Research Article

Comparison of Topical Corticosteroid (TCS) Phobia Levels Among Preclinical and Clinical Years Medical Students: Using TOPICOP Score

Syed Muhammad Ibrahim,[1] Muhammad Hammad Akram,[2] Farhat Ijaz,[3] Nouman Asad,[4] Mir Muhammad Rai,[5] Syed Mustafa Kafayat,[6] Rana Khurram Aftab[7]

[1-6]CMH Lahore Medical College & Institute of Dentistry (NUMS), Lahore, Pakistan; [7]Services Hospital, Lahore

Abstract

Background: Corticosteroid medications are commonly used in various medical conditions due to their potent anti-inflammatory and immunosuppressive properties. However, corticosteroid phobia, which refers to the fear to use these medications, can impact their appropriate use in clinical practice.

Objective: This study aimed to compare the level of Topical corticosteroid (TCS) phobia among pre-clinical and clinical year medical students by using TOPICOP score.

Methods: A cross-sectional study was conducted, after obtaining ethical approval, among MBBS students. A pre-tested questionnaire was used to assess TCS phobia, which included knowledge, attitudes, and beliefs about corticosteroids, as well as comfort level in prescribing or administering these in hypothetical clinical scenarios. Data was analyzed using descriptive and inferential statistics, including chi-square test.

Results: The study surveyed 286 medical students; 139 of them were Pre-Clinical years students (48.6%), while 147 in Clinical (51.4%). Mean age in Pre-Clinical years was 18.7+1.2 while 21.2+2.8 in Clinical years & 51.4% reported studying pharmacology, which is the subject educating most on the various effects of TCS. Significant findings include: Clinical years students express more concern about TCS affecting future health (26.53% vs 14.39%); Clinical years students are more afraid of applying TCS on thinner skin areas (25.85% vs 21.58%); Clinical years students are more likely to stop TCS treatment early (26.53% vs 10.07%); Clinical years students are more inclined towards non-steroidal alternatives even if more expensive (25.17% vs 14.39%); and Clinical years students perceive more benefit from TCS use (21.09% vs 9.35%).

Conclusion: Our findings highlighted a greater sense of caution held by Clinical Years, regarding use of TCS and its potential side effects, while still appreciating its therapeutic role.

Received: 03-03-2024 | **Revision:** 24-08-2024 | **Accepted:** 20-11-2024

Corresponding Author | Dr. Farhat Ijaz, Associate Professor, Department of Physiology, CMH LMC & IOD(NUMS), Lahore, Pakistan **Email** : farhat_khurram_rana@cmhlahore.edu.pk

Keywords | Corticosteroids, Corticosteroid phobia, Medical students, Pharmacology & Therapeutics

Introduction

The expression "corticosteroid phobia" (also known as "corticophobia") refers to the fears, anxieties, doubts, reservations, reluctance, or scepticism towards the administration of corticosteroids expressed by the

Production and Hosting by KEMU

https://doi.org/10.21649/akemu.v30i4.5646

patients, their attendants, and medical professionals.[1,2] Several medical specialties, including pulmonary medicine, rheumatology, allergology, and paediatrics, deal with the problem of "corticophobia."

Given that topical corticosteroids (TCS) form the cornerstone of treatment for many skin conditions, it is especially crucial in dermatology.[3,4] They are a favoured medication in this field because of their anti-inflammatory, immunosuppressive, and anti-mitogenic effects. Topical corticosteroids (TCS) are used to treat a variety of skin ailments, including eczemas, psoriasis, blistering disorders, and even life-threatening skin conditions including Stevens-Johnson syndrome.[4] It was first made available as an over-the-counter drug that didn't require a prescription.[1] This led to topical corticosteroid abuse, which caused several negative effects and may be the root of the current steroid phobia.[5] What was formerly believed to be a remedy for many dermatological ailments was then identified as the cause of numerous illnesses and side effects, such atrophy, acne, striae, telangiectasia, hypo or hyperpigmentation, angular stomatitis, and hypertrichosis. However, its negative effects diminished once it was restricted to use by prescription only.[1]

TCP's (Topical Corticophobia Phobia) dynamics and origin are complicated, involving three fundamental factors: (i) Internal patient variables (e.g., personality, unfavourable personal experience with TCS),[2] (ii) External factors (e.g., poor feedback about TCS from others, the media, and the internet), and (iii) Iatrogenic factors (scepticism about TCS among medical professionals).[3] It can also be due to the widespread misconception that TCS are equivalent to anabolic or oral steroids.[6]

Nearly half of dermatology patients preferred using non-steroidal medications, even though they were more costly, according to a survey of dermatology patients. Non-steroidal alternatives command higher prices from both patients and attendants, adding to the financial burden that families and patients already suffer due to treatment administration.[2] In addition to patients and the general public, healthcare professionals frequently exhibit corticophobia, particularly pharmacists and general practitioners, which is likely caused by a lack of understanding of topical corticosteroids.[7] As a result, non-adherence to TCS is a huge issue in medicine. Poor disease management, more hospital admissions, and higher healthcare expenses may arise from non-adherence to topical treatment, such as late- or non-initiation, premature withdrawal, or divergence from the recommended dose regimen.[2,3]

Patients with TCS phobia are found to have higher rates of non-adherence than those without it.[1] Particularly in the ailments affecting children, such as Atopic Dermatitis and Asthma, corticophobia on behalf of the parents is a major cause of non-adherence, as the parents are hesitant to use TCS or inhaled corticosteroids despite their proven effectiveness.[8–10] According to a systemic review of 16 studies published in 2017, the prevalence of corticophobia has been reported to be between 21.0 and 83% among patients, underscoring the significance of this problem. This could make it harder to control diseases and put a huge strain on the healthcare system.[4,11,12] The degree of patient understanding is strongly connected with optimal clinical findings and safety measures. Consequently, determining community awareness about appropriate drug use is typically an integral component in attaining the best possible treatment result.[11]

Although many studies have been conducted to assess “corticosteroid phobia” in patients, the general public, and healthcare professionals, not a lot of data is available about medical students and their understanding of steroid use and the associated "corticophobia”. In this study, medical students from different study years at private medical college were assessed for this phenomenon to ascertain any differences in their knowledge and understanding of steroid use and steroid phobia.

The study aimed to determine and compare the level of corticosteroid phobia among pre-clinical and clinical year medical students by using TOPICOP score.

Methods

This cross-sectional study was conducted at CMH Lahore Medical College from April 2023 -September 2023 after obtaining ethical approval (ERC Letter# 141 /ERC/CMHLMC). A total of 286 medical students, including both males and females, from First year to Final year were enrolled in this study after taking infor-

med written consent. Pre-Clinical year medical students (first and second year MBBS), who have limited exposure to pharmacology and therapeutics, and clinical year medical students (third, fourth and final year MBBS) who have studied "Pharmacology and Therapeutics". Students having a history of psychiatric or psychological disorders that may affect their perception of corticosteroids, students who are unwilling to provide informed consent, and students who were currently on corticosteroids therapy for any medical condition were excluded. Convenience (Non-probability) sampling was used for participants.

Data was collected using a pre-tested questionnaire The Topical Corticosteroid Phobia (TOPICOP) score. This questionnaire included 12 questions related to the students' knowledge, their perceptions and their attitudes towards corticosteroid use in clinical practice.[13] There were additional 5 questions that assessed fear of steroid addiction, usage of herbal medications and the willingness to use a more expensive non-steroidal agent.[13,14] Validity of said questionnaire was 0.9. The reliability was measured by applying Cronbach alpha, the cronbach alpha coefficient value was 0.81.[13,14] Demographic information, including age, gender, and year of medical school, was also collected.

The data was analyzed through Statistical Package for Social Sciences version 23 (SPSS 23). Frequency and Percentages were used to describe the frequency distribution of different collected variables including patient's demographic details. Chi square test was used for comparison between groups. Value of $p \leq 0.05$ was considered statistically significant.

Results

Out of 286 participants, there were 170 males (59.4%) and 116 females (40.6%). A total of 139 students (48.6%) belonged to pre-Clinical years (1st & 2nd year), while 147 students (51.4%) belonged to Clinical years (3rd, 4th & Final year). Regarding pharmacology education, 147 participants (51. 4%) reported studying pharmacology, while 139 participants (48.6%) did not. The demographics of study participants are given in Table 1.

Table 2 shows insights into the varying perceptions & beliefs, fears, and behavioral tendencies concerning the use of topical corticosteroids among the students of different years of medical education.

In the knowledge and belief section, the Clinical Years showed a more pronounced concern about TCS affecting their future health (Clinical Years 26.53%, Pre-Clinical Years 14.39%; p value: 0.015)

Similarly, in the fears domain, Clinical year students came out to be more afraid of putting cream (TCS) on certain zones like the eyelids where the skin is thinner (Clinical Years 25.85%, Pre-Clinical Years 21.58%; p value: 0.008)

In the behavior section too, the Clinical Years were found more likely to stop treatment with TCS as soon as they could (Clinical Years students 26.53%, Pre-Clinical Years students 10.07%; p-value: 0.004)

Moreover, the Clinical Years even resolved to agreeing to having rather use something that does not contain steroids even if it is more expensive (Clinical Years 25.17%, Pre-Clinical Years 14.39%; p-value: 0.001)

Lastly, the Clinical years surprisingly also admitted to generally have benefited from TCS use (Clinical Years 21.09%, Pre-Clinical Years students 9.35%p-value: 0.000;)

Overall, these findings highlight a greater sense of care and caution held by the Clinical Years, who have studied Pharmacology and Therapeutics, regarding use of TCS and its various potential side effects, while also appreciating its therapeutic role to treat conditions.

The TOPICOP© score distribution indicates that a majority of respondents fell into the intermediate (41.6%) or high-risk (38.5%) categories, suggesting a prevalent level of concern or apprehension regarding TCS usage among the surveyed medical students.

Table 1: *Demographic data of participants*

Gender	Frequency	Percentage%
Male	170	59.4
Female	116	40.6
Years of MBBS study	**Frequency**	**Percentage%**
Preclinical (1st and 2nd Year)	139	48.6
Clinical (3rd, 4th and Final Year)	147	51.4
Studied Pharmacology	**Frequency**	**Percentage%**
No	139	48.6
Yes	147	51.4

Table 2: *TOPICOP Questionnaire components on degree of steroid phobiab*

Sr.	Questions	Year of MBBS study	Totally disagree/ never	Sometimes /not really agree	Almost agree/often	Totally agree /always	P-Value
Knowledge and Beliefs							
1	TCS pass into the bloodstream	Pre-Clinical	40 (28.7%)	46 (33.09%)	28 (20.14%)	25 (17.98%)	0.138
		Clinical	33 (22.4%)	52 (35.3%)	44 (29.9%)	18 (12.24%)	
2	TCS can lead to infections	Pre-Clinical	42 (30.21%)	64 (46.04%)	25 (17.98%)	8 (5.75%)	0.045
		Clinical	41 (27.89%)	50 (34.01%)	38 (25.85%)	18 (12.24%)	
3	TCS make you fat	Pre-Clinical	31 (22.30%)	48 (34.53%)	40 (28.77%)	20 (14.39%)	0.137
		Clinical	42 (28.57%)	24 (16.32%)	42 (28.57%)	29 (19.73%)	
4	TCS damage your skin	Pre-Clinical	31 (22.30%)	55 (39.57%)	34 (24.46%)	19 (13.67%)	0.144
		Clinical	21 (14.28%)	52 (35.37%)	50 (34.01%)	24 (16.33%)	
5	TCS will affect my future health	Pre-Clinical	26 (18.70%)	49 (35.25%)	44 (31.65%)	20 (14.39%)	0.015*
		Clinical	20 (13.60%)	34 (23.13%)	54 (36.73%)	39 (26.53%)	
6	TCS can lead to asthma	Pre-Clinical	38 (27.34%)	66 (47.48%)	25 (17.98%)	10 (7.19%)	0.062
		Clinical	62 (42.18%)	54 (36.73%)	20 (13.60%)	11 (7.48%)	
Fears							
1	I am afraid of putting cream (TCS) on certain zones like the eyelids where the skin is thinner	Pre-Clinical	49 (35.25%)	39 (28.06%)	21 (15.10%)	30 (21.58%)	0.008*
		Clinical	30 (20.40%)	38 (25.85%)	41 (27.89%)	38 (25.85%)	
2	I don't know of any side effects but I'm still afraid of TCS	Pre-Clinical	35 (25.17%)	65 (46.76%)	30 (21.58%)	9 (6.47%)	0.007*
		Clinical	62 (42.18%)	51 (34.69%)	31 (21.09%)	3 (2.04%)	
3	I am afraid of applying too much cream (TCS)	Pre-Clinical	42 (30.21%)	41 (29.49%)	29 (20.86%)	27 (19.42%)	0.345
		Clinical	35 (23.81%)	44 (29.93%)	43 (29.25%)	25 (17.01%)	
Behaviour							
1	I wait as long as I can before treating myself with TCS	Pre-Clinical	48 (34.53%)	48 (34.53%)	24 (17.27%)	19 (13.67%)	0.008*
		Clinical	32 (21.77%)	41 (27.89%)	40 (27.21%)	34 (23.13%)	
2	I stop treatment as soon as I can	Pre-Clinical	35 (25.18%)	56 (40.29%)	34 (24.46%)	14 (10.07%)	0.004*
		Clinical	28 (19.04%)	45 (30.61%)	35 (23.81%)	39 (26.53%)	
3	I need reassurance about TCS	Pre-Clinical	36 (25.90%)	48 (34.53%)	29 (20.86%)	26 (18.70%)	0.385
		Clinical	30 (20.41%)	48 (32.65%)	43 (29.25%)	26 (17.69%)	
Additional questions							
1	TCS can be addictive	Pre-Clinical	58 (41.72%)	48 (34.53%)	26 (18.70%)	7 (5.03%)	0.984
		Clinical	64 (43.53%)	48 (32.65%)	27 (18.37%)	8 (5.44%)	
2	I would rather try TCMs/ herbal medications before using TCS	Pre-Clinical	37 (26.62%)	53 (38.13%)	34 (24.46%)	15 (10.79%)	0.512
		Clinical	41 (27.89%)	45 (30.61%)	39 (26.53%)	22 (14.96%)	
3	I would rather use something that does not contain steroids even if it is more expensive	Pre-Clinical	38 (27.39%)	54 (38.85%)	27 (19.42%)	20 (14.39%)	0.001**
		Clinical	24 (16.33%)	38 (25.85%)	48 (32.65%)	37 (25.17%)	
4	I have benefited from TCS use	Pre-Clinical	46 (33.09%)	54 (38.85%)	26 (18.70%)	13 (9.35%)	0.000**
		Clinical	26 (17.69%)	42 (28.57%)	48 (32.65%)	31 (21.09%)	
5		Pre-Clinical	56 (40.28%)	49 (35.25%)	20 (14.38%)	14 (10.07%)	0.648

TCS: topical corticosteroids; TOPICOP: Topical Corticosteroid Phobia *P-value ≤ 0.01 **P-value ≤ 0.001

Table 3: *TOPICOP© score of participants*

Score	Frequency	Percentage%
(<23%) Low	57	19.9
(24-50%) Intermediate	119	41.6
(>50%) High	110	38.5

Discussion

Corticosteroid phobia, also known as corticophobia is a rising concern, especially in developing countries. This is in part due to their increased availability over the counter and use without dermatological consultation thus leading to their increased abuse.[15] As a result, any precipitated side effects have led to increased fears regarding these steroids. Our study aimed to compare the phobia of corticosteroids among medical students between the preclinical and clinical years with the latter having studied pharmacology and therapeutics.

In our study, we assessed 286 students, with the gender distribution being males at 59.4% and females 40.6%. Further distribution was between medical students who constitute the preclinical years (48.6%) and medical students who constitute the clinical years (51.4%). The third distribution was between those students who have studied pharmacology (51.4%) and those who have not (48.6%).

In the knowledge and beliefs section, an interesting finding in our study was that most students, regardless of their years of study, agree with the statement that Topical Corticosteroids would affect their future health, with clinical students being greater in number (26.53%), highlighted by the very significant value of 0.015. This finding is further corroborated by a similar study and lent further credibility. The study conducted by Egyptian healthcare professionals highlighted that the fears regarding topical steroids were also significant.[16] This highlights that knowledge of pharmacology as taught in clinical years and exposure to patients allows medical professionals and clinical students to unanimously agree that TCS is harmful to health and their use must be carefully evaluated.

Another finding in our study was based on the fear of applying TCS on certain zones of skin such as the eyelids, with the responses generating a significant value. This finding is further supported by another study in Al-Majmaah, Saudi Arabia. This study displayed that nearly half the participants agree with the statement that TCS could cause skin damage with a high TOPICOP score of 76.6+-20.9 regarding fears.[17]

Furthermore, another interesting finding in our study was that students in clinical and preclinical years both agreed on stopping steroid treatment as soon as possible, showcased by the significant p-value obtained, with clinical students being in the majority. However, this result is contradicted by another study where pharmacists tested on their knowledge of TCS were more confident in their use of steroids.[18] This contradiction may be due to different perceptions and fears of steroids among medical students in comparison to medical professionals due to relatively reduced patient exposure.

Another striking finding in the behavior section was that both preclinical and clinical would prefer to utilize something that does not contain steroids even if it is more expensive. Not only that, but this finding is also supported by another study where half of the people displayed nonadherence to steroid therapy due to fears.[4] As a result, further light is shed on the degree of fear regarding steroid use as alternative treatments despite being economically challenging are preferred.

Another remarkable finding was obtained regarding whether the participants benefited from the use of topical steroids, with the majority in both preclinical and clinical years disagreeing. This finding is further emphasized by another study in Pakistan where nearly half of the patients developed topical steroid-related side effects.[19] Hence, it can be inferred that the concerns of the students are valid, but preclinical students disagreeing were relatively greater in number than clinical students disagreeing, thus it can also be implied that lack of knowledge of pharmacology taught within the clinical years might make the preclinical students more sensitive in regards to their fears and behavior of topical steroids.

Finally, the maximum TOPICOP score we obtained was 41.6% in the intermediate category which was more than the High category (38.5%). This is comparable to the TOPICOP score of 42% in another study.[9]

Some recommendations to improve the use and perception of steroids are dedicated patient counseling sessions and a proper campaign regarding raising awareness about the measured use of steroids and possible side effects if misused.

Conclusion

Our findings highlighted a greater sense of caution held by Clinical Years, regarding use of TCS and its potential side effects, while still appreciating its therapeutic role. Hence, it can be concluded that TCS use is regarded negatively with a greater number of individuals concerned with the side effects of the steroid treatments and willing to undertake alternate forms of treatment, thus measures must be taken to regulate their use and properly counsel patients in regard to steroids.

Ethical Approval: The Ethical Review Committee, of CMH Lahore Medical & Institute of Dentistry, approved this study vide letter No. Reference number 141/ ERC/ CMHLMC.

Conflict of Interest: The authors declare no conflict of interest.

Funding Source: None

Authors' Contribution
SMI: Conception & design, analysis & interpretation of data, acquisition of data, drafting of article
MHA: Acquisition of data, analysis & interpretation of data, drafting of article
FI: Analysis & interpretation of data, drafting of article, Critical revision for important intellectual content, final approval
NA: Acquisition of data, analysis & interpretation of data
MMR: Acquisition of data, analysis & interpretation of data
SMK: Acquisition of data
RKA: Drafting of article, final approval

References

1. Mohanna MT, Albeladi RA, Alshareef EK, Alsaedi SA, Aljawi AF, Ozbuk AA. Topical corticosteroid phobia among high educational students in Al-Madinah region: A cross-sectional study. Med Sci. 2023;27(1):1-10.
2. Contento M, Cline A, Russo M. Steroid Phobia: A Review of Prevalence, Risk Factors, and Interventions. Am J Clin Dermatol. 2021;22(6):837-51.
3. Mueller SM, Itin P, Vogt DR, Walter M, Lang U, Griffin LL, et al. Assessment of "corticophobia" as an indicator of non-adherence to topical corticosteroids: a pilot study. J Dermatolog Treat. 2017;28(2):104-11.
4. Masood S, Jalil P, Awan S, Ghulam U, Kerawala SR. Assessment of topical steroid phobia in dermatology patients, a cross-sectional study from an urban area of Pakistan. J Dermatolog Treat. 2022;33(4):2331-4.
5. Manar A. Alotaibi et al. Knowledge and phobias about the use of topical corticosteroids among the Saudi population: A cross-sectional study. World Fam Med J. 2022; 20(12): 6-16.
6. Song SY, Jung SY, Kim E. Steroid phobia among general users of topical steroids: a cross-sectional nationwide survey. J Dermatolog Treat. 2019;30(3):245-50.
7. Lambrechts L, Gilissen L, Morren M-A. Topical corticosteroid phobia among healthcare professionals using the TOPICOP score. Acta Derm Venereol. 2019;99(11):1004-8.
8. Lee JY, Her Y, Kim CW, Kim SS. Topical Corticosteroid Phobia among Parents of Children with Atopic Eczema in Korea. ad. 2015;27(5):499-506.
9. Koster ES, Philbert D, Zheng X, Moradi N, de Vries TW, Bouvy ML. Reducing corticosteroid phobia in pharmacy staff and parents of children with atopic dermatitis. Int J Clin Pharm. 2021;43(5):1237-44.
10. Ozceker D, Uckun U, Islamova D, Tamay Z, Guler N. Corticosteroid phobia among parents of asthmatic children. Turk J Pediatr. 2018;60(2):142-6.
11. Barakat M, Elnaem MH, Al-Rawashdeh A, Othman B, Ibrahim S, Abdelaziz DH, et al. Assessment of Knowledge, Perception, Experience and Phobia toward Corticosteroids Use among the General Public in the Era of COVID-19: A Multinational Study. Healthcare (Basel). 2023;11(2):62-69.
12. Choi E, Tan KW, Tang F, Tan C, Chandran NS. Efficacy of targeted education in reducing topical steroid phobia: A randomised clinical trial. J A Acad Dermatol. 2020;83(6):1681-7.
13. Boonpuen N, Srimuang A, Puangpet P, Supsrisunjai C. Validity and reliability of the topical corticosteroid phobia (TOPICOP©) Questionnaire: Thai version. Siriraj Med J. 2023 ;75(2):115–20.
14. Choi E, Chandran N, Tan C. Corticosteroid Phobia: A questionnaire study using TOPICOP score. Singapore Med J. 2020;61(3):149–53.
15. Gupta M. Topical corticosteroid abuse among pediatric population – a prospective study. Our Dermatol Online. 2020;11(2):194–6.

16. Barakat M, Mansour NO, Hassan Elnaem M, Thiab S, Abu Farha R, Sallam M, et al. Evaluation of knowledge, experiences, and fear toward prescribing and dispensing corticosteroids among Egyptian healthcare professionals: A cross-sectional study. Saudi Pharm J. 2023;31(10):101777.

17. Alrohaimi Y, Alturki RA, Aljithalin AA, Alanazi RB, Almimony OL. Parent concern and awareness of corticosteroid use in pediatric patients with atopic dermatitis in al-majmaah, Saudi Arabia. PJMHS. 2022;16(5):1212–7.

18. Chiew Ping T, Ariffin AK, Jyh Jong T, Siddiqui S, Zainal H. Pharmacist's knowledge about the safe use of TCS in atopic dermatitis: A pre–post-survey study evaluating the impact of TCS reading module. J Pharm Health Serv Res. 2023;14(3):343–51.

19. Fasih S, Arif AB, Amar A, Haque M ul, Hameed F, Iqbal J. Misuse of topical corticosteroids on facial skin [Internet]. Pak J Physiol. [cited 2024 Mar 2]. Available from: https://pjp.pps.org.pk-/index.php/PJP/article/view/1239