



A CROSS-SECTIONAL STUDY OF PATIENTS PRESENTING WITH TOPICAL STEROID-INDUCED FACIAL DERMATOSIS

¹Dr Sagar M Singanal, ²Dr Ashwini P, ³Dr Madhusudhan S N, ⁴Dr Yogendra M, ⁵Dr Raghu M T

¹Postgraduate student, Department of Dermatology, Basaveshwara Medical College and Hospital, Chitradurga, Karnataka, India.

²Associate Professor, Department of Dermatology, Basaveshwara Medical College and Hospital, Chitradurga, Karnataka, India.

³Assistant Professor, Department of Dermatology, Basaveshwara Medical College and Hospital, Chitradurga, Karnataka, India.

⁴Professor and Head, Department of Dermatology, Basaveshwara Medical College and Hospital, Chitradurga, Karnataka, India.

⁵Professor, Department of Dermatology, Basaveshwara Medical College and Hospital, Chitradurga, Karnataka, India.



Correspondence:

Dr Sagar M Singanal

Postgraduate student,
Department of Dermatology,
Basaveshwara Medical College
and Hospital, Chitradurga,
Karnataka, India.

ORCID ID:0009-0002-2669-4859

Received: February 11, 2026

Revised: February 26, 2026

Accepted: March 04, 2026

Published: March 13, 2026

Abstract

Background: Topical corticosteroids are widely used in dermatological practice because of their potent anti-inflammatory properties. However, irrational and prolonged use of these medications on the face has led to an increasing incidence of steroid-induced facial dermatoses. Easy over-the-counter availability, self-medication, and cosmetic motivations contribute significantly to their misuse, particularly in developing countries.

Aim: To study the cutaneous manifestations associated with topical corticosteroid abuse on the face. **Objectives:** 1. To assess the prevalence of different cutaneous manifestations caused by topical corticosteroid abuse on the face. 2. To analyse various factors contributing to topical corticosteroid misuse. **Materials and Methods:** A cross-sectional observational study was conducted among 60 patients presenting with features suggestive of topical steroid-induced facial dermatosis in the Department of Dermatology at a tertiary care centre over a period of 10 months. Patients aged 18–50 years with a history of topical steroid application on the face were included. Data regarding demographic details, indication for steroid use, source of medication, duration of use, and adverse effects were recorded and analyzed using descriptive statistical methods.

Results: Out of 60 patients, 86.7% were females and 13.3% were males. The most affected age group was 21–30 years (46.7%). Acne was the most common indication for steroid use, followed by depigmentation and melasma. The majority of patients obtained steroids from non-medical sources such as friends, beauticians, or pharmacists. The most common adverse effect observed was acneiform eruption, followed by dyspigmentation, hypertrichosis, and telangiectasia. **Conclusion:** Topical steroid misuse on the face is common, particularly among young females seeking cosmetic benefits. Lack of awareness and easy availability of steroid-containing creams contribute significantly to this problem. Strict regulation of over-the-counter steroid sales and public awareness programs are necessary to prevent steroid-induced facial dermatosis.

Keywords: Topical corticosteroids, Steroid-induced dermatosis, Topical steroid damaged face, Acneiform eruption, Steroid misuse.



This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC-BY) license (<http://creativecommons.org/licenses/by/4.0/>).

INTRODUCTION

Topical corticosteroids (TCs) have been a cornerstone in dermatological therapy since their introduction, owing to their potent anti-inflammatory, immunosuppressive, antiproliferative, and vasoconstrictive properties¹. They are widely used in the management of eczema, psoriasis, lichen planus, allergic dermatoses, and various inflammatory skin disorders. When used appropriately under medical supervision, topical corticosteroids are safe and highly effective. However, irrational prescription practices, over-the-counter availability, and unsupervised long-term use have led to an alarming rise in steroid-related adverse effects, particularly involving the face².

Globally, misuse of topical corticosteroids has been increasingly reported over the past two decades. Easy accessibility, cosmetic-driven demands, and lack of

patient awareness have contributed significantly to this growing dermatological concern³. In many developing nations, regulatory mechanisms governing the sale of potent steroids remain inadequate, allowing their indiscriminate use either as monotherapy or in irrational fixed drug combinations. The facial skin, being thinner and more sensitive, is particularly susceptible to steroid-induced damage, resulting in a spectrum of cutaneous manifestations that are often chronic and difficult to treat.

The problem is especially pronounced in India, where potent topical corticosteroids are frequently dispensed without prescription⁴. Cultural and sociological factors play a pivotal role in perpetuating misuse. A strong societal preference for fairer skin tone, aggressive marketing of skin-lightening products containing

corticosteroids, peer influence, and recommendations from non-medical sources such as pharmacists, beauticians, friends, and family members have significantly contributed to widespread abuse⁵. Several Indian studies have documented a rising trend of topical steroid-damaged face (TSDF), particularly among young females in the 18–35-year age group, who commonly use these agents for acne, melasma, pigmentation, or cosmetic skin lightening⁶.

Chronic application of topical corticosteroids over the face leads to a constellation of adverse effects collectively referred to as topical steroid-induced facial dermatosis or steroid-dependent face. The clinical spectrum includes acneiform eruptions, papulopustular rosacea-like dermatitis, telangiectasia, dyspigmentation, hypertrichosis, cutaneous atrophy, perioral dermatitis, demodicosis, and rebound erythema upon withdrawal⁷. Prolonged misuse may result in persistent erythema and a cycle of dependence, wherein patients reapply steroids to suppress rebound symptoms, thereby perpetuating cutaneous damage. Beyond physical manifestations, affected individuals often experience significant psychological distress, reduced self-esteem, and impaired quality of life due to cosmetic disfigurement.

Despite increasing awareness among dermatologists, topical steroid-induced facial dermatosis continues to be encountered frequently in outpatient settings across India. There remains a need for systematic evaluation of demographic patterns, indications for misuse, sources of procurement, duration of use, and the clinical spectrum of adverse effects in affected patients. Such data are essential to guide preventive strategies, strengthen regulatory policies, and promote public health education.

Therefore, the present cross-sectional study was undertaken to assess the cutaneous manifestations of topical corticosteroid abuse on the face and to analyze the various factors contributing to its misuse among patients presenting to a tertiary care centre.

AIM:

A Study of cutaneous manifestations of various topical corticosteroid abuse on the face.

OBJECTIVE:

To assess the prevalence of different cutaneous manifestations of topical corticosteroid abuse on the face.

To analyze various factors contributing to topical corticosteroid abuse on the face.

MATERIALS AND METHODS

Study Design and Setting

This hospital-based cross-sectional observational study was conducted in the Department of Dermatology, Venereology and Leprosy (DVL) at a tertiary care teaching hospital over a period of 10 months. The study

included patients presenting to the outpatient department with clinical features suggestive of topical steroid-induced facial dermatosis.

Study Population and Sample Size

A total of 60 consecutive patients meeting the eligibility criteria were enrolled during the study period. Convenience sampling was employed, and all eligible patients presenting during the study duration were included.

Eligibility Criteria

Inclusion Criteria:

- Adults aged 18–50 years.
- History of topical corticosteroid application over the face for any dermatological or cosmetic indication.
- Presence of one or more clinical features consistent with steroid-induced facial dermatosis.
- Willingness to provide written informed consent.

Exclusion Criteria:

- Patients without a definite history of topical corticosteroid use.
- Inability to recall the name or type of topical preparation used.
- Presence of systemic or dermatological conditions mimicking steroid-induced changes.

Data Collection Procedure

After obtaining informed written consent, detailed demographic and clinical information was collected using a predesigned structured proforma. Data recorded included age, gender, occupation, duration and frequency of steroid use, indication for use, type and potency of steroid preparation, and source of recommendation (dermatologist, general practitioner, pharmacist, beautician, friends/relatives, or self-medication).

A thorough dermatological examination was performed under standardized lighting conditions. Clinical findings were documented systematically, including:

- Acneiform eruptions
- Erythema and rebound flare
- Telangiectasia
- Dyspigmentation
- Hypertrichosis
- Cutaneous atrophy
- Rosacea-like dermatitis
- Perioral dermatitis

Photographic documentation was obtained where necessary after patient consent.

Dermoscopic Assessment

Dermoscopy was performed in selected cases to identify characteristic vascular and pigmentary patterns such as dilated telangiectatic vessels, perifollicular erythema,

and pigment network alterations. Dermoscopic findings were recorded and correlated with clinical presentation.

Outcome Measures

The primary outcome measure was the pattern and frequency of cutaneous manifestations associated with topical corticosteroid abuse on the face. Secondary outcomes included analysis of indications for misuse, duration of application, and source of procurement contributing to steroid abuse.

Statistical Analysis

Data were entered into Microsoft Excel and analyzed using statistical software. Continuous variables were expressed as mean $\pm$ standard deviation, while categorical variables were presented as frequencies and percentages. Associations between categorical variables were assessed using the Chi-square test or Fisher's exact test as appropriate. A p-value of <0.05 was considered statistically significant.

RESULTS

A total of 60 patients presenting with topical steroid-induced facial dermatosis were included in the study conducted at a tertiary care dermatology centre over a period of 10 months.

Table 1: Gender Distribution of Study Participants (n = 60)

Gender	Number (n)	Percentage (%)
Female	52	86.7
Male	8	13.3
Total	60	100

Interpretation:

The study demonstrated a marked female predominance (86.7%) compared to males (13.3%). This indicates that topical steroid misuse on the face is significantly more common among females, likely due to cosmetic motivations such as fairness and treatment of facial dermatoses.

Table 2: Age Distribution of Study Population (n = 60)

Age Group (Years)	Number (n)	Percentage (%)
18–20	6	10
21–30	28	46.7
31–40	16	26.7
41–50	10	16.6
Total	60	100

Interpretation:

The 21–30 year age group constituted the largest proportion of patients (46.7%), indicating that young adults are the most affected population. This age group frequently uses cosmetic products and fairness creams, increasing the risk of topical steroid misuse.

Table 3: Indications for Topical Corticosteroid Use on the Face (n = 60)

Indication	Number (n)	Percentage (%)
Acne	20	33.3
Depigmentation	12	20
Melasma	10	16.7
Fairness / Skin lightening	10	16.7
Hypopigmentation	8	13.3
Total	60	100

Interpretation:

Acne was the most common indication (33.3%) for topical steroid use, followed by depigmentation (20%) and melasma (16.7%). This suggests that many patients use topical steroids inappropriately for cosmetic or inflammatory facial conditions, often without medical supervision.

Table 4: Source of Topical Corticosteroid Prescription (n = 60)

Source of Medication	Number (n)	Percentage (%)
Friends / Family / Neighbours	24	40
Beauticians	14	23.3
Pharmacists / Chemists	12	20
Self-medication	6	10
Dermatologists	4	6.7
Total	60	100

Interpretation:

A majority of patients obtained topical steroids from non-medical sources (83.3%), including friends, family members, beauticians, and pharmacists. Only 6.7% of patients received prescriptions from dermatologists, highlighting the major role of unsupervised drug use in steroid-induced dermatoses.

Table 5: Duration of Topical Steroid Use (n = 60)

Duration of Use	Number (n)	Percentage (%)
< 1 month	8	13.3
1–3 months	20	33.3
3–6 months	18	30
> 6 months	14	23.4
Total	60	100

Interpretation:

Most patients (63.3%) had used topical steroids for more than 3 months, indicating chronic misuse. Prolonged use significantly increases the risk of steroid-induced facial dermatosis.

Table 6: Adverse Effects of Topical Corticosteroid Use on Face (n = 60)

Adverse Effect	Number (n)	Percentage (%)
Acneiform eruptions	22	36.7
Dyspigmentation	14	23.3
Hypertrichosis	8	13.3
Telangiectasia	6	10
Steroid-dependent face	6	10
Skin atrophy / wrinkling	4	6.7
Total	60	100

Interpretation:

The most common adverse effect observed was acneiform eruption (36.7%), followed by dyspigmentation (23.3%) and hypertrichosis (13.3%). These findings highlight the significant dermatological complications associated with prolonged facial steroid misuse.

Table 7: Association Between Gender and Steroid Abuse (Chi-Square Test)

Gender	Steroid Abuse Cases
Female	52
Male	8

$$\chi^2 = 14.82$$

p < 0.001 (statistically significant)

Interpretation:

There was a statistically significant association between female gender and topical steroid abuse, indicating that women are significantly more likely to misuse facial topical corticosteroids.

FIG-1 TELENGIECTASIA



FIG-2 DERMASCOPY

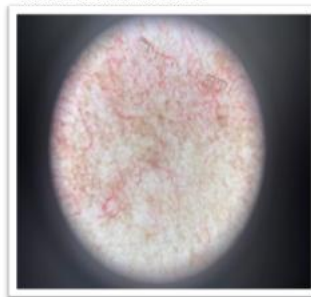


FIG-3 HYPERTRICHOSIS



FIG-4 DERMASCOPY

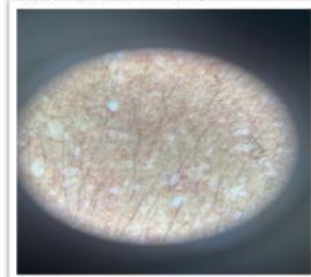


FIG-1 DYSPIGMENTATION



FIG-2 DYSPIGMENTATION



FIG-3 ACNEIFORM ERUPTIONS



DISCUSSION

Topical corticosteroids (TCs) are widely used in dermatology due to their potent anti-inflammatory and immunosuppressive properties. However, irrational and prolonged use of these medications, especially on facial skin, has led to a growing public health concern worldwide. The misuse of topical steroids is particularly prevalent in developing countries where over-the-counter availability, cosmetic motivations, and lack of awareness contribute significantly to the problem.⁸

In the present study, a female predominance (86.7%) was observed among patients with steroid-induced facial dermatosis. This finding is consistent with previous studies which report that women are more likely to use topical steroids on the face for cosmetic reasons such as skin lightening and treatment of pigmentation disorders. Studies conducted by Rath and Kumrah and Hameed et al. similarly reported a higher prevalence of steroid misuse among females, highlighting the influence of societal beauty standards and the widespread promotion of fairness products.^{9,10} The most affected age group in our study was 21–30 years, accounting for nearly half of the study population. Young adults are particularly vulnerable due to increased cosmetic concerns, social influences, and easy access to topical steroid-containing creams. Similar age distributions have been reported in studies by Saraswat et al. and Sendrasoa et al., where young adults constituted the majority of cases presenting with topical steroid damaged face.^{11,12}

Regarding the indications for topical steroid use, acne was the most common reason reported by patients in our study, followed by depigmentation, melasma, and fairness purposes. This pattern reflects the common misconception that topical steroids provide rapid improvement in acne and pigmentation disorders. However, inappropriate use often leads to worsening of the underlying condition and development of steroid-induced dermatoses. Similar observations were reported by Dey et al., who found acne and melasma to be major indications for unsupervised topical steroid use in patients with facial dermatoses.¹³

In the present study, the majority of patients obtained topical steroids from non-medical sources, including friends, family members, beauticians, and pharmacists. Only a small proportion of patients used medications prescribed by dermatologists. This finding highlights the widespread problem of unsupervised steroid use and easy availability of these drugs without prescription. Previous studies have also emphasized that over-the-counter sale and recommendations from non-medical personnel significantly contribute to steroid misuse.¹⁴ The most common adverse effect observed in our study was acneiform eruption, followed by dyspigmentation, hypertrichosis, telangiectasia, and steroid-dependent face. Facial skin is particularly susceptible to steroid-induced changes due to its thin epidermis and high

vascularity. Long-term application of topical steroids leads to dermal atrophy, altered melanocyte activity, and vascular dilatation, resulting in a wide spectrum of clinical manifestations. Similar patterns of adverse effects have been reported in studies evaluating steroid-induced facial dermatosis across different populations.¹⁵

The duration of steroid use also plays a critical role in the development of adverse effects. In our study, a large proportion of patients had used topical steroids for several months before presenting with complications. Prolonged use leads to dependency and rebound flaring upon withdrawal, a condition commonly referred to as topical steroid-dependent face (TSDF). This condition has been increasingly recognized in dermatological practice and poses a therapeutic challenge.¹⁶

Overall, the findings of the present study emphasize that topical steroid misuse on the face remains a significant dermatological problem, largely driven by cosmetic motivations, self-medication, and lack of regulation of over-the-counter drug sales. Public education, stricter pharmaceutical regulations, and awareness among healthcare providers are essential to reduce the burden of steroid-induced facial dermatosis.

CONCLUSION

Topical corticosteroid misuse on the face is a significant and growing dermatological concern. The condition predominantly affects young females, largely driven by cosmetic motivations and lack of awareness. Most patients obtain steroid-containing creams from non-medical sources, leading to prolonged and unsupervised use. Common adverse effects include acneiform eruptions, dyspigmentation, hypertrichosis, and telangiectasia. Strict regulation of steroid sales and increased public awareness are essential to prevent steroid-induced facial dermatosis.

REFERENCES

1. Coondoo A, Piske M, Verma S, Lahiri K. Side-effects of topical steroids: A long overdue revisit. *Indian Dermatol Online J.* 2014;5(4):416-25.
2. Saraswat A, Lahiri K, Chatterjee M, et al. Topical corticosteroid abuse on the face: A prospective, multicenter study of dermatology outpatients. *Indian J Dermatol Venereol Leprol.* 2011;77(2):160-6.
3. Hengge UR, Ruzicka T, Schwartz RA, Cork MJ. Adverse effects of topical glucocorticosteroids. *J Am Acad Dermatol.* 2006;54(1):1-15.
4. Verma SB, Mody B. Topical corticosteroid misuse in India: Is the problem clinical or regulatory? *Indian J Dermatol Venereol Leprol.* 2011;77(4):483-9.
5. Lahiri K, Coondoo A. Topical steroid damaged/dependent face (TSDF): An entity of cutaneous pharmacodependence. *Indian J Dermatol.* 2016;61(3):265-72.

Citation: Singanal SM, Ashwini P, Madhusudhan SN, Yogendra M, Raghu MT A CROSS-SECTIONAL STUDY OF PATIENTS PRESENTING WITH TOPICAL STEROID-INDUCED FACIAL DERMATOSIS. *Int. J. Med.*, 2026;8(3):138-144.

6. Biswas P, Pal D, Das S, De A, Sharma N, Ansari A. Topical steroid damaged/dependent face (TSDF): A study from a tertiary care hospital in Eastern India. *Indian J Dermatol.* 2018;63(5):375-9.
7. Prabhu N, Anandarama RK, Sangolli PM. A cross-sectional study to characterise the topical steroid-dependent face by dermoscopy at a tertiary care centre. *IP Indian J Clin Exp Dermatol.* 2024;10(4):461-8.
8. Coondoo A, Phiske M, Verma S, Lahiri K. Side-effects of topical steroids: A long overdue revisit. *Indian Dermatol Online J.* 2014 Oct;5(4):416-425. doi:10.4103/2229-5178.142483
9. Rathi SK, Kumrah L. Topical corticosteroid-induced rosacea-like dermatitis: A clinical study of 110 cases. *Indian J Dermatol Venereol Leprol.* 2011 Jan-Feb;77(1):42-46. doi:10.4103/0378-6323.74972
10. Hameed AF, Al-Ghamdi KM, Al-Raddadi AA. Misuse of topical corticosteroids among patients attending dermatology clinics. *J Dermatolog Treat.* 2016;27(3):248-251. doi:10.3109/09546634.2015.1075965
11. Saraswat A, Lahiri K, Chatterjee M, et al. Topical corticosteroid abuse on the face: A prospective multicenter study of dermatology outpatients. *Indian J Dermatol Venereol Leprol.* 2011 Mar-Apr;77(2):160-166. doi:10.4103/0378-6323.77455
12. Sendrasoa FA, Ranaivo IM, Rakotoarisaona MF. Topical corticosteroid misuse in dermatology. *Dermatol Res Pract.* 2017; 2017:9637089. doi:10.1155/2017/9637089
13. Dey VK. Misuse of topical corticosteroids: A clinical study of adverse effects. *Indian Dermatol Online J.* 2014;5(4):436-440. doi:10.4103/2229-5178.142495
14. Lahiri K, Coondoo A. Topical steroid damaged skin. *Indian J Dermatol.* 2016;61(3):276-281. doi:10.4103/0019-5154.182427
15. Verma SB. Topical corticosteroid misuse: The Indian scenario. *Indian J Dermatol.* 2017;62(5):451-455. doi: 10.4103/ijd.IJD_168_17
16. Rapaport MJ, Rapaport V. Steroid addiction and withdrawal in dermatology. *Clin Dermatol.* 2014 Mar-Apr;32(2):354-360. doi: 10.1016/j.clindermatol.2013.10.003