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Mini Review

Fairness at a Cost: The Hidden Dangers of Steroid-Based Skin Lighteners

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Abstract

The misuse of topical corticosteroids for skin whitening has grown to be a serious public health issue, notably in South Asia, Africa, and the Middle East. Easy over-the-counter availability, social pressures, and strong cosmetic marketing have all contributed to its widespread use, commonly without medical supervision. This practice has been linked to a number of dermatological problems, including skin atrophy, pigmentary diseases, tinea incognito, and an alarming increase in antifungal resistance to first-line medications like terbinafine. This article examines the incidence of overuse, the underlying pathophysiology, and the dermatological and psychosocial repercussions. Prescription control, improved medical and pharmacy curriculum, digital literacy programs, and appropriate telemedicine utilization are all necessary for effective interventions. Steroid abuse is more than just a cosmetic issue; it is a developing dermatological and antimicrobial resistance hazard that requires immediate, concerted action.

More Information

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Keywords: Steroid misuse; Skin lightening; Dermatophytosis / Tinea incognito; Antifungal resistance; Public health; Pigmentary disorders; Immunosuppression; Cosmetic marketing / Beauty standards; Over-the-counter drugs; Medical curriculum / Pharmacy training

Introduction

Skin lightening chemicals are agents that turn the pigment of skin lighter than the original tone, and they are most commonly used by the females of South Asian, African, and Middle Eastern countries [1]. Several studies have shown a high prevalence in the Western Africa region, such as in places like Bamako (Mali) with 25%, Dakar (Senegal) with 52.7%, and Ghana with 50.3%, done on both male and female populations [2]. Similar patterns are also documented in South Asia, where reported misuse rates in certain communities range from 25.7% to 74% in various populations, largely driven by unregulated over-the-counter availability and aggressive cosmetic marketing [3,4]. These agents are mostly used without consultation of a healthcare professional, mainly due to societal pressure and cultural stigma, the most common belief being that a fairer skin tone would make a female more acceptable in society, since it elevates one's beauty. The reasons behind this perception include the following views of society: if a girl is fair, it would help her in finding a good marriage partner, or that she would easily get access to job opportunities, or automatically gain a good status wherever she is in her life [1].

Since topical corticosteroids are easily available over the counter (OTC), their misuse has been noticed among the population, which produces many adverse effects. A study was conducted among the people living in the state of Chhattisgarh, India, to assess the frequency of topical corticosteroid misuse. Out of the 6723 patients seen during the study, 5.63% reported adverse effects of topical corticosteroids resulting from their misuse, of whom 78.89% were females [5]. Most of the patients (96.57%) had not read the leaflet, either because they were illiterate or because the drug provider had not given any information about its adversities [5]. Examples of commonly used steroids are betamethasone, clobetasol, etc.

Adverse effects and pathophysiology

Chronic use of these agents results in various adversities, including facial hypertrichosis, pigmentation disorders, pyodermas, tinea incognito, cutaneous atrophy, perioral dermatitis, burning, itching, hypertrichosis, tinea incognito, photosensitivity, skin atrophy, and, most commonly, acne

and puffy face with telangiectasia [3,5]. Less common effects include difficulty in diagnosis of conditions such as leprosy and erythrodermic psoriasis, indicating that these agents not only produce complications but also weaken one's immunity, which leads to further aforementioned infections [5]. Such diagnostic masking due to the indiscriminate use of OTC topical steroids can delay appropriate therapy and worsen clinical outcomes, particularly in resource-limited settings where laboratory confirmation is not readily available [6].

Inflammatory skin conditions like eczema or psoriasis have been commonly treated with topical corticosteroids and proven to be beneficial. These high-potency formulations, often used without medical supervision, also reduce melanin production, offering temporary lightening of the skin. However, they can cause adverse cutaneous effects by impairing skin's protective functions, causing epidermal atrophy where the skin becomes thin, fragile, and more prone to bruising or tearing; inhibiting lipid synthesis; and causing striae, or stretch marks, which appear as linear scars due to collagen degradation in the dermis [3,5,7,8]. Additionally, pigmentary changes, including both hypopigmentation (light patches) and hyperpigmentation (dark patches), along with telangiectasia, or the appearance of visible dilated blood vessels, can alter the skin's natural tone and can be psychologically distressing. Together, these changes reflect the loss of structural integrity and immune protection of the skin, making it an easy target for infections [3,5,7,8]. Not only this, but it also has some immunosuppressive effects, which make the skin highly vulnerable to damage and infection by suppressing Langerhans cells and other key immune mediators in the skin, exposing it to opportunistic organisms [7].

Amongst the major repercussions is the rise in fungal infections, mainly dermatophytosis (commonly known as ringworm) [6]. The use of topical or systemic steroids or other immunosuppressive medications can lead to Tinea incognito, which is a dermatophyte infection with atypical features. This term refers to fungal infections whose clinical appearance has been altered by inappropriate steroid use, resulting in reduced scaling, irregular borders, and more extensive spread that can mislead clinicians. Multiple treatment regimens, resistance to antifungal drugs, delayed diagnosis, spread of the infection to critical body surfaces, and increased costs due to prolonged, often complicated tinea incognito are being reported. It is more common in children but can affect individuals of all ages and genders [9].

Furthermore, chronic topical steroid use, especially when applied over large areas or occluded skin, can result in systemic absorption, contributing to characteristic physical changes that resemble cushingoid features, stunted growth, and suppressed endogenous cortisol production, which can cause adrenal crisis upon sudden withdrawal [10].

The widespread misuse of steroid-containing creams has been linked to rising antifungal resistance, which includes first-line antifungals like Terbinafine and azoles. Reports from 2021–2025 highlight multidrug-resistant strains across Asia and the Middle East, requiring prolonged or combined antifungal therapy [11]. This growing resistance threatens the effectiveness of standard dermatophyte treatment protocols and risks reversing decades of therapeutic progress. Such resistant infections are difficult to manage, often demanding systemic antifungals, which are expensive, linked to greater toxicity, and result in a more substantial impact on healthcare systems. Therapeutic failure leads to longer disease durations and increasing patient frustration, contributing to higher healthcare costs and patient morbidity [11].

The misuse of topical steroids leads to considerable physiological distress as well, with individuals experiencing low self-confidence, emotional dependency, and mental stress when side effects become apparent. Such psychosocial harm is particularly significant among adolescents and young adults, where dependency on fairness creams can escalate into body dysmorphic concerns and chronic anxiety [12]. This distress is amplified by unrealistic beauty standards and misleading content on social media. There is also a greater risk of community-wide transmission of resistant strains, especially in densely populated areas [12] (Table 1)(Figure 1).

Table 1 summarizes key dermatological and systemic complications associated with chronic misuse of topical corticosteroids. Figure 1 summarizes adverse effects of steroid-based skin lighteners.

Table 1: Dermatological and systemic complications of steroid-based skin lighteners.

Complication Type	Examples
Dermatological	Acne, telangiectasia, skin atrophy, pigmentary changes, tinea incognito, striae, photosensitivity, perioral dermatitisrythema, burning, itching, hypertrichosis erythrodermic psoriasis [3,5,7,8].
Immunological	Suppression of Langerhans cells, increased susceptibility to infections [9]
Systemic	Cushingoid features, adrenal suppression, growth retardation [10]
Psychosocial	Low self-esteem, anxiety, body dysmorphic concerns [12].

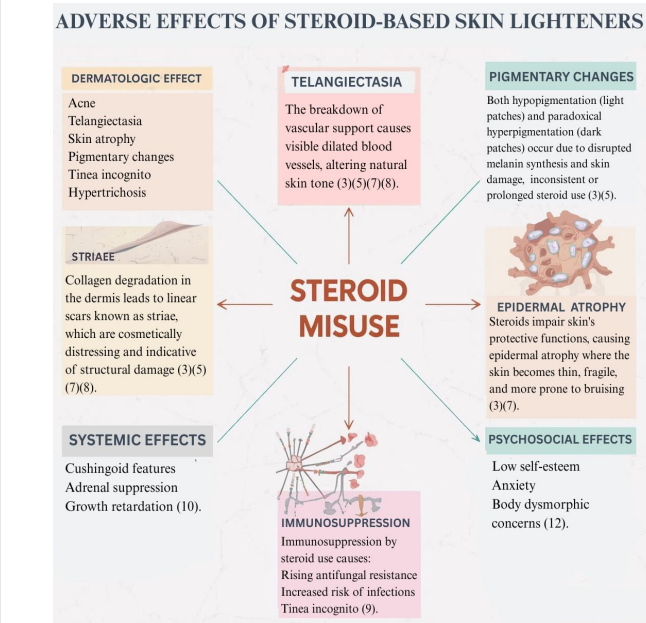

Figure 1: Adverse effects of steroid-based skin lighteners.

Call to action

The World Health Organization (WHO) and international dermatology societies (e.g., International League of Dermatological Societies, 2022) have cautioned against steroid misuse, stressing the urgency of rising resistance and adverse skin effects as major dermatological challenges. In its 2022 alert, WHO specifically identified steroid misuse as a contributing factor to antifungal resistance, urging strict prescription regulations and active countermeasures against deceptive cosmetic advertising on digital platforms [13]. Regulatory efforts, however, are hampered by easy over-the-counter (OTC) access to potent steroids, online marketplaces selling, and social media influence, where beauty influencers promote unsafe whitening products with deceptive "before-and-after" results [14].

To stop the rapidly increasing public health issue of topical steroid misuse and antifungal resistance, coordinated, multi-level intervention is needed urgently. Introduction of more strict prescription controls and prohibition of topically active over-the-counter sale of potent steroids can successfully limit uncontrolled use. These restrictions would prevent misuse of steroids, primarily in cosmetic bleaching and fungal infections, where misuse has resulted in major complications such as Tinea incognito and terbinafine resistance. Another essential component is providing physicians and pharmacists with improved training. Physicians are not all taught the long-term dangers of misused steroids or antibiotic-resistant fungal infections. Integrating updated dermatology modules into medical and pharmacy curricula could improve awareness and early recognition of steroid-related complications. When utilized properly, telemedicine can help these initiatives by providing knowledgeable guidance in broad locations while lowering the possibility of overprescription. Moreover, building digital literacy among the population is the key in a bid to counter the uncontrolled spreading of misinformation. Unrealistic beauty standards, fueled by social media influencers and exploitative "before-and-after" marketing for bleaching creams, lead people into dangerous habits. Public health campaigns must teach people how to search out good health information and the dangers of injecting steroids themselves.

Misuse is more than just a cosmetic issue; it is a growing public health threat that requires immediate, multisectoral action to avoid long-term harm.

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