Original Article :

Topical corticosteroid concerns in dermatological outpatients in Saudi Arabia

Ghadeer Almasabi[1], Hanin Mobarki[2], Ghaid Alotaibi3, Muzun Asiri[4], Juri Alghofaili[5], Ahlam Alasiri[6], Nouf Alshehri[7], Abdulrahman Alharbi[3], Ahmed Allayali[3]

1. College of Medicine, Umm Al-Qura University, Makkah, Saudi Arabia
2. College of Medicine, Jazan University, Jazan, Saudi Arabia
3. College of Medicine, King Saud bin Abdulaziz University for Health and Sciences, Saudi Arabia
4. College of Medicine, King Khalid University, Abha, Saudi Arabia
5. College of Medicine, Qassim University, Qassim, Saudi Arabia
6. Al-Aziziya Primary Health Care center, Ministry of Health, Jeddah, Saudi Arabia
7. Armed Forces Hospital, Southern Region, Saudi Arabia

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Corresponding Author:
Abdulrahman Ayman Alharbi, College of Medicine, King Saud bin Abdulaziz University for Health Sciences, Email: Harbiabdulr@gmail.com

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Abstract

Background and Aims:
Topical corticosteroids (TCS) are commonly prescribed by dermatologists for a wide range of inflammatory skin conditions. However, concerns that patients have regarding the use of TCS can greatly affect their adherence to treatment. Adherence to prescribed treatments and the challenges faced by non-adherent individuals are critical areas of focus. This research evaluates knowledge gaps and concerns regarding TCS use in dermatology outpatient settings in Saudi Arabia, aiming to reduce misunderstandings, improve treatment recommendations, and optimize both safety and efficacy in dermatological practice.

Methods:
A total of 383 patients with various skin conditions answered an online questionnaire on the concerns related to steroid containing cream/ointment use. The data were statistically analyzed using the (SPSS) software. Chi-square test was used to determine the association between patients characteristics and TCS-related concerns.

Result:
Among participants, 53% reported being prescribed steroid creams/ointments, with 15.1% for their children. More than half 56.7% were concerned about their health while using topical corticosteroids. The leading concerns were skin thinning and systemic effects. The most frequent source of TCS concerns were negative reports by the internet and other media. Significantly, concern about health was higher among those with female children, those with university education, and nonmedical workers ($p<0.05$).

Conclusion:
TCS concerns are common among dermatological patients. Increasing patients' knowledge and awareness may reduce TCS concerns.

Keywords:
Topical corticosteroids, Patient adherence, Treatment concerns

Introduction:

Topical corticosteroids (TCS) are widely utilized in dermatology clinics due to their potent anti-inflammatory and immunosuppressive properties. They serve as first-line agents for conditions such as atopic dermatitis, psoriasis, and other forms of dermatitis[1]. In 1952, topical hydrocortisone was found to be effective in alleviating the symptoms of atopic dermatitis (AD). Since then, TCS have become standard treatments for both acute and chronic inflammatory skin conditions[2,3]. However, the misuse of TCS has raised concerns about potential adverse effects arising from their long-term application, including skin thinning, reduced efficacy over time, and systemic side effects that can be challenging to manage[4,5].This has contributed to what is commonly referred as "steroid phobia" among patients, leading to non-compliance with treatments and the potential exacerbation of dermal disorders [5,6]. Topical corticosteroid phobia is a common concern that can lead to inadequate treatment adherence and treatment failure[7,8]. Various factors contribute to topical corticosteroid phobia, including the dissemination of misinformation from sources such as the internet, social networks, family members, and even healthcare professionals[9,10,11].

Despite the proven effectiveness of topical corticosteroids, their use is often complicated by widespread fear and misunderstanding among patients regarding potential side effects. This fear can lead to reluctance or refusal to use prescribed treatments, resulting in poor adherence and inadequate disease control. Such concerns are frequently fueled by misinformation from various sources, including social media, family members, and sometimes healthcare providers themselves.

This issue is particularly significant in dermatology outpatient settings, where patients are often treated for chronic skin diseases requiring consistent TCS use. In such cases, understanding the concerns of both patients and healthcare providers is essential, as is assessing the diversity of patients being treated. Patient adherence to prescribed treatments is a critical challenge, with a lack of adherence often leading to reduced treatment effectiveness. Therefore, it is necessary to evaluate the knowledge gaps related to TCS use particularly those stemming from patients' fears and misconceptions regarding their safety and long-term effects.

This research aims to address these points through a more detailed analysis, emphasizing its value in reducing patient misunderstandings, improving treatment recommendations, and optimizing the

safety and efficacy of TCS in everyday dermatological practice. The study specifically aimed to assess the concerns and perceptions of dermatology outpatients in Saudi Arabia regarding the use of topical corticosteroids for skin conditions.

Methods:

Study design: This was a cross-sectional descriptive study done in Saudi Arabia in the time from September 2024 to February 2025.

Study population: The eligibility criteria encompassed dermatological outpatients who granted informed consent to partake in the research, specifically those aged 16 years and above, regardless of gender. Furthermore, the exclusion criteria pertained to individuals who failed to provide informed consent, minors under the age of 16, as well as those experiencing linguistic challenges, illiteracy, or an inadequate understanding of the questionnaire or the terminology "topical steroid."

Sample size: The sample size determined was 383, based on a Raosoft calculator with 5% marginal error and a 95% confidence interval.

Data collection: An Online Arabic language questionnaire was developed using Google forms, where participants received electronic links with a brief explanation of the study objectives, the target population, and a request to participate voluntarily. The questionnaire included items to collect data about participants' demographic characteristics, child data, working in health care, previous prescription of a steroid containing cream/ointment, having concerns related to steroid containing cream/ointment use, and using complementary alternative medicine and cause. The questionnaire used Likert-scale questions to assess participants' opinions, and was pilot-tested on a sample of 20 participants to ensure clarity and reliability.

Ethical considerations: This study has been approved by the institutional review board (IRB) UQU institutional research board, UQU, Makkah, Saudi Arabia. Approval No. (HAPO-02-K012- 2025-01-2465).

Data analysis: Data were statistically analyzed using the (SPSS) application version 26. To investigate the association between the variables, the Chi-squared test ($\chi 2$) was applied to qualitative data that was expressed as numbers and percentages. Quantitative data was expressed as mean and standard deviation (Mean ± SD), where the Kruskal Wallis test was used for nonparametric variables. A p-value of <0.05 was considered as statistically significant.

Results:

Of the studied 383 participants,

296(77.3%) were the patients, while for 87 (22.7%) it was the child. The mean guardian's age was 29.41 ± 11.89 years, and the mean child age was 9.78 ± 4.48 years. Of children, 60.9% were females, while 88.2% of the guardians were female. The majority (61.9% had a university education, and 26.1% were health care workers.

Table 1: Distribution of the studied participants according to their demographic characteristics, child data, and working in health care (N=383) .

Variable	No. (%)
Participant	
I am the patient	296 (77.3)
My child is the patient	87 (22.7)
Guardian's age (years) (Mean ± SD)	29.41 ± 11.89
Child age (years) (Mean ± SD)	9.78 ± 4.48
Child gender	
Female	53 (60.9)
Male	34 (39.1)
Guardians' gender	
Female	261 (88.2)
Male	35 (11.8)
Educational level	
Primary	11 (2.9)
Middle / secondary	105 (27.4)
University	237 (61.9)
Postgraduate	30 (7.8)
Health care worker?	
No	283 (73.9)
Yes	100 (26.1)

(Table 2) illustrates that 53% of the participants reported that they were prescribed steroid containing cream/ointment, while for 15.1% it was prescribed for their children. More than half (56.7%) were concerned about their health when using topical corticosteroids, while 18.3% were concerned about their children's health. Almost one third (30%) were using complementary alternative medicine, of them 93.4% were using it for their skin problems.

Table 2: Distribution of the studied participants according to previous prescription of a steroid containing cream/ointment, have related worries, concerns or fears, use complementary alternative medicine (N=383).

Variable	No. (%)
Have you ever been prescribed a steroid containing cream/ointment?	
No	122 (31.9)
Yes, for my child	58 (15.1)
Yes, for myself	203 (53)
Do you have any worries, concerns or fears to apply a steroid containing cream/ointment?	
No	96 (25.1)
Yes, I am concerned about my child`s health when using topical corticosteroids	70 (18.3)
Yes, I am concerned about my health when using topical corticosteroids	217 (56.7)
Do you also use complementary alternative medicine?	
No	268 (70)
Yes	115 (30)
If yes, for what? (No.: 115)	
Because of my skin problems	108 (93.4)
Because of other health problems	7 (6.6)

For those having worries, concerns or fears to apply a steroid containing cream/ointment (No.: 287), 47.7% did not apply a prescribed topical corticosteroid due to their worries. The most common worries were thinning of the skin (21.2%) and the effect of medication on the whole body

(21.9%). When asked about the sources of these worries, 25.4% reported that they read about this topic on the internet, while 21.2% reported that other media drew their attention to dangers resulting from topical corticosteroids. The mean rating of strength of worries on a scale from 010 was 6.12 ±2.65, while the mean rating of the strength of worries after reading the information was reduced to 4.32 ±2.71 (Table 3, Figure 1 and 2).

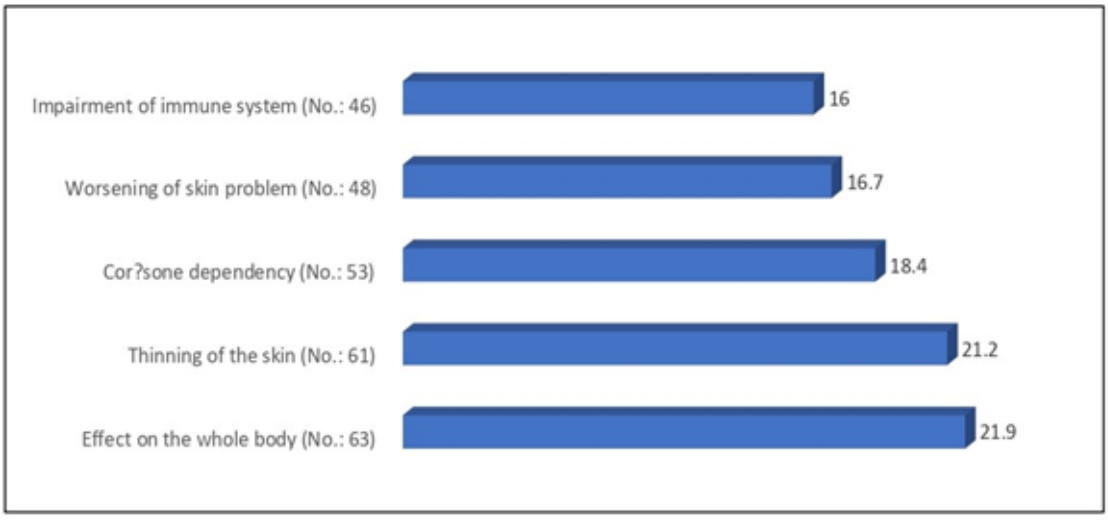


Figure 1. Types of worries related to the application of steroid containing cream/ointment (No.: 287)

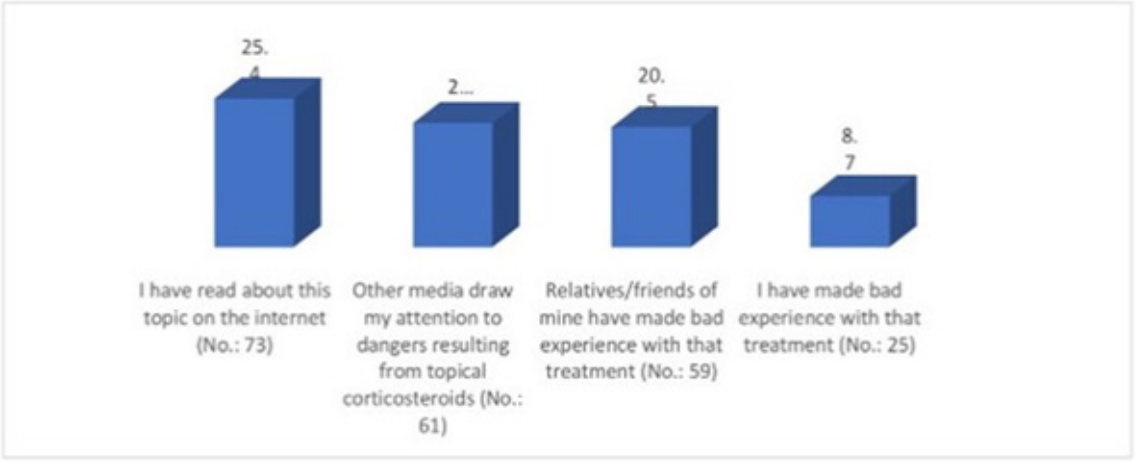


Figure 2. Sources of worries for those having worries, concerns or fears to apply a steroid containing cream/ointment (No.: 287)

Table 3: Experience of topical corticosteroid use for those having worries, concerns or fears to apply a steroid containing cream/ointment (No.: 287) .

Variable	No. (%)
For those having worries, concerns or fears to apply a steroid containing cream/ointment (No.: 287)	
Have you ever not applied a prescribed topical corticosteroid due to your worries?	
No	150 (52.3)
Yes	137 (47.7)
Which are your worries?	
Thinning of the skin	61 (21.2)
Effect on the whole body	63 (21.9)
Impairment of immune system	46 (16)
Cortisone dependency	53 (18.4)
Worsening of skin problem	48 (16.7)
Where do your worries come from?	
I have made bad experience with that treatment	25 (8.7)
Relatives/friends of mine have made bad experience with that treatment	59 (20.5)
I have read about this topic on the internet	73 (25.4)
Other media draw my attention to dangers resulting from topical corticosteroids	61 (21.2)
How strong are your worries? (Mean ±SD)	6.12 ±2.65
How strong are your worries now after reading the information? (Mean ±SD)	4.32 ±2.71

(Table 4) shows that the prevalence of being concerned about health when using topical corticosteroids was significantly higher among those having a female child, having a university education, and those not working in the medical field ($p<0.05$). At the same time, the prevalence of being concerned about using topical corticosteroids was significantly higher among those not using complementary alternative medicine, or those who use it because of their skin problems ($p<0.05$).

Table 4:Relationship between having worries, concerns or fears to apply a steroid containing cream/ointment and participants' demographics, child data, working in health care and use of complementary alternative medicine (No.:383).

Variable	Do you have any worries, concerns or fears to apply a steroid containing cream/ointment?			χ2	P value
	No No. (%)	Yes, and concerned about my child`s health when using topical corticosteroids No. (%)	Yes, and concerned about my health when using topical corticosteroids No. (%)		
Guardian's age (years (Mean ± SD)	9.46 ± 4.68	10.02 ± 4.44	9.32 ± 4.66	1.8*	0.405
Child age (years) (Mean ± SD)	28.14 11.16	26.71 ± 10.58	30.18 ± 12.27	0.93*	0.626
Child gender					
Female	8 (8.3)	32 (45.7)	13 (6)	15.86	<0.001
Male	5 (5.2)	23 (32.9)	6 (2.8)		
Guardians' gender					
Female	68 (81.9)	17 (100)	176 (89.8)	5.99	0.053
Male	15 (18.1)	0 (0.0)	20 (10.2)		
Educational level					
Primary	2 (2.1)	7 (10)	2 (0.6)	18.92	0.004
Middle / secondary	39 (30.2)	19 (27.1)	57 (26.3)		
University	55 (57.3)	38 (54.3)	144 (66.4)		
Postgraduate	10 (10.4)	6 (8.6)	14 (6.5)		
Health care worker?					
No	62 (64.6)	60 (85.7)	161 (74.2)	9.39	0.009
Yes	34 (35.4)	10 (14.3)	56 (25.8)		
Do you also use complementary alternative medicine?					
No	79 (82.3)	48 (68.6)	141 (65)	9.57	0.008
Yes	17 (17.7)	22 (31.4)	76 (35)		
If yes, for what? (No.: 115)					
Because of my skin problems	16 (16.7)	21 (30)	71 (32.7)		
Because of other health problems	1 (1)	1 (1.4)	5 (2.3)	9.71	0.046

Discussion:

Patients across various cultures frequently report TCS phobia which is often linked to higher rates of non-adherence to treatment. Targeted interventions could address patient concerns and information sources about corticosteroids, improving adherence to prescribed regimens. This highlights the need to identify knowledge gaps related to TCS use[12]. Existing literature predominantly focuses on the patient's perspective regarding TCS concerns[13], with limited presentation of HCW concerns. Moreover, In Saudi Arabia (SA), there is a lack of research on evaluating TCS concerns in caregivers of children[14]. To address this limitation, the current study involved 383 participants, 296 (77.3%) were the patients, while for 87 (22.7%) it was the child. By focusing on both adults and children, we sought to better understand the extent of this fear and its potential impact on the use of corticosteroids in these populations.

In our study, 56.7% of participants expressed health concerns about TCS, with 18.3% worried about their children's health. Non-HCWs reported higher concern rates, and among those expressing worries (n=287), 47.7% were non adherent to prescribed TCS treatments.

Comparatively, research in the United Kingdom and Switzerland recorded that 72.5% and 41.5%, respectively, had TCS concerns, with lower non-adherence rates than ours (24% and 28.3%, respectively)[15,16]. A systematic review found TCS phobia prevalence ranged from 21.0% to 83.7%, with higher non-adherence rates in phobia groups. This higher percentage was reported in research showing that 80.7% of participants expressed fears about TCS, and 36% reported noncompliance[17]. Interestingly, 74% of HCWs in their study reported TCS concerns, with physicians and medical students having fewer concerns than other HCWs. Though most concerns were minor, reflecting professional caution rather than phobia[13]. On the other hand, among caregivers of children, higher percentages were reported in research conducted in Japan, Hong Kong, Australia, Taif City in Saudi Arabia, and France (38.3%, 60%, 60%, 60.1%, and 80.7%,

respectively)[14,17,19]. Variability in definitions and assessments limits comparability, emphasizing the need for standardized approaches[12].

The present study revealed that the most common concerns about TCS were skin thinning (21.2%) and systemic effects (21.9%). These results align with Charman et al. and Muller et al.'s findings, where skin thinning was the leading concern, followed by worries about long-term effects, and

systemic absorption impacting growth and development[15, 16]. Additionally, uncertainty over the proper amount to apply, a preference for short-term self-treatment, and poor adherence to prescribed usage amplified fears surrounding TCS use[17].

These concerns are well-supported by scientific evidence. High-potency corticosteroids have been shown to cause epidermal thinning, reduce microvascular structures, and decrease keratinocyte size after 3 to 4 weeks of application on normal skin[20]. For instance, a study observed a 59% reduction in epidermal thickness after six weeks of continuous clobetasol propionate use[21]. Additionally, while systemic effects are less frequent, prolonged use of corticosteroids can lead to serious complications such as suppression of the hypothalamic-pituitary-adrenal axis, Cushing's syndrome, and growth retardation, particularly in infants and the elderly[22].

In our study, the most common sources of TCS concern were the internet, media, and

relatives/friends' bad experiences. This finding aligns with multiple studies, which have shown that TCS phobia is often heightened by information shared through the internet, social media, family, friends, and even medical professionals, especially regarding the long-term use of TCS [14-16]. These sources showed the highest impact on TCS concern score[14].

Our study found no significant difference in TCC concerns based on adult sex, but individuals with female children had higher concerns, consistent with Kojima et al.[18]. Other studies reported a statistical significance with female adults[13,14,18], while research in France found no gender association[17]. Although age did not show significant effects in our study, Müller et al. reported higher concern among individuals under 60, possibly due to health awareness or caregiving

roles[16]. Albogami et al. also found higher concern among caregivers of children aged6-10, suggesting caregiving responsibilities may influence age-related concerns about TCC[14].

Our study also found that those with a university education had greater concern about TCC use, though no significance was reported by Muller Et al.[13]. The present study revealed that individuals not working in the medical field had higher concerns about TCC, consistent with another study[16]. Additionally, those using complementary alternative medicine (CAM) for skin diseases had greater concerns about TCC, aligning with a study revealed that CAM use for dermatological lesions was twice as high among concerned patients compared to others [16]. In German-

speaking countries, Homeopathy and acupuncture were the most common CAM forms[23], and clinicians should recognize that many patients combine CAM with conventional Treatments[16].

Strength and limitations:

This study provides valuable insights by highlighting TCS concerns across multiple groups, including adult, children, HCWs, and patients with dermatological lesions. By Utilizing a detailed questionnaire to explore demographic factors, knowledge gaps, and sources of information, addressing a significant gap in existing literature.

The cross-sectional design limits the ability to establish causality between concerns and treatment adherence. Additionally, the reliance on self-reported data may introduce bias, and the study may not fully represent all regions of Saudi Arabia. Non-random sampling technique and exclusion criteria, such as language and literacy barriers, could affect the generalizability of the results. Furthermore, the use of an online survey may have excluded participants without internet access, potentially missing a portion of the population with differing concerns.

Conclusion:

The study revealed a high prevalence of concerns regarding TCS use among dermatology outpatients in Saudi Arabia, particularly fears of skin thinning and systemic side effects, which significantly contributed to non-adherence to prescribed treatments. These concerns were most common among caregivers of female children, individuals with university education, and those not working in the healthcare sector, and were strongly influenced by misinformation from the internet and media. Clinically, these findings underscore the need for improved patient education and communication to dispel myths and enhance adherence. Healthcare providers should implement targeted, demographic-specific educational interventions, ensure regular follow-up to monitor treatment use, and address concerns proactively. Future research should explore the long-term impact of TCS fears and include more diverse populations to support the development of effective strategies that improve both safety and treatment outcomes in dermatological care.

Conflict of interest: The authors declare that there is no conflict of interest

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References:

1. Mehta AB, Nadkarni NJ, Patil SP, Godse KV, Gautam M, Agarwal S. Topical corticosteroids in dermatology. Indian J Dermatol Venereol

Leprol. 2016;82(4):371–378. doi: 10.4103/0378- 6323.178903.

2. Egeberg A, Thyssen JP. Topical corticosteroids in the era of new topical therapies: Balancing efficacy and safety for long-term use. J Eur Acad Dermatol Venereol. 2024;38(7):1236–1237. doi: 10.1111/jdv.20041.
3. Lovrić I, Tomić I, Tomić I, Zeljko I, Bevanda M, Mandić M, Lovrić S, Šimić D. Inappropriate use of topical corticosteroids in dermatology outpatients. Psychiatria Danubina. 2021;33(Suppl 10):71–75.
4. Coondoo A, Phiske M, Verma S, Lahiri K. Side-effects of topical steroids: A long overdue revisit. Indian Dermatol Online J. 2014;5(4):416–425. doi: 10.4103/22295178.142483.
5. Contento M, Cline A, Russo M. Steroid phobia: A review of prevalence, risk factors, and interventions. Am J Clin Dermatol. 2021;22(6):837–851. doi: 10.1007/s40257-02100623-6.
6. Callen J, Chamlin S, Eichenfield LF, Ellis C, Girardi M, Goldfarb M, Hanifin J, Lee P, Margolis D, Paller AS, Piacquadio D, Peterson W, Kaulback K, Fennerty M, Wintroub BU. A systematic review of the safety of topical therapies for atopic dermatitis. Br J Dermatol. 2007;156(2):203– 221. doi: 10.1111/j.1365-2133.2006.07538.x.
7. Kew CH, Ahmad Basir KF, Low DW, Loh KC. Breaking through the steroid stigma: A single- centre study on topical corticosteroid perception and adherence in dermatology patients and caregivers. Med J Malaysia. 2023;78(4):437–444.
8. Moret L, Anthoine E, Aubert-Wastiaux H, Le Rhun A, Leux C, Mazereeuw-Hautier J, Stalder JF, Barbarot S. TOPICOP©: A new scale evaluating topical corticosteroid phobia among atopic dermatitis outpatients and their parents. PLoS One. 2013;8(10):e76493. doi: 10.1371/journal.pone.0076493.
9. Farrugia LL, Lee A, Fischer G, Blaszczynski A, Carter SR, Smith SD, et al. Evaluation of the influence of pharmacists and GPs on patient perceptions of long-term topical corticosteroid use. J Dermatol Treat. 2017;28(1):112–118.
10. Song SY, Jung SY, Kim E. Steroid phobia among general users of topical steroids: A cross- sectional nationwide survey. J Dermatol Treat. 2019;30(3):245–250. doi: 10.1080/09546634.2018.1508817.
11. Aubert-Wastiaux H, Moret L, Le Rhun A, Fontenoy AM, Nguyen JM, Leux C, Misery L, Young P, Chastaing M, Danou N, Lombrail P, Boralevi F, Lacour JP, Mazereeuw-Hautier J, Stalder JF, Barbarot S. Topical corticosteroid

phobia in atopic dermatitis: A study of its nature, origins, and frequency. Br J Dermatol. 2011;165(4):808–814. doi: 10.1111/j.13652133.2011.10449.x.

12. Li AW, Yin ES, Antaya RJ. Topical corticosteroid phobia in atopic dermatitis: A systematic review. JAMA Dermatol. 2017;153(10):1036–1042.
13. Mueller SM, et al. Topical corticosteroid concerns from the clinicians' perspective. J Dermatol Treat. 2017;28(5):464–468.
14. Albogami MF, et al. Topical corticosteroid phobia among parents of children with atopic dermatitis (eczema)—A cross-sectional study. Patient Prefer Adherence. 2023;17:2761– 2772.
15. Charman CR, Morris AD, Williams HC. Topical corticosteroid phobia in patients with atopic eczema. Br J Dermatol. 2000;142(5):931–936.
16. Müller SM, et al. Topical corticosteroid concerns in dermatological outpatients: A cross- sectional and interventional study. Dermatology. 2016;232(4):444–452.
17. Aubert-Wastiaux H, et al. Topical corticosteroid phobia in atopic dermatitis: A study of its nature, origins, and frequency. Br J Dermatol. 2011;165(4):808–814.
18. Kojima R, et al. Factors associated with steroid phobia in caregivers of children with atopic dermatitis. Pediatr Dermatol. 2013;30(1):29–35.
19. Hon KL, et al. Steroid fears in children with eczema. Acta Paediatr. 2006;95(11):1451–1455.
20. Lemos MC, et al. Fluorescence spectroscopy as a tool to detect and evaluate glucocorticoid- induced skin atrophy. Lasers Med Sci. 2012;27(5):1059–1065.
21. Lehmann P, et al. Corticosteroid atrophy in human skin: A study by light, scanning, and transmission electron microscopy. J Invest Dermatol. 1983;81(2):169–176.
22. Dhar S, Seth J, Parikh D. Systemic side-effects of topical corticosteroids. Indian J Dermatol. 2014;59(5):460–464.
23. Frass M, et al. Use and acceptance of complementary and alternative medicine among the general population and medical personnel: A systematic review. Ochsner J. 2012;12(1):45–56c Dis. 2014;5:234-244.