalence of polypharmacy highlights the need for careful monitoring to optimize treatment regimens. The significant prescription by generic name is encouraging but under-reporting of the adverse drug reactions still remains an important issue.

KEYWORDS

Dermatology, Drug Utilization Study, Prescription, ADR, FDC

INTRODUCTION

Skin has the largest surface area in the human body. Apart from being naturally exposed to a variety of external factors ranging from environmental and chemical to infectious agents, for which it acts as a first line of defense, it also exhibits manifestations of several intrinsic factors like metabolic derangements, genetic influences, immunological impacts on the body or even certain systemic diseases. Dermatological disorders are ranked as 18th in leading cause of health burden but strikingly, just 4th in leading cause of non-fatal health burden⁽¹⁾. Despite this magnitude of prevalence and the ease of management they offer, its profound impact on the public health system is often underestimated.

Skin conditions in India are alarmingly common and propagating in nature, owing to excessive population, typical unhygienic conditions and the tropical weather. The multitude of dermatological ailments prevalent in the country diversifies from fungal & parasitic infections like Tinea or Scabies to bacterial & viral illnesses like pyoderma, acne or herpes and many other sexually transmitted diseases⁽²⁾. In addition to contagions, several immunological disorders in the form of eczema, psoriasis, urticaria, alopecia or even cutaneous adverse drug reactions are routinely seen in the Outpatient Department. Most of these conditions are chronic in nature and not only manifest physically but also display apparent symptoms resulting in significant social and mental distress to the patients downgrading their quality of life.

On account of such factors, importance of conducting & understanding Drug Utilization Studies should be emphasized. This will provide valuable insights into their management and prescribing practices.

Simultaneously, they can uncover any lacunae in the treatment regimen, like unintentional misdiagnosis, detecting deviations from contemporary practices or established guidelines or even certain medicines being over or under- utilized. On a national level, challenges like excessive dependence on Fixed Dose Combinations, uncalled addition of nutraceuticals, misplaced use of antibiotics for non-bacterial infections and polypharmacy mar the prescription practices in Dermatology OPD. Periodic auditing of prescriptions through drug utilization studies serves as a vital mechanism for improving therapeutic efficacy, minimizing adverse effects, optimizing treatment costs, and providing constructive feedback to clinicians.

MATERIALS & METHOD

Aim: The study aims to assess the drug utilization prescription pattern in the dermatology OPD and study the age, gender & socio- economic based distribution. It also assesses the prescription based on World Health Organisation- Drug Use Indicators and evaluate dermatological adverse drug reactions.

Study Design: This study was conducted as an observational cross-sectional study to evaluate the Drug utilization Pattern of Skin Disorders in the Outpatient Department of Dermatology of a Tertiary Care Hospital from January 2023 till June 2024. A total of 700 prescriptions were studied after obtaining permission from the concerned Institutional Ethics Review Committee, Ref. No. GMC/ CSMH/IEC/A/283/10

All adult patients of either gender who were newly diagnosed and willing to give consent to participate in the study were recruited.

Indoor patients, follow-up patients and referred cases from other departments apart from unwilling patients were excluded.

The recruited eligible patients were explained about the study. Those who volunteered to participate were enrolled in the study after obtaining their informed written consent. They were provided with patient information sheet for any and every detail regarding their role in the study. Patients were explained that they had the right to withdraw from this study, at any time, without giving any reason whatsoever. Data was collected in self-designed proforma by convenience sampling, randomly from the dermatology outpatient department.

Case Record Form (CRF) was used to record various relevant data like demographic details of the patients and the diagnosis made by the dermatologists. WHO class of medicines prescribed along with other prescription parameters like number of medicines prescribed per prescription, use of generic and brand names, route of drug administration, medicines from the national essential list of medicines 2022 were recorded along with the suspected adverse drug reaction.

Data Analysis: Data was systematically entered into MS Excel and was subjected to analysis. Patients were grouped into male and female and their respective percentage was calculated. Patients' ages were sub-classified into different age groups and their percentage was calculated. Patients were grouped into various socio-economic classes based on the Modified Kuppuswamy Scale⁽³⁾ and their percentage was calculated. Skin disorders as diagnosed by the dermatologists were classified into different groups and their percentage was calculated. They were further sub classified as infective or non- infective based on their aetiology and their percentage was expressed. Number of prescriptions across different classes of medicines was determined and their percentage was calculated.

RESULT

Present study included 700 patients of either gender. Mean age of all patients was 36.56±10.93 years. (Fig. No. 1). Out of the total 700 patients, there were 403 males making the male: female ratio to 1.35:1. (Fig No. 1). Youngest patient enrolled was 19 years old while oldest one was 88 years old. Majority of study population was 30 to <40 years of age (40.57%), followed by younger age group (28.43%).

There was a drastically high tally of patients from lower socio-economic section, per Modified Kuppuswamy Scale 2022,⁽³⁾ of the society (52.3%). Upper lower class comprised of 24.3% patients. The middle class population, consisting of upper and lower middle class contributed to 21.8% whereas a mere 1.6% patients belonged to upper class.

Most common diagnosis turned out to be fungal infections (38.28%), followed by Acne (28.14%). Other diagnoses included Eczema (10.14%), Psoriasis (4.14%), cutaneous adverse drug reactions (3.71%). Scabies was the least common diagnosis with just 1.43% of cases. (Fig. No. 2)

Total 2575 medicines were prescribed across 700 prescriptions. Antihistamines top the list with 430 prescriptions. 160 topical and 268 systemic antifungals reflect the prevalence of fungal infections in the patient population. A total of 440 prescriptions, including topical and systemic antibiotics showed that they are a common choice for treating bacterial infections. Corticosteroids, prescribed 180 times, out of which 27 prescriptions were for systemic steroids highlighting their use for more severe or widespread inflammatory conditions. (Fig. No. 3)

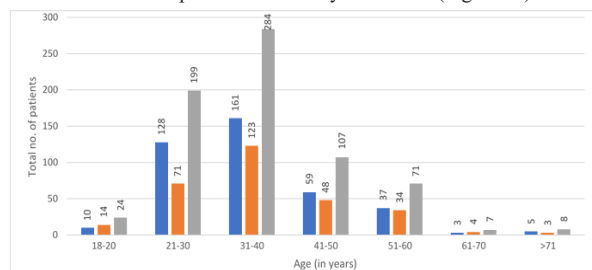


Figure No. 1: Distribution of Age (in years) & Sex of Patients

Out of the total 2575 medicines prescribed 2191 medicines (85.09%) were prescribed as single drug therapy whereas 384 medicines (14.91%) were prescribed as fixed dose combination.

Among various combination medicines prescribed, Clotrimazole+ beclomethasone was prescribed to 108 (28.13 %) patients, Fusidic Acid + Betamethasone Valerate Cream was used in 20 (5.21%) prescriptions, Amoxicillin 500mg + Clavulanic Acid 125mg was prescribed in 18 (4.69%) and Adapalene + Clindamycin Gel was used in 197 (51.30 %) prescriptions. Others included Clobetasol + Calcipotriol and Coal tar + Salicylic Acid. (Fig. No. 4).

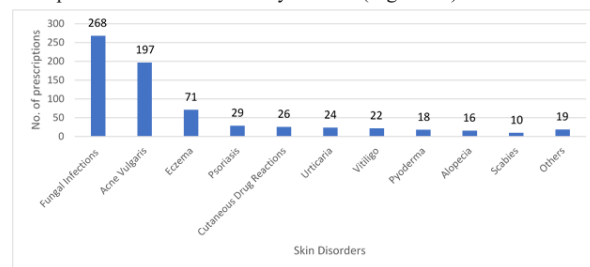


Figure No. 2: Frequency Distribution based on Diagnosis of Skin Disorders

Out of total 2575 medicines, 1525 (59.22) were prescribed orally and 1050 (40.78%) medicines were topical preparations. 1663 (64.58%) medicines were prescribed by their generic names while 912 (35.42%) medicines were prescribed by brand names.

2303 (89.44%) medicines were supplied by the hospital pharmacy, whereas 272 medicines (10.56%) were not available in hospital pharmacy. 1813 medicines (70.41 %) belonged to the National List of essential Medicines 2022. (Table No. 1)

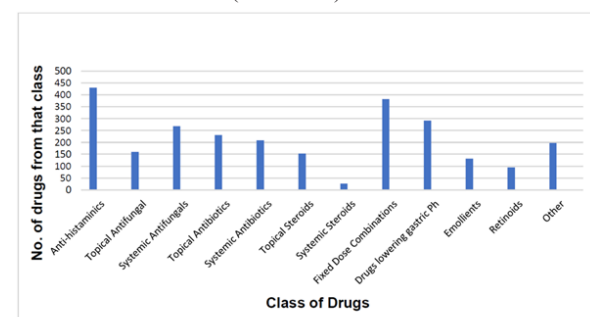


Figure No. 3: Distribution showing prescribing pattern of different classes of drugs

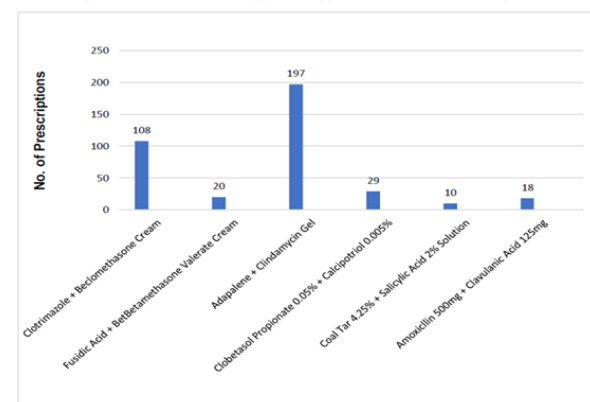


Figure No. 4: Various Fixed Dose Combination used in study population

Fixed Dose Combinations

There was a total of 26 ADRs reported. Causality Assessment was done using World Health Organization - Uppsala Monitoring Causality Scale. Out of the 33 suspected medicines for 26 ADRs, majority of medicines 17 (51.52%) were probable/likely of causing the ADR. (Table.No. 2)

Table No. 1 WHO Drug Use Indicators

Drug Use Indicators	Value (%)
Average no. of drugs per prescription	3.39 ±1.11 drugs
Percentage of encounters prescribed by generic names	64.58%
Percentage of encounters with an antibiotic prescribed	18.56%
Percentage of Fixed Dose Combinations	14.91%

Percentage of Drugs prescribed from the National List of Essential Medicines	70.41%
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Table No. 2 Assessment of Causality using WHO-UMC Scale

WHO-UMC Scale	Frequency	Percentage
Certain	3	9.09
Probable/Likely	17	51.52
Possible	11	33.33
Unlikely	2	6.06
Conditional/Unclassified	0	0
Un-assessable/Unclassifiable	0	0
TOTAL	33	100

DISCUSSION

The rational use of drug requires that patients receive medications appropriate to their clinical needs, in doses that meet their own individual requirements for an adequate period and at the lowest cost to them and their community. Research on drug use is essential because it sheds light on how effective medications are.⁽⁴⁾

Our study's gender distribution showing male predominance aligns with findings from Divyashanthi et al.⁽⁵⁾, with 60.8% male, Vakade et al.⁽⁶⁾ having 61% males, and Vineeta et al.⁽⁷⁾ with 62.13% males, but contrasts with the female predominance observed by Pathak et al.⁽⁸⁾ (52.93% females) and Sanjith et al.⁽⁹⁾ (50.62% females).

The majority of patients in our study were adults (31-50 years), consistent with findings from Pathak et al.⁽⁸⁾ with $\geq 50\%$ of patients in 21-40 years age group, Vakade et al.⁽⁶⁾ reported highest number of patients (26.5%) in 31-40 years age group in addition to 23.5% from 31-40 years age group.

The socioeconomic status analysis revealed that most patients (76.6%) were from the lower and upper-lower classes, with 52.3% from the lower class and 24.3% from the upper-lower class. This highlights a higher prevalence of dermatological issues in lower socioeconomic groups. Inanir et al.⁽¹⁰⁾ showed a significantly higher number of schoolchildren belonging to lower socioeconomic status in it's patient's population. In a study conducted by Saleem et al.⁽¹¹⁾ majority of the patients belonged to lower middle class.

In our study when classified according to the etiology, 44% had an infective aetiology whereas 56% had a non-infective aetiology. This balanced distribution is somewhat reflected in Vineeta et al.⁽⁷⁾ as well.

Our study found that fungal infections were the most common diagnosis, accounting for 38.28% of all cases, followed by acne (28.14%), eczema (10.14%), psoriasis (4.14%), Cutaneous Adverse Drug Reactions (3.71%), urticaria other than drug induced urticaria (3.43%), vitiligo (3.14%), Pyoderma (2.57%), Alopecia (2.29%), Scabies (1.43%). Other disorders together contributed for 2.72 %. Pathak et al.⁽⁸⁾ reported acne as the most common dermatological disorder (17.95%), closely followed by eczema (16.62%) and dermatophytosis (14.89%). Divyashanti et al.⁽⁵⁾ showed psoriasis as the most frequently observed condition (24.82%), followed by eczema (12.24%) and contact dermatitis (9.52%). This differs substantially from our results. Saleem et al.⁽¹²⁾ study aligns more closely with our findings regarding the high prevalence of fungal infections, particularly Tinea versicolor. They also found high incidences of dermatitis and hypersensitivity disorders, with eczema being the largest single non-infective disorder at 10%, which is consistent with our study's finding of eczema at 10.14%. Sanjith et al.⁽⁹⁾ observed that acne was the most common issue, affecting 31.25% of patients, followed by eczema (8.75%) and psoriasis (6.87%). This study's findings on acne prevalence are similar to our results, where acne was the second most common condition (35.7%). In the study by Gupta et al.⁽¹²⁾, three most common conditions were tinea (15.25%), acne (12.36%), and drug-induced cutaneous reactions (10.11%). The proportions were lower than in our study. Additionally, drug-induced reactions, which were not a major category in our study, were significant in Gupta et al.'s findings. Vakade et al.⁽⁶⁾ found that fungal infections were prevalent in 39.6% of patients, followed by acne in 14.2% and eczema in 9.1%. These results are in close alignment with our study.

The most frequently prescribed drug classes in our study were anti-allergic medications (16.70%), followed by topical (6.21%) and systemic antifungals (10.41%). Topical antibiotics (8.97%), systemic

antibiotics (8.12%), topical steroids (5.94%), and systemic steroids (1.05%) also made the list. Medicines affecting the gastric pH accounted for 11.30%.

Fixed Dose combinations accounted for 14.83%, emollients 5.13%, retinoids 3.69% and other medicines 7.65%. Comparing with other studies, Pathak et al.⁽⁸⁾ reported antihistaminic as the most common medicines prescribed (24.13%), similar to our study. Vakade et al.⁽⁶⁾, Saleem et al.⁽¹¹⁾ and Tikoo et al.⁽¹³⁾ also stated antihistamines as the most commonly prescribed drug group.

Antifungals were the second most common drug class (21.02%) in study conducted by Pathak et al.⁽⁸⁾. Other studies showing same findings are Saleem et al.⁽¹¹⁾. This aligns with our findings Flucanazole as most commonly prescribed drug.

Pathak et al.⁽⁸⁾ noted a significant use of antibiotics (15.91%), primarily in topical form, and a frequent use of topical steroids, which is consistent with our study's emphasis on topical treatments. But Divyashanthi et al.⁽⁵⁾ highlighted a preference for oral antibiotics (24.44%) over parenteral and topical routes.

Topical Corticosteroids accounted for 5.94% and systemic steroids accounted for 1.05% of total medicines prescribed, similar to Saleem et al.⁽¹¹⁾. The most commonly prescribed agents in Saleem et al.⁽¹¹⁾ were antihistamines, followed by antibiotics and antifungals.

Though in the present study total number of oral medicines prescribed (59.22%) are more than topical (40.78%), the number of topical antibiotics and topical steroids prescribed are more than their oral counterparts. In the study by Sanjith et al.⁽⁹⁾, topical medications were more frequently prescribed than oral ones, with antibiotics being the most common class (31.91%), followed by steroids (20.33%). Vineeta et al.⁽⁷⁾ also found that topicals were the most frequently prescribed medicines. This aligns with our study's emphasis on topical treatments but combination preparations used in our study were less.

Our study revealed a tendency towards polypharmacy, with an average of 3.39 ± 1.11 medicines prescribed per prescription. Sanjith et al.⁽⁹⁾ also reported an average of 2.64 medicines per prescription in their study. Studies conducted by Tikoo et al.⁽¹⁴⁾ showed similar results with average being 3.36 medicines per prescription, Saleem et al.⁽¹¹⁾ showing 2.46 as the average and Vakade et al.'s⁽⁶⁾ study was 2.72.

Additionally, 64.58% of the medicines were prescribed by their generic names reflecting a positive trend towards prescribing practices.

The fixed dose combinations (FDCs) prescribed were 14.91% which is lower as compared to the percentage of FDCs prescribed in a study conducted by Kshirsagar et al. but similar to study conducted by Narwane et al.⁽¹⁴⁾ wherein the number of FDC's used were only 11.9%. Medicines prescribed from National Essential Drug List 2022 constituted 70.41% in our study, while it was reported as 23% by Maini R. et al.⁽¹⁵⁾, 15.4% by Tikoo D et al.⁽¹⁴⁾ Bagle et al.⁽¹⁶⁾ and 51% by kutty et al.⁽¹⁷⁾. In a study conducted by Motghare et al.⁽¹⁸⁾ 63.91% of medicines belonged to the national list of essential medicines which resembles the findings of our study.

In conclusion, while our study identified a high prevalence of polypharmacy and a significant use of anti-allergic, antifungals, and antibiotics, other studies such as those by Pathak et al.⁽⁸⁾, Sanjith et al.⁽⁹⁾, and Gupta et al.⁽¹²⁾ showed similar trends with varying proportions. The higher rate of generic prescribing in our study stands out compared to others, such as Saleem et al.⁽¹¹⁾ and Vakade et al.⁽⁶⁾, who reported much lower rates. Overall, these comparisons highlight both common practices and unique patterns in dermatological prescribing across different studies.

CONCLUSION

The findings of these studies can help to decide priorities for rational medicine use, healthcare budget allocation, and institutionalized guidelines. Prescribers can also benefit from the helpful criticism that these studies provide.

The results can guide strategic interventions and inform resource allocation to better achieve dermatological care outcomes. Examination of adverse drug reactions supports the place of

pharmacovigilance in dermatological practice. Under-reporting of the adverse drug reactions still remains an important issue, hence health care workers as well as the general population should be informed and educated about the importance of reporting of adverse drug reactions.

Ultimately, this study contributes to improving quality and effectiveness in tertiary care settings for dermatological treatment.

Scope In Future

There is a scope of future research based on longitudinal outcome studies and interventions to improve prescribing practice and enhance patient safety. Prospective studies will help to assess other factors like resistance to antimicrobial agents and drug adherence.

This research, however, has some limitations. Since this was a single-centric study, the results obtained may not reflect the entire community. A larger sample size, and that too, from different sites and locations, can give a better and more reliable outcome. Moreover, the data collected represents the drug utilization pattern of skin disorders in an urban area and can have differences when applied to patterns in the rural areas.

Conflict Of Interest

This study has no financial interest to report and the authors declare they have no conflict of interest.

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