

Knowledge and phobias about the use of topical corticosteroids among the Saudi population: A cross-sectional study

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Abstract

Background: Topical corticosteroids are the first line of treatment for many dermatological disorders. Patients frequently have excessive concerns about the side effects of steroids and may even refuse to use topical steroids to treat their dermatological conditions due to their fear of steroids. This study aimed to explore knowledge and phobias regarding using topical corticosteroids among the Saudi population.

Method: A cross-sectional study was conducted to examine the public knowledge and their fears about using topical corticosteroids in 2022. A previously developed questionnaire was adapted and used in this study. Binary logistic regression was conducted to identify factors that affect participants' fear of using topical corticosteroids.

Results: A total of 1,889 people participated in the study. Around half of the study participants (46.2%) reported using topical corticosteroids. The vast majority (88.8%) reported that topical corticosteroids effectively managed their dermatological condition. Approximately half (47.1%) reported worrying about side effects when using topical corticosteroids. About 15.0% reported having delayed a hospital visit due to concern about prescribing topical corticosteroids. Although 16.4% of them refused to get prescribed topical corticosteroids, 17.0% have not applied corticosteroids. The study participants showed a low

level of phobia about using topical corticosteroids, with a mean phobia score of 1.7 (SD: 1.6), representing 28.3% (out of the maximum phobia score). The mean phobia score showed a statistically significant difference between the participants who reported having experienced or are presently experiencing skin disease ($p < 0.05$).

Conclusion: Phobia about topical corticosteroids is a common problem that warrants further investigation. It affects patients' compliance with corticosteroid therapy, which ultimately will result in worsening their clinical outcomes. Healthcare professionals should focus on education on topical corticosteroids and correct any misconceptions about this group of medications.

Keywords: Topical corticosteroids; Fear; Phobia; Skin diseases; Saudi Arabia

Introduction

Topical corticosteroids (TC) are the first line of treatment for many dermatological disorders because they effectively reduce inflammation, relieve itching, and improve quality of life (1–3). Dermatologists and general practitioners are often prescribed TC for various skin conditions (4,5). They are available in multiple formulations and potencies. For children and the application of sensitive areas, mild formulations are typically used. Topical therapies are often used to treat skin conditions in this way. However, they are not recommended to treat several other disorders and may have unfavorable side effects if misused (6–8).

TC failed to meet fundamental prescription requirements when initially launched. This resulted in topical corticosteroid misuse, which has several adverse effects and could cause the current steroid fear (9–11). Previous literature reported that strict rules must be implemented concerning the only prescription-based dispensing of local corticosteroids (12,13). This should reduce the extremes of TC for well-founded purposes and the increasing incidence of steroid-induced dermatoses in routine dermatology practice (8,12,14). The media has dramatically exaggerated the adverse side effects of TC.

Due to media reports and the dissemination of medical information, more people are becoming aware of the potential side effects of topical steroid use (3,15–17). TC could be associated with different side effects, such as worsening or spreading of a skin infection, inflamed hair follicles, changes in skin color, or excessive hair growth in the area of skin being treated (18–20). Patients frequently have extreme concerns about the side effects of steroids and may even refuse to use topical steroids to treat their dermatological conditions due to their “fear of steroids.” Due to their worries, they can stop taking the prescription regularly, providing inadequate care and raising the possibility of infectious consequences from untreated skin conditions (21). In a previous study, 85.7% of 257 children in China reported using TC (22). 25% of parents rejected a prescription for steroid ointment, and 32.3 % of parents did not apply it to their children even though they had a prescription. 95.7 % of parents expressed extreme anxiety about topical steroid side effects while their children received steroid treatment. Due to concerns about TC, 138 parents (42%) decided not to use a topical steroid ointment for recurrent eczema (22). A recent Saudi Arabian survey examining topical facial corticosteroids has reported that it is not uncommon (16.5%). However, a large population is unaware of the side effects of the unsupervised use of TC (23). To establish successful health education programs that can address the right groups and reduce topical corticosteroid phobia, it can be helpful to pinpoint the specific elements and the reasons behind the fear produced among people using TC. This will promote the optimal use of TC and enhance the safety and effectiveness of its use.

This study aimed to explore the use of TC and the phobia among the general public in Saudi Arabia.

Subjects and Methods

Study design

A cross-sectional study used an online self-administered questionnaire to examine the public knowledge and fears about using TC in August 2022.

Sampling procedure

A convenience sampling procedure was applied to invite the study population to participate. The questionnaire link was distributed through social media platforms (Facebook, Twitter, Snapchat, and Instagram) to reach a broader range of participants from different sociodemographic groups. The questionnaire cover letter made the study objectives and inclusion criteria clear. Participants were asked to confirm their participation before the questionnaire even started. If participants agreed to provide their consent, they were instructed to begin answering the questions; otherwise, the survey was closed.

All Saudis over 18 willing to participate were included in the study. Individuals under 18 years old or living outside of Saudi Arabia were excluded. The sample size was calculated using Raosoft (Raosoft Inc., Seattle, Washington, USA) based on a confidence interval of 95% and a 5% margin of error to meet the standard approximation assumption, resulting in a sample size of 724 volunteers.

Questionnaire tool

A previously designed questionnaire developed by Li et al. was adapted and used (22). The study instrument is divided into three main sections and 26 questions (multiple choice and yes/no format). The first section, which consists of nine items, examined the sociodemographic characteristics of the study participants (age, sex, education, monthly income, marital status, and employment status), whether they have any dermatological conditions and the duration of the disease. The second section consisted of eight questions that asked participants about their use of a corticosteroid history. The third portion examined participants' fear of using topical corticosteroids (nine items). Expert healthcare professionals reviewed the questionnaire instrument for comprehensibility. The questionnaire was translated into Arabic using a forward-backward translation technique. It was tested on a random sample of our study population to identify any concerns with context and content.

Piloting of the Questionnaire Tool

Expert clinicians evaluated and approved the questionnaire tool for its external validity. They were questioned about the questions' simplicity and understandability, its face validity, and whether any of the questions were challenging to comprehend. Before using the questionnaire on a broader scale, a pilot test was conducted with a small group of participants to evaluate its comprehensibility.

Statistical analysis

Data analysis was carried out using the Statistical Package for the Social Sciences, version 27 (SPSS, Armonk, NY: IBM Corp.). Descriptive statistics were used

to present categorical variables such as frequency and percentage. Continuous variables were presented as mean (standard deviation (SD)). Phobia related to topical corticosteroids was assessed using a continuous scale based on participants' responses that explored their fear of using topical corticosteroids (items 1-6). Each confirmed statement (by choosing yes) was given a score of one; the higher the score, the greater the fear of using topical corticosteroids. An independent sample t-test and ANOVA were used to compare the mean fear score between different demographic groups. Binary logistic regression was performed to identify factors affecting participants' fear of using topical corticosteroids. The dummy variable for the binary logistic regression used the mean fear score of the study participants as the cut-off point. A P-value of $0 < 0.05$ was set as the significant level.

Results

A total of 1,889 people participated in the study. More than half of them (60.8%) were female. A similar proportion (57.1%) of the study participants were between 18 and 25 years of age. A total of 62.6% of them were single. Around 60.0% of them had bachelor's degrees. Approximately half of them (46.4%) were students. More than half of them (54.8%) reported their monthly income was 3000 Saudi Riyals (SAR). Of these, 43.0% reported that they either experienced or were currently experiencing skin disease, of whom 38.6% reported that they have been suffering from this dermatological condition for around 3-5 years. For further details on the demographic characteristics, refer to Table 1.

Table 1: Participants' demographic characteristics

Variable	Frequency	Percentage
Gender		
Female	1,149	60.8%
Age		
18-25 years	1,092	57.8%
26-30 years	233	12.3%
31-35 years	121	6.4%
36-40 years	141	7.5%
41-45 years	100	5.3%
46-50 years	93	4.9%
51 years and over	109	5.8%
Marital status		
Single	1,182	62.6%
Married	645	34.1%
Divorced	39	2.1%
Widowed	23	1.2%
Education		
Secondary school or lower	450	23.8%
Diploma	186	9.8%
Bachelor	1,123	59.4%
Higher education	130	6.9%
Occupation		
Student	877	46.4%
Unemployed	294	15.6%
Working in the healthcare sector	203	10.7%
Working outside the healthcare sector	425	22.2%
Retired	90	4.8%
Monthly income		
3000 SAR or lower	1,036	54.8%
3000-6000 SAR	218	11.5%
6000-9000 SAR	153	8.1%
9000 SAR and above	482	25.5%
Have you ever suffered from skin disease, or are you currently suffering from it? (Yes)	803	42.5%
For how many years have you suffered from this dermatological condition? (n=803)		
Less than one year	227	28.3%
1-3 years	96	12.0%
3-5 years	310	38.6%
More than five years	170	21.1%

SAR: Saudi Riyal

Table 2 below presents the pattern of topical corticosteroids use among study participants. Approximately half of the study participants (46.2%) reported having used topical corticosteroids before, of whom 69.4% used topical corticosteroids for less than seven days. The vast majority (88.8%) reported that topical corticosteroids effectively managed their dermatological condition. Around 82.0% of them reported discontinuing topical corticosteroid therapy immediately after improving their dermatological condition. More than half of them (61.2%) reported that they know that topical corticosteroids can treat various dermatological conditions (such as eczema and contact dermatitis (which

causes symptoms such as dandruff and scaly patches on the skin), and psoriasis. A similar percentage of them (65.5%) reported using topical corticosteroids until the skin lesions completely disappeared. Approximately half (50.2%) reported using topical corticosteroids for less than five days after the onset of their dermatological condition. More than half (56.5%) reported that they are aware that topical corticosteroids are a first-line drug for the treatment of various dermatological conditions (such as eczema, contact dermatitis (which causes symptoms such as dandruff and scaly patches on the skin), and psoriasis.

Table 2: Topical corticosteroids utilization pattern.

Variable	Frequency	Percentage
Have you used topical corticosteroids? (Yes)	872	46.2%
If yes, how many days did you use topical corticosteroids during each episode? (n= 872)		
1-3	340	39.0%
4-6	265	30.4%
7-9	86	9.9%
10 days and above	181	20.8%
Was the use of topical corticosteroids effective? (n= 872) (Yes)	774	88.8%
Were topical corticosteroids discontinued immediately after improvement in your dermatological condition? (n= 872)(Yes)	716	82.1%
Are you aware that topical corticosteroids can treat various dermatological conditions (such as eczema, contact dermatitis (which causes symptoms such as dandruff and scaly patches on the skin) and psoriasis)? (Yes)	1,156	61.2%
Were topical corticosteroids used until the skin lesions completely disappeared? (n= 872)(Yes)	572	65.5%
How many days after the onset of your dermatological condition were topical corticosteroids used? (n= 872)		
Less than 5 days	438	50.2%
6-10 days	150	17.2%
11-15 days	64	7.3%
16-20 days	44	5.0%
21 days and above	176	20.2%
Are you aware that topical corticosteroids are a first-line drug for treating various dermatological conditions (such as eczema, contact dermatitis (which causes symptoms such as dandruff and scaly patches on the skin) and psoriasis)? (Yes)	1,067	56.5%

Around half of the study participants (47.1%) reported worrying about side effects when they used topical corticosteroids. Around 15.0% reported having delayed a hospital visit due to concerns about prescribing topical corticosteroids. A similar percentage of them (16.4%) reported that they had declined a prescription for topical corticosteroids, and 17.0% reported that they had not applied the prescribed topical corticosteroids. 19.0% of them reported that they think that topical corticosteroids should never be used for dermatological conditions. More

than half (57.3%) reported using other topical ointments labelled 'without steroids.' Local skin irritation and the appearance of acne were the most frequently reported side effects participants were concerned about when using topical corticosteroids. Around one-fifth of the study participants (21.1%) reported having experienced the associated side effects of topical corticosteroids, of which local skin irritation and the appearance of acne were the most frequently encountered side effects, with 53.8% and 29.4%, respectively, Table 3.

Table 3: The relationship between the demographic factors of the participants and their level of knowledge about depression.

Number	Variable	Frequency	Percentage
1	Were you concerned about side effects when you used topical corticosteroids? (Yes)	889	47.1%
2	Have you ever delayed a hospital visit because of concerns about the prescription of topical corticosteroids for you? (Yes)	291	15.4%
3	Have you ever refused a prescription for topical corticosteroids for yourself? (Yes)	309	16.4%
4	Have you ever not applied prescribed topical corticosteroids? (Yes)	321	17.0%
5	Do you think topical corticosteroids should never be used for dermatological conditions? (Yes)	354	18.7%
6	Have you used other topical ointments labelled "without steroids"? (Yes)	1,083	57.3%
7	What side effects are you concerned about? (More than one answer could be chosen)		
	Local skin irritation	907	48.0%
	The appearance of acne	592	31.3%
	Skin pigmentation	576	30.5%
	Relapse or rebound	487	25.8%
	Skin atrophy	488	25.8%
8	Do you think you have experienced the associated side effects of topical corticosteroids? (Yes)	398	21.1%
	If 'yes,' what side effects? (More than one answer could be chosen)		
	Local skin irritation	214	53.8%
	The appearance of acne	117	29.4%
	Skin pigmentation	108	27.1%
	Relapse or rebound	87	21.9%
9	Skin atrophy	65	16.3%
	Hypertrichosis	57	14.3%

The study participants showed a low level of phobia about using topical corticosteroids, with a mean phobia score of 1.7 (SD: 1.6), representing 28.3% (out of the maximum phobia score). The mean phobia score showed a statistically significant difference between the participants

who reported experiencing or are presently experiencing skin disease ($p < 0.05$), (Table 4). Participants who had never experienced any skin disease showed a higher level of phobia of using topical corticosteroids compared to others.

Table 4: The mean score of topical corticosteroid phobia stratified by demographics. (* $p \leq 0.05$)

Variable	Mean phobia score (standard deviation)	P-value
Gender		
Female	1.7 (1.6)	0.230
Male	1.8 (1.7)	
Age		
18-25 years	1.7 (1.6)	0.388
26-30 years	1.8 (1.7)	
31-35 years	1.5 (1.5)	
36-40 years	1.6 (1.6)	
41-45 years	1.8 (1.7)	
46-50 years	1.6 (1.3)	
51 years and over	1.9 (1.8)	
Marital status		
Single	1.7 (1.6)	0.477
Married	1.7 (1.6)	
Divorced	1.7 (1.5)	
Widowed	2.2 (2.0)	
Education		
Secondary school or lower	1.8 (1.7)	0.597
Diploma	1.8 (1.6)	
Bachelor	1.7 (1.6)	
Higher education	1.7 (1.6)	
Occupation		
Student	1.7 (1.6)	0.633
Unemployed	1.7 (1.7)	
Working in the healthcare sector	1.8 (1.6)	
Working outside the healthcare sector	1.7 (1.6)	
Retired	1.9 (1.8)	
Monthly income		
3000 SAR or lower	1.7 (1.6)	0.123
3000-6000 SAR	1.5 (1.4)	
6000-9000 SAR	1.8 (1.6)	
9000 SAR and above	1.8 (1.7)	
Have you ever suffered from skin disease, or are you currently suffering from it?		
No	1.8 (1.7)	0.048*
Yes	1.6 (1.6)	
For how many years have you suffered from this dermatological condition?		
Less than one year	1.5 (1.5)	0.606
1-3 years	1.7 (1.6)	
3-5 years	1.7 (1.7)	
More than 5 years	1.5 (1.6)	

The binary logistic regression analysis did not identify significant differences between the study participants regarding their fear of using topical corticosteroids ($p < 0.05$), Table 5.

Table 5: Binary logistic regression analysis.

Variable	Odds ratio (95% confidence interval)	P-value
Gender		
Female (Reference group)	1.00	
Male	0.99 (0.95-1.04)	0.778
Age		
18-25 years (Reference group)	1.00	
26-30 years	1.09 (0.82-1.43)	0.560
31-35 years	0.81 (0.55-1.18)	0.807
36-40 years	0.92 (0.65-1.29)	0.616
41-45 years	1.02 (0.68-1.53)	0.930
46-50 years	0.78 (0.51-1.19)	0.245
51 years and over	1.19 (0.81-1.75)	0.381
Marital status		
Single (Reference group)	1.00	
Married	1.02 (0.85-1.24)	0.807
Divorced	1.07 (0.57-2.02)	0.841
Widowed	1.14 (0.50-2.60)	0.752
Education		
Secondary school or lower (Reference group)	1.00	
Diploma	1.10 (0.82-1.49)	0.525
Bachelor	0.89 (0.74-1.07)	0.205
Higher education	0.88 (0.61-1.26)	0.471
Occupation		
Student (Reference group)	1.00	
Unemployed	0.95 (0.74-1.22)	0.698
Working in the healthcare sector	1.18 (0.88-1.58)	0.262
Working outside the healthcare sector	0.92 (0.74-1.15)	0.476
Retired	1.15 (0.75-1.75)	0.531
Monthly income		
3000 SAR or lower (Reference group)	1.00	
3000-6000 SAR	0.81 (0.61-1.07)	0.141
6000-9000 SAR	1.08 (0.78-1.51)	0.634
9000 SAR and above	1.05 (0.85-1.29)	0.659
Have you ever suffered from skin disease, or are you currently suffering from it?		
No (Reference group)	1.00	
Yes	0.95 (0.79-1.14)	0.596
For how many years have you suffered from this dermatological condition?		
Less than one year (Reference group)	1.00	
1-3 years	0.96 (0.70-1.31)	0.774
3-5 years	0.844 (0.56-1.28)	0.425
More than 5 years	1.11 (0.87-1.42)	0.394

Discussion

This study aimed to explore the use of topical corticosteroids and fears about their use among the Saudi population. Around half of the study participants reported having used topical corticosteroids. The vast majority of them reported that topical corticosteroids were effective in managing their dermatological condition. More than half know that topical corticosteroids can treat several dermatological conditions, such as eczema, contact dermatitis, and psoriasis. About half were concerned about side effects when they used topical corticosteroids. About half have experienced the associated side effects of topical corticosteroids, of which local skin irritation and the appearance of acne were the most commonly encountered side effects. The study participants showed a low level of phobia about using topical corticosteroids, and patients who had never experienced any skin disease showed a higher level of phobia.

Around half of the participants (46.2%) reported having used topical corticosteroids before. More than half of them (61.2%) know that topical corticosteroids can treat several dermatological conditions, such as eczema, contact dermatitis, and psoriasis. Eczema, contact dermatitis, localized vitiligo, localized bullous pemphigoid, and psoriasis are just a few common conditions treated with topical corticosteroids (24,25). A study in China reported that 86.0% of the patients used topical corticosteroids to manage eczema (22). The vast majority (88.8%) of the current study reported that topical corticosteroids effectively managed their dermatological condition. This confirmed the findings of a previous study that reported that 60% of parents of children diagnosed with eczema confirmed their acceptability of topical corticosteroids in managing their children's condition (26).

In our study, 47.1% of the participants reported worrying about side effects when using topical corticosteroids. A previous survey of parents of children with eczema reported that around 96% of them were concerned about the side effects associated with the use of topical corticosteroids, of whom 93% delayed the medical treatment of their children due to their fear about the side effects of steroids (22). A study in the United Kingdom reported that 73% of participants were worried about using topical corticosteroids for themselves or their children (27). Another study in China reported that 60% of eczema patients feared using topical corticosteroids (28). In patients with the same study, only 20% of the non-eczematous skin disease feared using topical corticosteroids (28). Unfortunately, patients and physicians abuse topical corticosteroids at an alarming rate. Today, red-burning skin syndrome and topical steroid addiction are recognized clinical conditions (29). As a result, physicians everywhere are beginning to identify the issue of steroid phobia, which is sometimes linked to simple fear (30). Fear of topical corticosteroids is associated with inappropriate use of this medication, including discontinuation of treatment and requesting spare medications (22,26). A previous study reported that 79.0% of the patients discontinued topical corticosteroids immediately after improvement in their dermatological condition (22). Short usage

periods and premature medication discontinuation result in disease relapse (31). To preserve the therapeutic impact after improvement in dermatological conditions, physicians in clinical practice must inform patients to continue steroid therapy for a few additional days. Untreated dermatological conditions such as eczema can progress or lead to infectious complications (3,32).

About one-fifth (21.1%) of the participants have experienced the associated side effects of topical corticosteroids, of which local skin irritation and the appearance of acne were the most commonly encountered side effects, with 53.8% and 29.4%, respectively. The most frequently reported side effects of topical corticosteroids is a burning or stinging sensation when the medicine is applied. However, this usually improves as your skin gets used to the treatment. Less common side effects can include: worsening or spreading of a skin infection you already have (26,28). Despite that, in clinical practice, hypertrichosis and skin atrophy are associated with the long-term use of topical corticosteroids; skin dyspigmentation and atrophy or hypertrichosis are common side effects of concern for many patients (31,33).

Participants in our study showed a low level of phobia about using topical corticosteroids, with a mean phobia score of 1.7 (SD: 1.6), representing 28.3% (out of the maximum phobia score). Previous studies have reported that the nature of fears about the use of topical corticosteroids was mainly interpersonal and less frequently iatrogenic (28). Multiple studies have documented the prevalence of fear of using topical corticosteroids, which ultimately reduced the therapeutic efficacy of dermatological treatment (26,28). Patients fear topical corticosteroids due to the media exaggerating their side effects while using them to treat dermatological conditions (22). In our study, participants who had never experienced skin disease before showed more phobia about using topical corticosteroids than others. Fear of using topical corticosteroids has an important influence on adherence (34). A previous study reported that 36% of the patients did not adhere to their topical corticosteroid therapy due to their fear of its associated side effects (34). Topical corticosteroid phobia was related to the need for assurance, the conviction that topical corticosteroids enter the bloodstream through the skin, a history of adverse events, conflicting information on how much cream to use, a desire to self-treat for as little time as possible and poor treatment adherence (34). Healthcare professionals play an essential role in patient education regarding the proper use of topical corticosteroids (35–37). Physicians should educate patients about topical corticosteroids and the importance of compliance with physician's therapy instructions (38,39). This should include topical corticosteroids as per their prescription in terms of their potency, frequency, and duration of therapy. They should be informed about the negative consequences of improper use of topical corticosteroids, including disease relapse and the occurrence of unfavorable adverse effects (40). They should be informed about the importance of topical corticosteroid maintenance therapy to minimize flare-ups or relapses (41).

Limitations

To our knowledge, this study is one of the first few studies to examine topical corticosteroids and the phobia regarding their use among the general Saudi population. However, this study has limitations. First, we could not confirm any association due to its design limitation. Furthermore, a self-administered survey conducted online on a platform that excluded some of the targeted population could be biased.

Conclusion

Regarding topical corticosteroids, a phobia is a common problem that warrants further investigation. It affected patients' compliance with corticosteroid therapy, which ultimately resulted in a worsening of their clinical outcomes. Healthcare professionals should focus on education on topical corticosteroids and correct any misconceptions about this group of medications. Educational efforts should be directed toward all patients with dermatological conditions that warrant using topical corticosteroids, specifically those who have never experienced skin diseases.

Statement of the Institutional Review Board

The IMSIU research ethics committee approved the study (project number 305-2022; approval date, 22 July 2022). All writings were made in accordance with the ethical principles of the Declaration of Helsinki. A brief description of the study was included with the survey link, with a full explanation on the survey's front page. The participants were told that consent was given by filling out the survey. All participants' consent and data were obtained in complete confidence throughout the study.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

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