

# Topical Corticosteroid Abuse on the Face: A Prospective Study of Garments Workers Appearing at Dermatology Outpatients in a Private Medical College Hospital

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## Abstract

*Abuse of topical corticosteroids (TC), especially over the face, is common not only in Bangladesh but also prevalent worldwide. Data about the magnitude of this problem in our country is lacking.*

*The aims of this study were to find out the demographics, magnitude and clinical features of TC misuse on the face in the dermatology outpatient department (OPD) as well as to raise awareness about this problem and to analyze its causes.*

*This was a prospective questionnaire-based clinical study conducted among the garment's workers who visited the outpatient department of a non government medical college hospital. Garments workers with relevant facial dermatoses reporting to the investigator were asked about their current use of over-the-counter topical formulations and a structured questionnaire applied in case the same was confirmed to be TC.*

*A total of 895 garment's workers with facial dermatoses were screened, of which 129 (14.41%) were using TC. TCs were used for treating acne in 53 (41.0%), as a lightening agent in melasma in 34 (26.4%), general face cream/fairness cream/after shave cream in 21 (16.3%). Steroid combinations were used by 84 (65.12%). Most of the patients (n =90; 70%) belonged to rural areas, followed by those hailing from suburban areas (n = 31; 24%). 15 out of 22 (68%) prescriptions by doctors were for products in the milder steroid group, whereas 98 of 107 (91.6%) recommendations by non-physicians were for potent steroids (P< 0.001). 118 of the 129 patients (91.5%) have shown adverse effects. Acne/exacerbation of acne was the most common adverse effect.*

*TC misuse in garment's workers with facial dermatoses is quite common, and most of this use is unwarranted. Use as a treatment for acne is the most common indication in this cohort.*

*Keywords: Abuse, adverse effects, potent, topical steroid damaged face*

## Introduction

Topical corticosteroids are one of the oldest and most widely used treatments for dermatologic conditions. There are many topical steroids available, and they differ in potency and formulation. Successful treatment depends on an accurate diagnosis and consideration of the steroid's delivery vehicle, potency, frequency of application, duration of treatment, and side effects. Although use of topical steroids is common, evidence of effectiveness exists only for select conditions, such as psoriasis, vitiligo, eczema, atopic dermatitis, phimosis, acute radiation dermatitis, and lichen sclerosus. Evidence is limited for use in melasma, chronic idiopathic urticaria, and alopecia areata.<sup>1</sup>

Use of TCs on the face produces peculiar adverse effects in addition to those seen elsewhere, steroid rosacea, acneiform eruption, hypertrichosis, demodicidosis, etc. Another adverse effect seen predominantly on the face has been variously called steroid addiction,<sup>2</sup> dermatitis rosaceaformissteroidica,<sup>3</sup> red face syndrome,<sup>4</sup> etc. by different authors. In this syndrome, after prolonged TC use on the face, there is severe rebound erythema, burning and scaling on the face on any attempted cessation of the application. Many authors named this condition "topical steroid-dependent face" (TSDF).

Though Bangladesh is a small country but is densely populated. In the Bangladeshi market, different corticosteroid preparations, ranging in potency and activity from mild, moderate to super-potent, are available for topical use on the skin. At least a few of these formulations are available at every medical store with or without a prescription. Bangladesh has inadequate numbers of qualified dermatologists to cater to a population of over 160 million. Thus, easy availability of TC and poor access to dermatologists makes the situation more worse.

TC misuse is well known and has been the subject of studies mainly from Africa<sup>5</sup> and other Asian countries.<sup>6,7</sup> In spite of the widely perceived enormity of the problem, only a few study has been published on this problem from Bangladesh.

The aim of this study was to ascertain the magnitude, clinical features and demographics of TC misuse on the face in garments workers in order to raise awareness of this problem in the dermatology community and society at large.

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## Materials and Methods

This was a prospectiver questionnaire-type study conducted at dermatology OPDs in Tairunnessa Memorial Medical College, Gazipur. Patients of any age and of both sexes were recruited consecutively. A questionnaire eliciting demographic variables, characteristics of TC use, prescription source and adverse effects was administered to all eligible patients. Counseling and treatment of TC adverse effects was then started.

### Study period

Four months, from February 1, 2012 to February 28, 2013.

### Inclusion criteria

Garments workers complaining of facial dermatoses (excluding dermatosis papulosa nigra, melanocytic nevi, adnexal tumors and xanthelasmata) report to the OPD were asked the following screening question: "Are you a garment's worker?" If the answer is yes then next question is asked- "Are you currently using any cream/ointment/lotion on your face that is only available in medical stores?" In the event of a positive answer, the patients were asked to bring the prescriptions or the tubes they used. Sometimes patients were shown different preparations to find out the right one and then ascertain whether the preparation is containing steroid or not .

The total number of patients with facial dermatoses seen during the recruitment period was also noted on a separate list (only name, age and sex). Full questionnaires were only filled for those answering "yes" to the screening question.

Current use was defined as any continuous use of seven or more consecutive days or intermittent use over a period of 15 or more days. This use should have been going on till the day of presentation to the center, or if stopped, not more than 15 days before. Wrong indication (e.g., acne), undiagnosed dermatosis, inappropriate potency or more than 1 month's use after the last consultation were criteria used to define unjustifiable/inappropriate use. TSDF was diagnosed in patients who had diffuse erythema over most of the face with or without papules and who complained of subjective local symptoms on stopping the TC application.

### Exclusion criteria

Patients who are not garment's worker or not consenting to answering the questionnaire or patients with comorbidities that resembled/could cause changes similar to TC side-effects (e.g., polycystic ovaries/Cushing's syndrome/thyroid disorders) were excluded from the study.

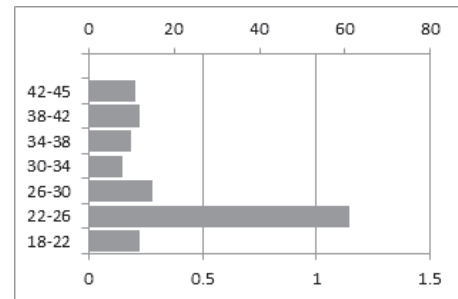
### Statistical analysis

Discrete variables were compared using Student's t-test and continuous variable were compared using the Chi-squared test. Significance levels were  $P < 0.05$ .

## Results

Among all the patient presented to the outpatient department of the hospital, 895 patients (195 male, 700 female) with facial dermatoses were screened over the study period. Of these, 129 patients (15 male, 114 female) or 14.41% were found to be using TC on their face. The ratio of females using TC on the face was significantly higher ( $P < 0.001$ ) than that in the screening population. The mean age of the screening group was 23.35 years (range, 18-45 years. Age distribution of the patients are shown in figure 1.

Figure 1- Age distribution of the patients.



Of the 129 patients in the study group, the largest number ( $n = 61$ ; 78%) was in the 22-26 years age range. Almost 42% of the study group patients were illiterate and a further 35% had only studied till class V. Most of the patients ( $n = 90$ ; 70%) belonged to rural areas, followed by those hailing from suburban areas ( $n = 31$ ; 24%). A total of 10 different brands containing 6 different TC alone or in various combinations with antifungals, antibacterials or antipruritic agents were identified. As regards brand names, Betnovate<sup>TM</sup> and its variants were by far the largest group, being used by 70 (54.26%) patients. A total of 84 patients (65.12%) were using combination formulations, while the remaining were using pure TC-containing products. With respect to area of face exposed to TC, 84 patients (65.12%) were using them only over the affected areas, with the rest using them all over the face.

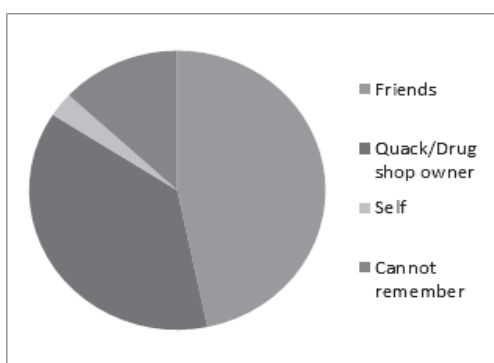
The pattern of use of TCs was further elucidated and analysis of data revealed that 87 patients (67.44%) used these products on their face intermittently whereas the rest used them regularly. The duration of use varied widely, ranging from 1 week to 7 years. Details of duration of use are presented in (Table 1).

Table 1: Duration of topical corticosteroid use on the face in the study subjects

Duration of Use	Numbers
1 week to 1 month	13 (10%)
1 months to 3 months	58 (45%)
3 months to 6 months	38 (30%)
6 months to 1 year	12 (9%)
More than 1 year	8 (6%)

The source of prescription was ascertained, and we found that 107 patients of 129 (82.9%) had received the recommendation to use TC on the face from a non-physician source. Of these, 50 (46.7%) had been recommended the TC by a co-worker, friend, peer or relative, 40 (37.4%) directly by the quack/ shopkeeper of pharmacy, 3 (2.8%) by self and 14 (13.1%) did not remember the source of the recommendation (Figure 2). In the 22 (17%) prescriptions from a medical practitioner, 3 (13.6%) were from dermatologists, 7 (31.8%) from MBBS doctors, 2 (9.1%) from other specialists and 10 (45.5%) from practitioners of alternative systems of medicine/ quack.

Figure 2- Source of recommendation of use of TC among the patients.



Underlying dermatoses or problems for which the TCs were used, were for treating acne in 53 (41.0%), as a lightening agent in melasma in 34 (26.4%), general face cream/fairness cream/after shave cream in 21 (16.3%), undiagnosed rashes in 16 (12.4%) and others (Tinea, rosacea, facial dermatitides, etc.) in 5 (3.9%). 43 (81.1%) out of 53 patients who used TCs for treating acne received this prescription from a quack or shopkeeper of a pharmacy.

Different local adverse effects were noted in 118 of the 129 patients (91.5%). More than one adverse effect was seen in 49 (38%) patients. Acne, either de novo or an exacerbation of pre-existing lesions, was the most common adverse effect, followed by topical steroid addiction. Atrophic striae on the face were seen 5% of the patients. Further details of adverse effects are presented in [Table 2].

Table 2: Local adverse effects seen in the 129 symptomatic patients using topical corticosteroids on the face (n = 433)

Adverse effects	Numbers (%)
Acne	49 (41.5%)
Steroid addiction	10 (8.6%)
Atrophy	15 (12.8%)
Hirsutism	8 (6.8%)
Telangiectasia	24 (20.3%)
Hypopigmentation	6 (5%)
Atrophic striae	6 (5%)

For further analysis, clobetasol propionate, betamethasone

dipropionate, and betamethasone valerate were clubbed together in a group called "potent steroids," and all others were clubbed into another group called "milder steroids." When the number of patients using these two groups were compared against their area of residence, there was no significant difference. Patients' educational status did not seem to play a role in determining use of potent vs. milder steroids ( $P = 0.45$ ). The source of the prescription also affected the choice of the TC group. It was seen that 15 of 22 (68%) prescriptions by doctors were for products in the milder steroid group, whereas 98 of 107 (91.6%) recommendations by non-physicians were for potent steroids ( $P < 0.001$ ).

## Discussion

The main benefit of TC lies in rapid and early symptomatic relief in almost any dermatological conditions. Most of the physicians prescribe TC in any dermatological conditions which causes reversal of the natural order of diagnosis after the treatment. The problem is worsened when a patient use these drugs repeatedly by a single prescription for longer period of time, causing to the production of adverse effects and, sometimes, dependence or addiction to TCs. This is a situation faced by dermatologists in many countries,<sup>5,6,7,8</sup> which was described more than 30 years ago as "serious" in a classic paper by Kligman and Frosch.<sup>2</sup> Since that publication, TC use has increased manifold all over the world. In Bangladesh, the problem is even more complex, as anyone can easily get a TC without the need to get it prescribed by a physician. Moreover, TCs have acquired a reputation as antiacne, antiblemish and fairness creams in the general population, especially in countries with darker-pigmented races.<sup>5</sup>

This study from a private medical college, surrounded by garment factories, where most of the working forces is female depicts the problem of TC misuse on the face. Almost 15% of the dermatology outpatients with facial dermatoses are already using TCs when they contact a specialist. It is alarming that, in more than 93% of these cases, the TC is either not needed at all, used for much longer than needed, of the wrong potency or is instituted without a diagnosis of the underlying condition. The picture of a typical TC (ab) user on the face that emerges from this data is that of a young female who uses a potent corticosteroid-containing cream recommended by a friend or relative for beauty, fairness or general skin care purpose without any underlying skin ailment for months at a stretch.

Similar studies have been reported from China<sup>6,10</sup> and Iraq,<sup>7</sup> where TC abuse appears to be very widespread. The Iraqi study reported that 7.9% of the dermatology clinic attendees had misused TCs compared with almost 15% in our study as well as a multicenter study carried out in India<sup>13</sup>. Most TC abusers in that study were in the 10-19 years age group, in India 20-30 years age group, whereas in our study, we found that most patients were in the 22-26 years age group. However, our data was limited to facial use and also in the study in India, whereas the Iraqi study reported TC abuse anywhere on the body.

In the recent study on facial TC misuse from China,<sup>6</sup> no prevalence data was given, but the proportion of patients applying TCs to the face without any underlying dermatosis in their study (28.5%), in India it was (29%), whereas in our study it is a bit lower (16.3%). Acne was the most common adverse effect seen in all the studies, irony is that TC is also used widely for treating acne in our study (41%), which is much higher in our study. Acne often worsens in hot and humid conditions. This factor, and the difference in demographic and climatic conditions, probably accounts for the very high prevalence of acne seen in our patients.

Treatment of facial adverse effects of TCs focuses on complete cessation of use, which can be abrupt or gradual, depending on the potency of the product and duration of use. In cases of addiction, progressively less-potent TCs are introduced over a period of weeks to months. Unpleasant symptoms, are treated using bland emollients and sunscreens. Systemic agents include tetracyclines, non-steroidal anti-inflammatory drugs and antihistamines. The subject of pathogenesis and treatment of TC addiction has been reviewed.<sup>11</sup>

In our study, almost 17% of the patients had received TC prescriptions from healthcare providers, whereas this figure was only 28% in the Chinese study and 40% in Indian study. In the 13.3% patients who were using dermatologist-prescribed TCs, in most cases patients are using TC beyond the time mentioned in the prescriptions.

Most of the subjects were using potent TCs in our study, which is in concordance with prior studies from other countries.<sup>4,5,6,7,8,9,10</sup> Betamethasone in combination was by far the most common corticosteroid used by our patients, and Betnovate<sup>TM</sup> was the most common brand name. In almost all patients who were using this brand, it had been recommended by a non-physician.

Patients from rural and suburban areas were found to be much more likely to use potent or super-potent TCs in this study. This is most probably a reflection of poor availability of health care providers in these areas, as our data also shows that non-physicians were much more likely to recommend these products than physicians. Another trend was the high incidence of potent steroid use in teenagers.

This study reveals a part of the problem of TC misuse that is becoming endemic in many countries of the world. Even countries like England, where only hydrocortisone and clobetasone can be sold OTC, are facing the problem of overuse and misuse of these products by the lay public.<sup>12</sup> In Bangladesh, it appears that the free availability of all TCs without a prescription has allowed many of these brands to become household names. Patients are unaware of the risks posed by these products and continue to use them for long periods before seeking help from dermatologists. Even correct prescriptions are misused by getting repeated refills from the chemist. As indicated by the data in this study, the problem of TC misuse is already significant, and unless urgent steps are taken on all possible fronts, the situation will only get worse and we

may soon be facing an avalanche of these unfortunate patients in our hospitals

All healthcare providers, drug shop owners, quacks need to be sensitized about the dangers of topical corticosteroid misuse, especially on the face.

Legislation/stronger implementation of existing drug laws is required to limit public access and advertising of potent TC.

## References

1. Ference JD, Last AR. Choosing Topical Corticosteroids. *Am Fam Physician*. 2009;79:135-40.
2. Kligman AM, Frosch PJ. Steroid addiction. *Int J Dermatol* 1979;18:23-31.
3. Basta-Juzbasiz A, Subiz JS, Ljubojeviz S. Demodex folliculorum in development of dermatitis rosaceiformis steroidica and rosacea-related diseases. *Clin Dermatol* 2002;20:135-40.
4. 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.
5. Mahe A, Ly F, Aymard G, Dangou JM. Skin diseases associated with the cosmetic use of bleaching products in women from Dakar, Senegal. *Br J Dermatol* 2003;148:493-500.
6. Lu H, Xiao T, Lu B, Dong D, Yu D, Wei H, et al. Facial corticosteroid addictive dermatitis in Guiyang city, China. *Clin Exp Dermatol* 2009;35:618-21.
7. Al-Dhalimi MA, Aljawahiri N. Misuse of topical corticosteroids: A clinical study from an Iraqi hospital. *East Mediterr Health J* 2006;12:847-52.
8. Solomon BA, Glass AT, Rabbin PE. Tinea incognito and "over-the-counter" potent topical steroids. *Cutis* 1996;58:295-6.
9. Rathi S. Abuse of topical steroid as cosmetic cream: A social background of steroid dermatitis. *Indian J Dermatol* 2006;51:154-5.
10. Liu ZH, Du XH. Quality of life in patients with steroid dermatitis before and after treatment. *J Eur Acad Dermatol Venereol* 2008;22:663-9.
11. Ljubojeviz S, Basta-Juzbasiz A, Lipozenic J. Steroid dermatitis resembling rosacea: Etiopathogenesis and treatment. *J Eur Acad Dermatol Venereol* 2002;16:121-6.
12. Rogers PJ, Wood SM, Garrett EL, Krykant SP, Haddington NJ, Hayhurst J, et al. Use of non-prescription topical steroids: Patients' experiences. *Br J Dermatol* 2005;152:1193-8.
13. Saraswat A, Lahiri K, Chatterjee M, Barua S, Coondoo 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.