

A CROSS-SECTIONAL OBSERVATIONAL STUDY ON THE UTILITY AND PRESCRIPTION PATTERN OF TOPICAL CORTICOSTEROIDS IN A TERTIARY CARE TEACHING HOSPITAL IN CHENGALPATTU DISTRICT, TAMIL NADU

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ABSTRACT

Background

Topical corticosteroids are among the most commonly prescribed medications in dermatology because of their potent anti-inflammatory, immunosuppressive, and antiproliferative properties. Despite their proven therapeutic efficacy, inappropriate prescribing, irrational fixed-dose combinations, and prolonged use have contributed to an increasing incidence of corticosteroid-related adverse effects. Drug utilization studies play an important role in evaluating prescribing practices, identifying irrational drug use, and promoting evidence-based pharmacotherapy in dermatological practice.

Objectives

To evaluate the prescribing pattern, drug utilization profile, and rationality of topical corticosteroid use among dermatology outpatients attending a tertiary care teaching hospital, and to identify factors associated with irrational prescribing and the risk of corticosteroid-related adverse effects.

Materials and Methods

A hospital-based, cross-sectional observational drug utilization study was conducted in the Departments of Pharmacology and Dermatology at Shri Sathya Sai Medical College and Research Institute, Chengalpattu, Tamil Nadu, over a period of 12 months. A total of **312 dermatology outpatient prescriptions** were included using consecutive sampling. Data regarding demographic characteristics, dermatological diagnosis, topical corticosteroid prescribed, potency class, dosage form, duration of therapy, combination therapy, and prescribing pattern were collected using a structured data collection proforma. Rationality assessment was performed based on standard dermatology treatment guidelines. Statistical analysis was performed using SPSS version 26.0. Categorical variables were expressed as frequency and percentage, and associations were analysed using the Chi-square test, with $p < 0.05$ considered statistically significant.

Results

Among the **312 prescriptions** analysed, males constituted **50.3%** and females **49.7%**. Eczema/dermatitis was the most common dermatological disorder (**26.9%**), followed by autoimmune disorders (**15.4%**) and fungal infections (**12.2%**). Topical corticosteroids were prescribed in **225 (72.1%)** prescriptions, with **betamethasone (33.7%)** being the most frequently prescribed agent, followed by **clobetasol (22.1%)** and **mometasone (10.3%)**. High-potency corticosteroids accounted for **42.9%** of prescriptions. Overall, **57.1%** of prescriptions were classified as rational, whereas **42.9%** were irrational. Inappropriate combination therapy (**59.6%**), inappropriate potency selection (**36.5%**), and prolonged duration of therapy (**34.0%**) were the major contributors to irrational prescribing. High-potency corticosteroids, prolonged treatment duration, and combination therapy were significantly associated with irrational prescribing ($p < 0.001$). Furthermore, **33.3%** of prescriptions were categorized as high risk and **38.5%** as moderate risk for corticosteroid-related adverse effects.

Conclusion

Topical corticosteroids remain the cornerstone of treatment for inflammatory dermatological disorders in tertiary care practice. Although the overall prescribing pattern was largely rational, a considerable proportion of prescriptions demonstrated inappropriate potency selection, irrational combination therapy, and prolonged treatment duration, increasing the risk of corticosteroid-related adverse effects. Regular prescription audits, adherence to evidence-based treatment guidelines, continuous medical education, strengthened pharmacovigilance, and patient counselling are essential to promote rational topical corticosteroid use, enhance patient safety, and improve the quality of dermatological care.

Keywords: Topical corticosteroids, drug utilization study, prescribing pattern, rational drug use, dermatology, corticosteroid potency, pharmacovigilance, adverse drug reactions.

How to cite this article: Anisha Firthouz A, Maduram Annamalai, Soundarya Priyadharsini. A Cross-Sectional Observational Study on the Utility and Prescription Pattern of Topical Corticosteroids in a Tertiary Care Teaching Hospital in Chengalpattu District, Tamil Nadu. *Int J Drug Deliv Technol.* 2026;16(69s):1029-1039. DOI: 10.25258/ijddt.16.69s.106

INTRODUCTION

Skin diseases are among the most prevalent non-fatal health conditions worldwide and constitute a major public health concern because of their high prevalence, chronicity, recurrence, and impact on quality of life. Although dermatological disorders are rarely associated with high mortality, they contribute substantially to disability, psychosocial distress, healthcare utilization, and economic burden. Disorders such as eczema, psoriasis, acne, fungal infections, pigmentary disorders, and autoimmune skin diseases require prolonged treatment and repeated healthcare visits, thereby imposing a considerable burden on healthcare systems. Rational pharmacotherapy therefore plays a pivotal role in achieving disease control while minimizing adverse effects and improving patient outcomes [1].

Topical corticosteroids (TCs) have remained the cornerstone of dermatological therapy since their introduction into clinical practice because of their potent anti-inflammatory, immunosuppressive, vasoconstrictive, and antiproliferative properties. They are highly effective in treating a wide spectrum of inflammatory dermatoses including eczema, psoriasis, allergic dermatitis, lichen planus, and several autoimmune skin disorders. Their rapid onset of action and excellent clinical efficacy have resulted in widespread acceptance among dermatologists and general practitioners alike. However, their extensive use has also contributed to increasing concerns regarding inappropriate prescribing and irrational use [2].

In recent years, misuse of topical corticosteroids has emerged as an important healthcare problem, particularly in developing countries. Inappropriate use includes self-medication, prolonged application beyond the recommended duration, indiscriminate use of high-potency corticosteroids, application over sensitive body sites such as the face and genitalia,

and use for non-indicated conditions including melasma, acne vulgaris, and fungal infections. Such practices frequently result in steroid-modified dermatoses and treatment failure. Dey reported widespread misuse of topical corticosteroids among dermatology outpatients in India, with a significant proportion of patients using these agents without appropriate medical supervision before presenting to tertiary care hospitals [3].

The widespread availability of fixed-dose corticosteroid combinations and over-the-counter accessibility have further aggravated this problem. Studies from different regions of India have consistently demonstrated inappropriate use of topical corticosteroids for cosmetic purposes and fungal infections, resulting in increasing numbers of steroid-dependent dermatoses and chronic dermatophytosis. Basha et al. observed that irrational use of potent corticosteroids was common among patients attending tertiary care hospitals in South India, while Hameed et al. demonstrated that prolonged corticosteroid exposure was associated with several preventable adverse effects, including skin atrophy, telangiectasia, acneiform eruptions, and secondary infections [4,5].

Topical corticosteroid misuse has become particularly concerning in rural and semi-urban populations where unrestricted access to medications, lack of awareness, and inadequate regulation contribute significantly to inappropriate usage. Thomas et al. demonstrated that a considerable proportion of dermatology outpatients in rural North India had a history of topical corticosteroid misuse before consulting a dermatologist, emphasizing the urgent need for patient education and stricter regulatory measures to prevent irrational drug use [6].

Drug utilization research provides a scientific framework for evaluating prescribing behaviour and medication use in clinical practice. The World

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Health Organization defines drug utilization research as the study of the marketing, distribution, prescription, and use of medicines together with the medical, social, and economic consequences associated with their utilization. Such studies facilitate identification of irrational prescribing practices, assessment of adherence to treatment guidelines, optimization of therapeutic outcomes, and promotion of rational drug use. Consequently, drug utilization studies have become an integral component of pharmacoepidemiological research and quality assurance programmes worldwide [7].

Several Indian drug utilization studies have highlighted the predominance of topical corticosteroids in dermatology outpatient practice. Krishnan et al. reported that corticosteroids constituted a major proportion of dermatological prescriptions in tertiary care hospitals, with high-potency corticosteroids frequently prescribed for inflammatory skin diseases. Although these agents are indispensable in dermatological practice, inappropriate selection of potency, duration of therapy, and irrational combination prescribing continue to remain important concerns requiring regular prescription audits and continuous pharmacovigilance [8].

The burden of dermatological diseases continues to increase globally as well as in India. The Global Burden of Disease (GBD) Study 2017 reported that skin diseases constitute one of the leading causes of years lived with disability (YLDs) in India and contribute substantially to outpatient healthcare utilization. Common dermatological conditions such as eczema, fungal infections, psoriasis, acne, and pigmentary disorders collectively account for a significant proportion of healthcare expenditure and adversely affect patients' physical, psychological, and social well-being. Dermatological disorders are estimated to contribute nearly **10–20% of outpatient consultations** in tertiary healthcare institutions across India, highlighting their growing clinical importance [9].

Globally, the GBD 2019 study estimated that skin and subcutaneous diseases affect approximately **4.8 billion individuals annually**, making them among the most common non-fatal disorders worldwide. The burden is particularly pronounced in low- and middle-income countries due to tropical climatic conditions, overcrowding, poor hygiene, socioeconomic disparities, and unrestricted access to topical medications. Increasing disease prevalence, together with widespread corticosteroid availability, underscores the importance of monitoring prescribing practices and promoting evidence-based pharmacotherapy to reduce irrational drug use and improve patient safety [10].

Considering the increasing prevalence of dermatological disorders, the extensive use of topical corticosteroids, and the growing concern regarding irrational prescribing and misuse, periodic drug utilization studies are essential to evaluate current prescribing practices. Such studies help identify inappropriate corticosteroid use, assess adherence to established treatment guidelines, and generate evidence that can support prescription auditing, educational interventions, and policy formulation aimed at promoting rational drug use. Therefore, the present study was undertaken to evaluate the prescribing pattern, drug utilization profile, rationality of topical corticosteroid use, and associated risk factors among dermatology outpatients attending a tertiary care teaching hospital.

METHODOLOGY

The present study was designed as a **hospital-based, cross-sectional observational drug utilization study** conducted in the **Department of Pharmacology in collaboration with the Department of Dermatology, Shri Sathya Sai Medical College and Research Institute, Chengalpattu, Tamil Nadu**. The study was undertaken after obtaining approval from the **Institutional Ethics Committee (IEC)** and permission from the concerned departmental authorities. The study was carried out over a period of **12 months**, during which dermatology outpatient prescriptions fulfilling the eligibility criteria were consecutively enrolled for analysis.

The study population comprised **all patients attending the Dermatology Outpatient Department (OPD)** who received at least one topical medication during the study period. A total of **312 prescriptions** were included in the final analysis using a **consecutive sampling technique**. Prescriptions were screened daily, and eligible prescriptions were selected irrespective of the patient's age or gender. Prescriptions with incomplete information, illegible handwriting, duplicate prescriptions, follow-up prescriptions of previously included patients, inpatient prescriptions, and prescriptions lacking essential treatment details were excluded from the study to ensure data completeness and reliability.

The primary objective of the study was to evaluate the **prescribing pattern, utilization pattern, and rationality of topical corticosteroid use** in dermatology outpatient practice. Particular emphasis was placed on assessing the selection of corticosteroid potency, indication, duration of therapy, dosage form, frequency of application, combination therapy, and the potential risk for

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adverse drug reactions associated with topical corticosteroid use. The prescribing pattern was evaluated according to currently accepted dermatological treatment recommendations and available evidence-based guidelines.

Data were collected prospectively using a **pre-designed, structured data collection proforma** specifically developed for the study. Information extracted from each prescription included demographic variables such as age and gender, dermatological diagnosis, topical medications prescribed, corticosteroid molecule used, potency class, dosage form (cream, ointment, lotion, gel, etc.), frequency of application, duration of therapy, use of fixed-dose combinations, concomitant topical medications, and overall treatment characteristics. Whenever necessary, patient case records were reviewed to obtain missing clinical details. All collected information was anonymized before analysis to maintain patient confidentiality.

Topical corticosteroids prescribed during the study were classified according to the **Indian/BNF four-class potency classification** into **low-potency, moderate-potency, high-potency, and very high-potency corticosteroids**. Rationality assessment was performed by comparing each prescription with standard dermatology treatment recommendations, taking into consideration the indication, potency selection, duration of therapy, frequency of application, and appropriateness of combination therapy. Prescriptions satisfying all predefined criteria were categorized as **rational**, whereas prescriptions with inappropriate indication, excessive potency, prolonged duration, irrational combinations, or other deviations from standard recommendations were classified as **irrational prescriptions**.

Risk stratification for topical corticosteroid-related adverse effects was also performed. Prescriptions were categorized into **low-risk, moderate-risk, and high-risk groups** based on corticosteroid potency, duration of treatment, anatomical site of application, and use of combination formulations. High-potency corticosteroids prescribed for prolonged durations or irrational fixed-dose combinations were considered to carry a greater risk of local and systemic adverse effects. This assessment enabled identification of prescribing practices associated with potentially preventable corticosteroid-related complications.

Drug utilization evaluation was performed according to the principles recommended by the **World Health Organization (WHO)** for drug utilization research. Prescribing indicators such as frequency of corticosteroid prescription, distribution of different corticosteroid molecules, utilization of fixed-dose combinations, prescribing according to potency class, and overall rationality of prescribing

were evaluated. The findings were interpreted with reference to current evidence-based dermatology recommendations and WHO principles of rational drug use.

All collected data were entered into **Microsoft Excel** and subsequently analysed using **Statistical Package for Social Sciences (SPSS) software (Version 26.0, IBM Corp., Armonk, NY, USA)**. Continuous variables were summarized as **mean $\pm$ standard deviation (SD)**, whereas categorical variables were expressed as **frequency and percentage**. Associations between categorical variables were assessed using the **Chi-square test** or **Fisher's exact test**, wherever appropriate. A **p-value of less than 0.05** was considered statistically significant for all statistical analyses. The study results were presented using appropriately labelled tables, figures, and descriptive statistical summaries.

Results

Table 1. Distribution of Dermatological Disorders According to Gender (N = 312)

Dermatological Disorder	Male n (%)	Female n (%)	Total n (%)
Eczema/Dermatitis	30 (35.7)	54 (64.3)	84 (26.9)
Fungal infections	36 (94.7)	2 (5.3)	38 (12.2)
Autoimmune disorders	14 (29.2)	34 (70.8)	48 (15.4)
Benign disorders	16 (69.6)	7 (30.4)	23 (7.4)
Psoriasis	12 (75.0)	4 (25.0)	16 (5.1)
Acne	9 (64.3)	5 (35.7)	14 (4.5)
Pigmentary disorders	4 (30.8)	9 (69.2)	13 (4.2)
Allergic disorders	5 (38.5)	8 (61.5)	13 (4.2)
Others	31 (49.2)	32 (50.8)	63 (20.2)
Total	157 (50.3)	155 (49.7)	312 (100)

Statistical analysis: $\chi^2 = 56.897$; $p < 0.001$

Interpretation:

Eczema/dermatitis was the most frequently encountered dermatological disorder (26.9%),

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followed by autoimmune disorders (15.4%) and fungal infections (12.2%). Female predominance was observed in eczema and autoimmune disorders, whereas fungal infections and psoriasis were more common among males. The association between gender and dermatological diagnosis was statistically significant.

Table 2. Drug Utilization Pattern of Topical Agents (N = 312)

Topical Agent	Frequency (n)	Percentage (%)
Betamethasone	105	33.7
Clobetasol	69	22.1
Mometasone	32	10.3
Clotrimazole	24	7.7
Tretinoin	13	4.2
Ketoconazole	12	3.8
Desonide	10	3.2
Mupirocin	8	2.6
Clindamycin	6	1.9
Metronidazole	6	1.9
Others	27	8.6
Total	312	100

Interpretation:

Betamethasone was the most frequently prescribed topical agent (33.7%), followed by clobetasol (22.1%). Together, these two corticosteroids accounted for more than half of all topical medications prescribed, indicating a preference for moderate- to high-potency corticosteroids.

Table 3. Corticosteroid Prescribing Pattern According to Diagnosis

Diagnosis	Steroid Prescribed n (%)	Steroid Not Prescribed n (%)
Eczema/Dermatitis	79 (94.0)	5 (6.0)
Fungal infections	3 (7.9)	35 (92.1)
Psoriasis	16 (100)	0
Acne	4 (28.6)	10 (71.4)

Pigmentary disorders	7 (53.8)	6 (46.2)
Autoimmune disorders	48 (100)	0
Benign disorders	8 (34.8)	15 (65.2)
Allergic disorders	13 (100)	0
Others	47 (74.6)	16 (25.4)
Total	225 (72.1)	87 (27.9)

Statistical analysis: $\chi^2 = 159.296$; $p < 0.001$

Interpretation:

Topical corticosteroids were prescribed in 72.1% of all dermatological conditions. Appropriate steroid use was observed in inflammatory disorders such as psoriasis, autoimmune diseases and eczema, whereas corticosteroids were rarely prescribed for fungal infections. The association between diagnosis and steroid prescription was statistically significant.

Table 4. Association Between Dermatological Diagnosis and Corticosteroid Potency

Diagnosis	Low/Mode rate Potency	High Potency	Very High Potency
Eczema/Dermatitis	8 (9.5)	59 (70.2)	12 (14.3)
Fungal infections	0	0	3 (7.9)
Psoriasis	3 (18.8)	6 (37.5)	7 (43.8)
Acne	0	4 (28.6)	0
Pigmentary disorders	0	1 (7.7)	6 (46.2)
Autoimmune disorders	12 (25.0)	14 (29.2)	22 (45.8)

Statistical analysis: $\chi^2 = 246.20$; $p < 0.001$

Interpretation:

High-potency corticosteroids were predominantly prescribed for eczema, while very high-potency corticosteroids were frequently used in psoriasis and autoimmune disorders. Potency selection differed significantly according to diagnosis.

Table 5. Rationality Assessment of Topical Corticosteroid Prescribing

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Parameter	Appropriate n (%)	Inappropriate n (%)
Appropriate indication	255 (81.7)	57 (18.3)
Appropriate potency	198 (63.5)	114 (36.5)
Appropriate duration	206 (66.0)	106 (34.0)
Appropriate combination therapy	126 (40.4)	186 (59.6)
Overall Rational Prescription	178 (57.1)	134 (42.9)

Statistical analysis: $\chi^2 = 172.778$; $p < 0.001$

Interpretation:

Overall, 57.1% of prescriptions were considered rational, whereas 42.9% were irrational. Inappropriate combination therapy and incorrect potency selection were the major contributors to irrational prescribing.

Table 6. Factors Associated with Irrational Corticosteroid Use and Risk of Adverse Effects

Part A. Factors Associated with Irrational Prescribing

Variable	Irrational n (%)	Rational n (%)	p value
High/Very-high potency	120 (63.2)	70 (36.8)	<0.001
Low/Moderate potency	14 (36.8)	24 (63.2)	
Long/Very-long duration	104 (100)	0	<0.001
Short/Medium duration	30 (14.6)	176 (85.4)	
Combination therapy	186 (100)	0	<0.001
Monotherapy	0	126 (100)	

Part B. Risk of Adverse Effects

Risk Category	Frequency (n)	Percentage (%)
High risk	104	33.3

Moderate risk	120	38.5
Low risk	88	28.2

Statistical analysis: $\chi^2 = 159.296$; $p < 0.001$

Interpretation:

High-potency corticosteroids, prolonged duration of therapy and combination therapy were significantly associated with irrational prescribing. Overall, more than 70% of prescriptions fell into the moderate- or high-risk category for corticosteroid-related adverse effects, emphasizing the need for improved adherence to prescribing guidelines.

Figure 1. Distribution of Study Participants According to Gender (N=312)

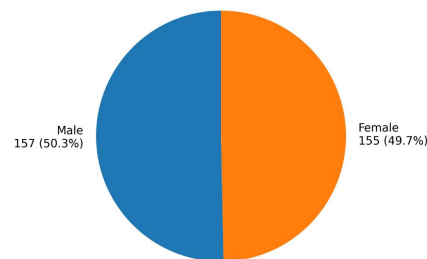


Figure 2. Distribution of Dermatological Disorders Among Study Participants (N=312)

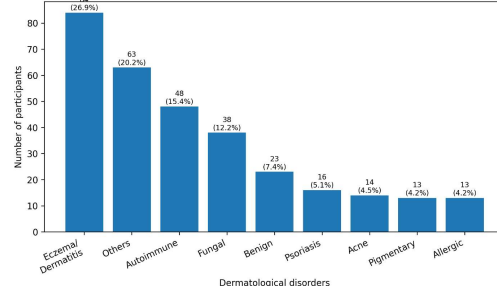
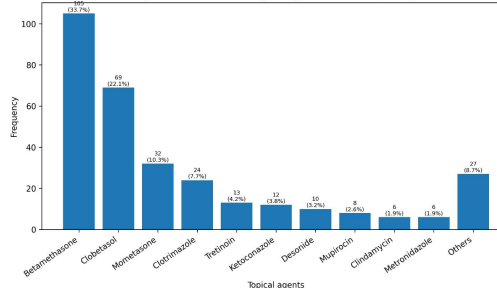


Figure 3. Distribution of Topical Agents Prescribed (N=312)



In the present study, **312 dermatology outpatient prescriptions** were analysed to evaluate the utilization pattern and rationality of topical corticosteroid prescribing. Topical corticosteroids were prescribed in **72.1%** of prescriptions, with

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betamethasone (33.7%) being the most frequently prescribed corticosteroid, followed by **clobetasol (22.1%)**. These findings indicate that topical corticosteroids continue to constitute the cornerstone of dermatological management, particularly for inflammatory dermatoses. Additionally, eczema/dermatitis was the commonest dermatological condition (26.9%), followed by autoimmune disorders (15.4%) and fungal infections (12.2%), reflecting the predominance of inflammatory skin diseases in routine dermatology practice.

Our findings are comparable with those reported by **Kittur et al. [11]**, who observed that topical corticosteroids constituted the majority of prescriptions in a tertiary care dermatology outpatient department, with inflammatory dermatoses accounting for most corticosteroid use. Similar to our findings, they reported that medium- and high-potency corticosteroids were frequently prescribed because of their rapid anti-inflammatory effects and excellent clinical response. The predominance of topical corticosteroids in both studies highlights their indispensable role in dermatological practice, although careful selection of potency and duration remains essential to minimize adverse effects.

In our study, **betamethasone (33.7%)** emerged as the most commonly prescribed topical corticosteroid, followed by **clobetasol (22.1%)** and **mometasone (10.3%)**. The preferential use of these agents may be attributed to their proven efficacy in controlling inflammatory dermatoses, wide availability, and clinician familiarity. Comparable findings were reported by **Wahane et al. [12]**, who also observed that betamethasone and clobetasol were the most frequently prescribed corticosteroids in their tertiary care teaching hospital. They concluded that high-potency corticosteroids were commonly preferred for chronic inflammatory dermatoses requiring rapid symptom control. The similarity between the two studies probably reflects adherence to contemporary dermatological treatment practices in tertiary care centres.

The present study demonstrated that **72.1%** of patients received topical corticosteroids, whereas **27.9%** were managed without corticosteroids depending on the underlying diagnosis. Corticosteroids were prescribed almost universally for psoriasis, autoimmune dermatoses, allergic disorders, and eczema, whereas they were appropriately avoided in the majority of fungal infections. These findings suggest that clinicians generally selected corticosteroids according to accepted therapeutic indications. **Mamatha et al. [13]** similarly reported that corticosteroids were predominantly prescribed for inflammatory dermatoses while their use was restricted in

infectious skin diseases. Their observations support the concept that disease-specific prescribing remains an important component of rational dermatological practice.

Another important observation in the present study was the predominance of **high-potency corticosteroids**, which accounted for **42.9%** of all prescriptions, while **very high-potency corticosteroids** constituted **17.9%**. High-potency preparations were most commonly used for eczema, whereas very high-potency corticosteroids were frequently prescribed for psoriasis and autoimmune disorders. **Goyal et al. [14]** reported comparable prescribing trends in a teaching hospital, demonstrating that potent corticosteroids were preferentially selected for chronic inflammatory dermatoses because of their superior efficacy and rapid clinical response. However, they also emphasized that inappropriate selection of high-potency corticosteroids may increase the risk of adverse effects if prescribed without adequate monitoring. The similarity between both studies highlights the need to balance therapeutic effectiveness with patient safety.

Assessment of prescription rationality formed one of the important objectives of our study. Overall, **57.1%** of prescriptions were categorized as rational, whereas **42.9%** demonstrated one or more components of irrational prescribing. The most common deficiencies involved inappropriate combination therapy (59.6%), incorrect potency selection (36.5%), and prolonged duration of treatment (34.0%). Similar observations were reported by **Sharma et al. [15]**, who identified irrational fixed-dose combinations, inappropriate corticosteroid potency, and prolonged therapy as the principal contributors to irrational prescribing in dermatology outpatient practice. Although both studies demonstrated reasonably good adherence to standard prescribing recommendations, they also indicate that irrational prescribing continues to represent an important challenge in routine clinical practice. Continuous prescription auditing, clinician education, and adherence to evidence-based treatment guidelines are therefore essential to improve the rational use of topical corticosteroids and reduce preventable adverse effects.

The present study demonstrated that **57.1% of topical corticosteroid prescriptions were rational**, while **42.9%** were categorized as irrational. The principal causes of irrational prescribing were inappropriate combination therapy (59.6%), inappropriate potency selection (36.5%), and prolonged duration of treatment (34.0%). Furthermore, **high-potency corticosteroids accounted for 42.9%** of prescriptions, and irrational prescribing was significantly associated with the use of high-potency corticosteroids,

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prolonged treatment duration, and combination therapy ($p < 0.001$). These findings suggest that although corticosteroids remain indispensable in dermatological practice, opportunities exist to improve adherence to evidence-based prescribing recommendations.

Our findings are consistent with those of **Bhat et al. [16]**, who evaluated the rational prescribing of topical corticosteroids in dermatology outpatient practice. They observed that appropriate drug selection according to diagnosis, potency, duration of therapy, and site of application was essential to minimize adverse effects while maximizing therapeutic benefit. Similar to our findings, they reported that irrational prescribing was primarily related to the unnecessary use of high-potency corticosteroids, prolonged treatment duration, and inappropriate combinations. The comparable observations between the two studies reinforce the importance of regular prescription auditing and adherence to rational prescribing principles in routine dermatological practice.

In the present study, irrational prescribing was significantly associated with **high-potency corticosteroids**, prolonged duration of treatment, and irrational combination therapy. Consequently, **33.3%** of prescriptions were categorized as high risk for corticosteroid-related adverse effects, while **38.5%** were classified as moderate risk. These findings indicate that more than two-thirds of prescriptions carried at least a moderate risk of adverse outcomes if not monitored appropriately. **Coondoo et al. [17]** similarly emphasized that prolonged use of potent topical corticosteroids predisposes patients to local adverse effects including skin atrophy, telangiectasia, striae, rosacea, acneiform eruptions, hypertrichosis, delayed wound healing, and secondary infections. Their review further highlighted that inappropriate prescribing practices remain one of the major preventable causes of corticosteroid-induced dermatoses, supporting the observations of the present study.

The current study also demonstrated a clear preference for **high- and very high-potency corticosteroids** in inflammatory dermatoses such as eczema, psoriasis, and autoimmune skin diseases. These prescribing patterns are clinically appropriate because potent corticosteroids achieve rapid suppression of inflammation and symptom relief. Similar findings were reported by **Hengge et al. [18]**, who described topical corticosteroids as the gold standard for the management of inflammatory skin disorders. They emphasized that corticosteroid potency should always be individualized according to disease severity, anatomical site, patient age, and duration of therapy. The predominance of potent corticosteroids observed in both studies reflects

contemporary evidence-based dermatological practice while also highlighting the necessity for careful monitoring to avoid long-term complications.

Our study further demonstrated that **betamethasone and clobetasol** were the most frequently prescribed corticosteroids, together accounting for more than half of all topical agents prescribed. Potent corticosteroids were mainly reserved for inflammatory dermatoses, whereas corticosteroid use remained limited in fungal infections. **Hajar et al. [19]** reported comparable prescribing trends and concluded that topical corticosteroids remain the first-line treatment for numerous inflammatory skin disorders when selected appropriately according to potency, disease severity, treatment duration, and anatomical location. They also stressed that inappropriate use in infectious dermatoses should be avoided because corticosteroids may suppress local immunity, alter clinical presentation, delay diagnosis, and worsen underlying infections. These observations closely parallel the prescribing practices observed in our study.

An important observation in the present study was the overall emphasis on rational corticosteroid prescribing despite the persistence of inappropriate combination therapy and prolonged treatment duration in a considerable proportion of prescriptions. **Siegfried et al. [20]** similarly recommended that topical corticosteroids should always be prescribed using the **lowest effective potency for the shortest duration necessary** to achieve adequate disease control. They further emphasized the importance of patient education regarding correct application techniques, fingertip unit dosing, treatment duration, and regular follow-up to minimize corticosteroid-related adverse effects. The recommendations proposed by Siegfried et al. are directly applicable to the findings of the present study and support the need for continuous clinician education, patient counselling, and implementation of evidence-based prescribing guidelines to optimize topical corticosteroid utilization and improve patient safety.

The present study demonstrated that **57.1% of prescriptions were rational**, whereas **42.9% were irrational**, with inappropriate combination therapy, excessive corticosteroid potency, and prolonged duration of treatment being the major contributors to irrational prescribing. Furthermore, **33.3% of prescriptions were categorized as high risk**, while **38.5% were classified as moderate risk** for corticosteroid-related adverse effects. These findings indicate that although topical corticosteroids are being prescribed appropriately in the majority of patients, significant scope remains for improving prescribing practices through adherence to established clinical guidelines.

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Our findings are in agreement with the recommendations of **Coondoo et al. [21]**, who formulated comprehensive guidelines for the rational use of topical corticosteroids in dermatology. They emphasized that corticosteroid selection should always be individualized based on the diagnosis, anatomical site, patient age, disease severity, potency class, frequency of application, and duration of therapy. They further advised that prolonged use of potent corticosteroids and irrational fixed-dose combinations should be avoided because they substantially increase the risk of local and systemic adverse effects. The irrational prescribing observed in our study was predominantly related to these preventable factors, highlighting the continued importance of guideline-based prescribing in routine clinical practice.

In the present study, **high-potency corticosteroids accounted for 42.9% of prescriptions**, while **very high-potency corticosteroids constituted 17.9%** of corticosteroid prescriptions. High-potency preparations were mainly prescribed for eczema, whereas very high-potency corticosteroids were frequently used in psoriasis and autoimmune dermatoses. These prescribing patterns are largely consistent with the recommendations of the **Indian Association of Dermatologists, Venereologists and Leprologists (IADVL) Guidelines [22]**, which recommend the use of potent corticosteroids for severe inflammatory dermatoses while emphasizing careful selection of potency, limitation of treatment duration, and regular clinical monitoring. The IADVL guidelines also discourage indiscriminate corticosteroid use in infectious dermatoses and recommend step-down therapy whenever possible to reduce corticosteroid-related complications. Our prescribing pattern largely reflected these recommendations, although inappropriate potency selection was identified in a proportion of prescriptions.

Our study also demonstrated that inflammatory dermatoses, particularly **eczema/dermatitis (26.9%)**, represented the largest proportion of patients receiving topical corticosteroids. This observation is supported by the **British Association of Dermatologists Guidelines [23]**, which identify topical corticosteroids as the first-line treatment for atopic eczema and several inflammatory dermatoses. These guidelines recommend selecting corticosteroid potency according to disease severity and anatomical site while using the lowest effective potency capable of achieving disease control. They also advocate regular clinical review and gradual reduction of corticosteroid potency following improvement to minimize adverse effects. The predominance of eczema among corticosteroid users in the present study therefore appears clinically

appropriate and consistent with internationally accepted treatment recommendations.

Another important finding of our study was that **inappropriate combination therapy (59.6%)** represented the commonest cause of irrational prescribing. In addition, prolonged duration of treatment and inappropriate potency selection significantly increased the likelihood of irrational prescriptions and potential adverse effects. **Rathi and D'Souza [24]** similarly identified irrational corticosteroid combinations, self-medication, unrestricted over-the-counter availability, and prolonged unsupervised use as major contributors to topical corticosteroid abuse in India. They emphasized that irrational corticosteroid use not only increases the incidence of steroid-induced dermatoses but also contributes to the emergence of chronic and treatment-resistant fungal infections. Their observations provide a plausible explanation for the irrational prescribing practices identified in the present study and reinforce the need for stricter regulation of corticosteroid dispensing together with improved patient education.

The present study further demonstrated that **betamethasone (33.7%)** and **clobetasol (22.1%)** were the most frequently prescribed topical corticosteroids, indicating a clear preference for moderate- and high-potency preparations in routine dermatological practice. Comparable findings were reported by **Mengesha et al. [25]**, who observed that topical corticosteroids constituted one of the most frequently prescribed drug classes in dermatology clinics, with potent corticosteroids accounting for the majority of prescriptions. They further reported that irrational prescribing was significantly associated with inappropriate potency selection, prolonged therapy, and inadequate patient counselling. These findings closely parallel those of the present study and underscore the importance of continuous prescription auditing, evidence-based therapeutic decision-making, clinician education, and patient counselling to optimize corticosteroid utilization and reduce preventable adverse drug reactions.

CONCLUSION

The present study demonstrated that topical corticosteroids remain the mainstay of pharmacological management for dermatological disorders in tertiary care practice, with **72.1%** of patients receiving at least one topical corticosteroid prescription. Eczema/dermatitis was the most common indication for corticosteroid therapy, and **betamethasone** was the most frequently prescribed topical agent. High-potency corticosteroids were commonly prescribed for inflammatory dermatoses, reflecting their established therapeutic efficacy when used appropriately.

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Overall, **57.1%** of prescriptions were found to be rational, while **42.9%** demonstrated one or more components of irrational prescribing. The major contributors to irrational prescribing were inappropriate combination therapy, incorrect selection of corticosteroid potency, and prolonged duration of treatment. Furthermore, more than two-thirds of prescriptions were categorized as having moderate or high risk for corticosteroid-related adverse effects, emphasizing the need for greater vigilance during prescribing and follow-up.

The findings of the present study highlight the importance of adhering to evidence-based prescribing guidelines, selecting the appropriate corticosteroid potency according to disease severity and anatomical site, limiting treatment duration to the minimum effective period, and avoiding irrational fixed-dose combinations. Regular prescription audits, continuous medical education, implementation of institutional standard treatment protocols, strengthened pharmacovigilance programmes, and comprehensive patient counselling regarding the correct use of topical corticosteroids are essential strategies for promoting rational drug utilization.

In conclusion, although topical corticosteroids continue to play an indispensable role in the management of inflammatory dermatological disorders, optimizing prescribing practices through guideline-directed therapy and periodic drug utilization evaluation can substantially reduce inappropriate use, minimize corticosteroid-related adverse effects, enhance patient safety, and improve the overall quality of dermatological care in tertiary healthcare settings.

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