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**Original Research Article**

# Topical steroid abuse in commercial sex workers: a cross-sectional analytical study in a tertiary care center

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## ABSTRACT

**Background:** Abuse of topical corticosteroids (TCs), especially over the face, is prevalent worldwide with India as no exception. Lack of adequate specialist services, the practice of self-medication and easy access over the counter (OTC) has resulted in widespread abuse. Aim of this study was to assess the magnitude of topical steroid abuse and its diverse cutaneous side effects in commercial sex workers.
**Methods:** A cross-sectional analytical study was conducted among commercial sex workers (both females and transgender) attending STI clinic in the study institution for 6 months. A semi-structured questionnaire was given and type of steroid cream used, frequency, duration, the reason for application and source of information for its use were recorded. Clinical patterns of side-effects were noted. Clinical photographs were taken. Descriptive statistical analysis was done, (SPSS 21.0).
**Results:** Out of the total 180 commercial sex workers (CSWs), 80 were transgender and 100 were females. The most common steroid used was betamethasone valerate followed by the triple regimen containing mometasone. The reasons for TCs use were fairness (72%) followed by melasma (18%) and acne (10%). Side effects were seen in 77.5% of transgender and 66% of female CSWs. Common side effects noted were erythema (40%), acne (26%) and, pigmentation (18%).
**Conclusions:** The main reason for TCs abuse in our country as a fairness agent is obsessiveness with fair skin colour. Various studies on TCs abuse were done in the general population but none of the studies focuses on a particular group as in this study.

**Keywords:** Commercial sex workers, Fairness creams, Topical steroid abuse

## INTRODUCTION

Corticosteroids are one of the most widely prescribed topical drugs of about 82% of total dermatological product sales in India. Topical steroids are available in various potencies and combinations which are used on and off-label in steroid-responsive dermatoses. The clinical effects are mediated by their anti-inflammatory, vasoconstrictive, melanopenic, anti-proliferative, and immunosuppressive effects.[1,2] Fixed-dose combinations like (Kligman's and modified Kligman's triple regimen) are approved to treat facial melanosis like melasma.[3] But dubious marketing by pharmaceutical companies, prescription by quacks, easy availability over the counter (OTC) and lack of regulations regarding the manufacturing of irrational combinations has resulted in people using them as skin lightening agents for long time.[4] The main reason for topical corticosteroids (TCs)

abuse as a fairness agent is due to an obsessiveness with fair skin color. Despite fairness being highlighted here, it becomes an unnoticed factor in improving the sexual appeal of commercial sex workers. Hence, misuse and prolonged use of the topical medications without medical supervision particularly on the face produces adverse effects such as acneiform eruptions, steroid rosacea, hypertrichosis, demodicosis, tinea incognito, steroid addiction, and red face syndrome.[5-7] Based on various studies and to address the alarming situation, IADVL came up with the world skin health day theme for 2019 as fight the topical steroid mis-use.

The primary objective of the study was to determine the magnitude of topical steroid abuse among commercial sex workers. The secondary objectives were to know the commonly used creams, its indications and the side effects of topical steroids.

## METHODS

This was a single-center, prospective cross-sectional analytical study conducted at the department of STD, Government Stanley Medical College, Chennai from February 2019 to July 2019 among commercial sex workers (both females and transgenders). Institutional ethical clearance was obtained. The study population was 180 (females-100, transgender-80). The inclusion criteria were based on commercial sex workers (CSWs) who used fairness cream that contained TCs for more than 1 month and also their willingness to answer the questionnaire. CSWs who denied usage of fairness creams and those with co-morbid conditions and on systemic steroids which would result in similar facial changes were excluded from the study. A semi-structured written questionnaire was given to the study group in regional language (Table 1). Participant's responses to the questionnaire, along with a cutaneous examination was done to note the type of skin, any erythema, scaling, telangiectasia, atrophy, wrinkles, hirsutism, papules, and pustules. Systemic examination was done to rule out any other co-morbidity. Photographic documentation of patients was done with proper informed consent.

### *Statistical analysis*

A descriptive statistical analysis was carried out in this study. The values were presented as range, mean, median, ratio and percentage in this cross-sectional study.

**Table 1: Semi-structured written questionnaire.**

| Questions | Participants response |
|---|---|
| **Name of the fairness cream** | - |
| **Duration of usage** | 3-6 months; 6-12 months; >12 months |
| **Frequency of application** | (i) Morning (ii) night (iii) both |
| **Reason for application** | (i) Facial hyperpigmentation (ii) fairness (iii) acne (iv) excessive facial hair (v) itchy face (vi) skin aging |
| **Side effects** | (i) redness (ii) acne (iii) hyperpigmentation (iv) papules and pustules (v) photosensitivity (vi) excessive hair growth (vii) aggravation after stopping the application |
| **Source of knowledge** | (i) Family and friends (ii) self-medication (iii) quacks (iv) media campaigns like television or social media advertisements. |

## RESULTS

On analysis, the mean age of the population was 29 years in female CSW's and 23 years among transgenders (Figure 1). Around 63% of them completed secondary school and 28% were graduates and 9% were illiterate. 86% of female CSW's were married and had completed their family. Around 41% of them were using the topical steroid for more than 1 year with six participants using it for more than 7 years (Figure 2). The drug combinations used were betamethasone valerate (48%), a triple regimen containing mometasone (41%), and clobetasol (11%) (Figure 3). The major reasons behind the usage of creams were to improve fairness (77%), hyperpigmentation (12%), acne (7%) and itchy rash in the face (4%) (Figure 4).

The source of prescription about the usage of TCs as fairness cream was obtained from media (38%), followed by friends and relatives (30%), self-medication (21%) and quacks (11%) (Figure 5).

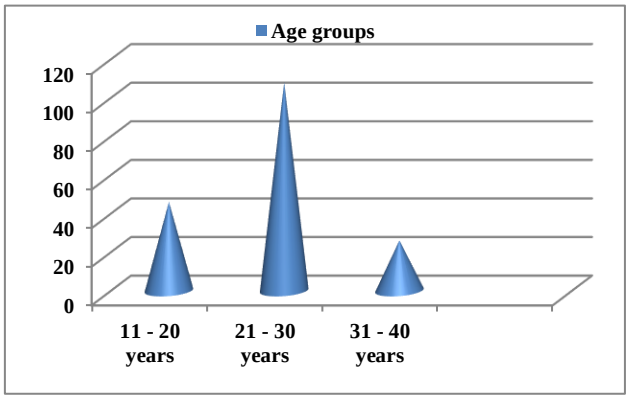


**Figure 1: Topical steroid usage on face: age-wise distribution.**

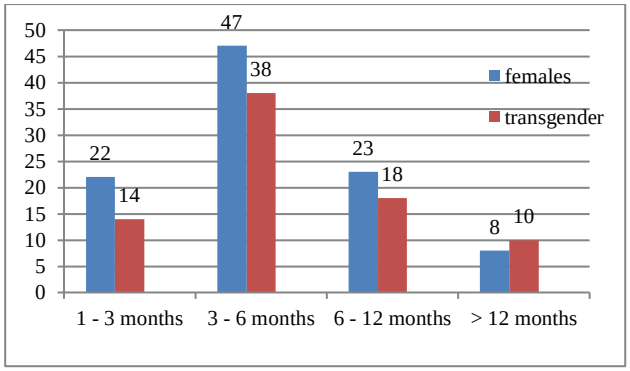


**Figure 2: Duration of topical steroid use on face.**

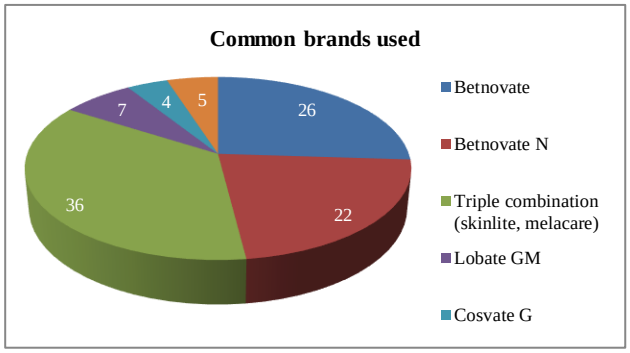


**Figure 3: Common brands used by the participants.**

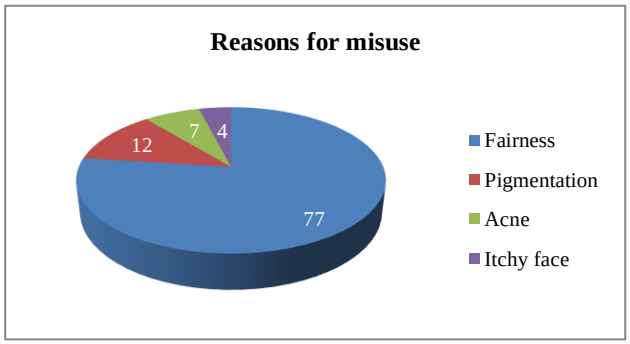


**Figure 4: Different reasons for TCs misuse.**

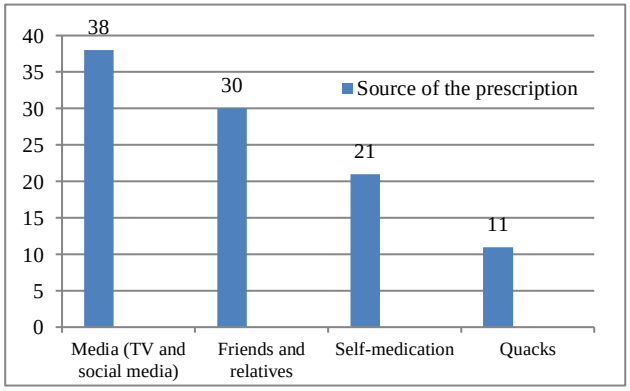


**Figure 5: Source of prescription among study population using TCs on face.**

**Figure 6: Facial erythema in a transgender using TCs containing fairness cream.**

**Figure 7: Facial erythema and hypertrichosis in a transgender CSW due to TCs abuse.**

The adverse effects were noted in 66% of female CSW's and 77.5% of transgenders. The commonly seen adverse effects (Figure 3) were erythema/ photosensitivity (38%)

(Figure 6, Figure 7), acneiform eruptions (18%) (Figure 8), pigmentation (16%), telangiectasia (8%), perioral dermatitis (4%) followed by rosacea (2%). Around 14% of participants showed the features of red face syndrome-like rebound erythema and scaling (Figure 9).

**Figure 8: Acne-due to regular TCs use in a female CSW.**

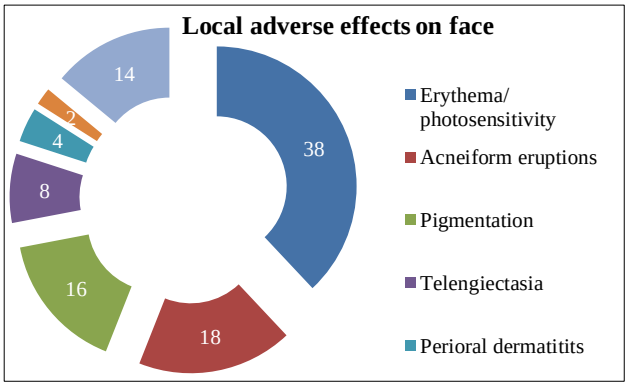


**Figure 9: Local adverse effects seen in patients using TCs on face.**

## DISCUSSION

Since their introduction, by Sulzberger and Witten in 1952 as compound F (hydrocortisone), topical corticosteroids have become indispensable in modern dermatological therapy.[8] They provide symptomatic relief in almost all inflammatory dermatoses, especially in the short term. Apart from their anti-inflammatory effect, TCs also have antipruritic, melanopenic, sex-hormone like and immunosuppressive effects on the skin. All these can lead to significant local adverse effects if they are used indiscriminately on skin.[9] Corticosteroids are popularly known as double-edged sword having both desired and adverse effects which demand the advice of an eligible medical professional for their usage and most importantly the duration of usage.

As per the drugs and cosmetics Act 1940, topical steroids come under schedule H, where it can be sold only on a valid prescription by a qualified doctor.[10] Because of its anti-inflammatory and melanopenic action, it is being combined with other depigmentary creams to enhance their effects. In a long time, due to obsessiveness with fair skin and lack of regulations regarding the manufacturing of irrational combinations, TCs are being used as skin lightening agents. The cosmetic misuse of topical corticosteroid preparations is global and is a cause of concern especially in Asia because of the colour conscious society.

Apart from the general population, commercial sex workers desire for visually appealing look and fair skin. Commercial sex workers are sexually active women, men or transgender who receive money or goods in exchange for sexual services and who consciously define "sex work" as their income generator.

The mean age group in this study was 29 years in females and 23 years in transgender in concordance with their sexually active period. This was similar to Saraswat et al and Pal et al study in the general population.[11,12] With this correlation, early intervention by educating teenagers can prevent TCs from abuse among both groups. CSW's of various educational statuses ranging from illiterates to graduates were seen, of which 63% of them completed secondary school, 28% were graduates and 9% were illiterate.

The duration of steroid application on the face was <6 months in 54% patients, followed by 6-12 months in 32% and beyond 24 months in 14% respectively in concordance with Bains et al study.[13] The source of prescription was mainly media (38%) followed by peers, in this study which was against Pal et al where it was dermatologists and chemists (41%).

Most of the subjects were using mid-potent TCs in this study, which is in concordance with previous studies. Betamethasone valerate alone or in combination were used by this study patients, and Betnovate-C and Betnovate-N were the most common brand names in concordance with Saraswat et al and Bains et al.[11,13] Betnovate and Betnovate N contains betamethasone valerate 0.1% and Neomycin sulphate 0.5% respectively. But in this study, the second most commonly used one was mometasone-hydroquinone-tretinoin combination skin lightening formula was used by 41% of patients in contrast to Saraswat et al but similar to Pal at al.[11,12] Lobate and Cosvate had clobetasol propionate 0.05%.

The adverse effects profile was similar to Pal et al where the most common adverse effect noted was erythema/ photosensitivity followed by acneiform eruptions. TCs induces comedone formation by rendering follicular epithelium more responsive to comedogenesis. Around 14 % of participants showed the features of red face syndrome or topical steroid damaged face (TSDF). It is a newly named entity where severe rebound erythema, burning and scaling over the face occurs on attempted cessation after prolonged TCs use on the face.[9]

There are various papers available on topical steroid abuse in the general population. This study targets a particular group like commercial sex workers who are easily vulnerable to TCs abuse due to their nature of work. As indicated by the data in this study, the problem of TCs abuse is already significant, the situation will only get worse in due course.[14,15]

## CONCLUSION

The main reason for topical steroid abuse as a fairness agent is Indian's obsessiveness with fair skin colour. The chemists in medical shops, general physicians and vulnerable groups need to be sensitized about the potential adverse effects of TCs abuse. Regular CME's and workshops need to run a long way to ensure the rational use of TCs. A targeted approach will serve this study purpose better. So, by evaluating the magnitude of TCs abuse in a target group, effective awareness campaigns and education for prevention of TCs abuse can be provided swiftly. ITATSA (IADVL taskforce against topical steroid abuse) is a welcome step created by the IADVL which has raised the issue of TCS misuse at various fronts.

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## REFERENCES

1. Hughes J, Rustin M. Corticosteroids. Clin Dermatol. 1997;15:715-21.
2. Valencia IC, Kerdel FA. Topical glucocorticoids. In: Fitzpatrick, editor. Dermatology in General Medicine. 5 th ed. New York: McGraw-Hill; 1999:2713-2717.
3. Kligman AM, Frosch PJ. Steroid addiction. Int J Dermatol. 1979;18:23-31.
4. Nagesh TS, Akhilesh A. Topical steroid awareness and abuse: a prospective study among dermatology outpatients. Indian J Dermatol. 2016;61(6):618-21.
5. Meena S, Gupta LK, Khare AK, Balai M, Mittal A, Mehta S, et al. Topical corticosteroids abuse: A clinical study of cutaneous adverse effects. Indian J Dermatol. 2017;62:675.
6. Basta-Juzbasić A, Subić JS, Ljubojević S. Demodex folliculorum in development of dermatitis rosaceiformis steroidica and rosacea-related diseases. Clin Dermatol. 2002;20:135-40.
7. Rapaport MJ, Rapaport V. Eyelid dermatitis to red face syndrome to cure: clinical experience in 100 cases. J Am Acad Dermatol. 1999;41:435-42.
8. Sulzberger MB, Witten VH. The effect of topically applied compound F in selected dermatoses. J Invest Dermatol. 1952;19:101-2.
9. Lahiri K, Coondoo A. Topical steroid damaged/dependent face (TSDF): an entity of cutaneous pharmacodependence. Indian J Dermatol. 2016;61:265-72.
10. The Drugs and Cosmetics Rules. Ministry of Health and Family Welfare, Government of India, 1945. Available at: http://cdsco.nic.in/html/copy%20of%201.%20d and cact121.pdf. Accessed on 2nd February 2015.
11. Saraswat A, Lahiri K, Chatterjee M, Barua S, Coondoo A, Mittal A, et al. Topical corticosteroid abuse on the face: a prospective, multicenter study of dermatology outpatients. Indian J Dermatol Venereol Leprol. 2011;77:160-6.
12. Pal D, Biswas P, 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;63:375-9.
13. Bains P. Topical corticosteroid abuse on face: a clinical study of 100 patients. Int J Res Dermatol. 2016;2:40-5.
14. Verma SB. Sales, status, prescriptions and regulatory problems with topical steroids in India. Indian J Dermatol Venereol Leprol. 2014;80:201-3.
15. Petitioning the Drug Controller of India-Stop indiscriminate OTC sale of the topical steroid without prescription, most are Schedule H drugs. Available at: http://www.change.org/p/the-drug-controller-of-india-stop-indiscriminate-otc-sale-of-topical-steroid-without-prescription-most-are-schedule-h-drugs. Accessed on 2nd February 2015.

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