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PREVALENCE OF TOPICAL CORTICOSTEROIDS USE WITHOUT PRESCRIPTION AMONG FEMALES IN KSA

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Abstract

Background: Topical corticosteroids (TCs) are widely used dermatological medications that can lead to significant side effects, particularly when used without medical supervision. In Saudi Arabia, a previous study reported that 43.1% of users did so without prescriptions, with female gender identified as a risk factor.
Objective: This study aimed to evaluate the prevalence of topical corticosteroid usage without prescriptions among females in the Kingdom of Saudi Arabia (KSA).
Methods: A cross-sectional survey was conducted from July to November 2024, employing a structured questionnaire administered to female citizens aged 15-40 who used TCs without prescriptions. Participants were recruited from diverse provinces in KSA, and data on demographics, usage patterns, awareness of side effects, and sources of information regarding TCs were collected.
Results: A total of 400 females participated, with a mean age of 30.4 years. The findings revealed a high prevalence of TCs usage without prescriptions, with 72.3% purchasing them independently. Alarmingly, 90% believed their products contained TCs. Notably, 44.8% used TCs for skin whitening, and 27.8% for acne treatment. Most participants (57.8%) sourced information from non-professional avenues, primarily the internet. Awareness of side effects was high, with over half acknowledging potential risks, yet a significant proportion (39%) remained unaware of any side effects. Statistical analysis indicated significant correlations between prescription use and demographic factors such as age, marital status, education, and occupation.
Conclusion: This study highlights alarming rates of topical corticosteroid use without prescriptions among females in KSA, predominantly for cosmetic purposes. The reliance on non-professional sources for information poses serious public health risks, underscoring an urgent need for targeted educational

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interventions to enhance awareness of the potential dangers associated with unsupervised TCs use. Future strategies should focus on improving medical oversight and educating the public about safe practices in dermatological care.

Keywords: Saudi Arabia, prevalence, topical corticosteroids, abuse of topical corticoids, misuse of topical corticoids.

Introduction:

Topical corticosteroids (TCs) are one of the medications most frequently used, in the practice of dermatology [1].

When administered to the face, they might cause unusual side effects such as atrophy, telangiectasia, hypertrichosis, acne form outbreaks, rosacea [2]. These steroids can be taken on their own or in combination with other fairness creams to create a hazardous combination [3].

Sulzberger's 1952 discovery of topical steroids significantly impacted dermatology history [4]. heavily utilized by dermatologists and are highly successful in treating many different kinds of skin conditions [5]. Such as inflammatory, autoimmune, and lymphoproliferative illnesses, ranging from brain tumors to minor skin lesions [6].

In 2021, a cross-sectional study has been conducted about the prevalence of topical corticosteroid use without prescription in Saudi Arabia and the results has shown that 43.1% of respondents used topical corticosteroids without a prescription. The main identified risk factor for this behavior was the female gender. 36.6% of the respondents were using it without a prescription because the problem seemed insignificant to consult a doctor, 23.7% were pruritus cases and 19.9% were for cosmetic purposes. Moreover, 25.6% of participants were found to have side effects such as, hypopigmentation and skin redness [7].

Furthermore, a study done in 2021 about the inappropriate use of topical corticosteroids in the dermatology outpatient. It revealed that 58.8% of the 80 individuals who received treatment during the observation period were female. 72.5% of the subjects had previously used local corticosteroids; 62.50% had done so on the pharmacist's advice; 66.30% had no recent diagnosis or no diagnosis at all; and 21.25% had been using the drug for more than a month [8].

Moreover, a third study done in 2021 about the prevalence, pattern, source of drug information, and reasons for self-medication among dermatology patients, showed that the percentage of those who self-medicated was 63.7%. exclusively 11.7% of self-medicators used herbal remedies, 45.6% used exclusively western medications, and 42.6% used both western and herbal medications. Easy accessibility was cited as the cause of self-medication in 54% of cases, followed by difficulty visiting a doctor 16.8% and trouble receiving medical care 13.8%. For 46.3% of the drug information, a pharmacist was the source, and for 26.5%, a friend. There was a considerable increase in self-medication among men and people with inflammatory disorders. Age and educational attainment had an impact on the self-medication pattern [9].

Another recent study conducted in 2019 about the misuse of topical corticosteroids in women in Hail region Saudi Arabia where there were 769 female participants. It showed that the age group of 31 to 40 years old included more than 30.3% of the patients. The primary goals of topical corticosteroids were wrinkle reduction and skin lightening. In Hail City, ladies are notorious for abusing topical corticosteroids for a variety of reasons, the primary one being bleaching and skin imperfection removal [10]. To our knowledge, there is inadequate information and an insignificant number of published studies that have focused on the prevalence of topical corticosteroids used without prescription among

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females in KSA. Consequently, this area of research is excellent for exploring. This study aimed to determine the prevalence of topical corticosteroids use without prescription among females in KSA.

Methodology:

Study design and Setting:
This cross-sectional questionnaire survey conducted in the period from July to November 2024 in Saudi Arabia, based on a structured questionnaire developed by authors. The study's participants were female KSA citizens between the ages of 15 and 40 who had been using topical corticosteroids.

Sample size:
Data collection involved target sample of 384 participants (95% degree of confidence). Sample size was estimated by using the Qualtrics calculator.
The Sample size was estimated by using this formula:
n= P (1-P) * Zα 2 / d 2 with a confidence level of 95%.
n: Calculated sample size
Z: The z-value for the selected level of confidence (1- a) = 1.96.
P: An estimated prevalence of knowledge
Q: (1 – 0.50) = 50%, i.e., 0.50
D: The maximum acceptable error = 0.05. So, the calculated minimum sample size was: n = (1.96)2 X 0.50 X 0.50/ (0.05) 2 = 384.

Inclusion and Exclusion criteria:
The inclusion criteria were the Saudi and non-Saudi female population who were using corticosteroids without prescription and who were at least 15 years old, from all provinces of Saudi Arabia.
Males of all ages, females below 15 years old, and females who did not use corticosteroids without a prescription were excluded.

Method for data collection, instrument and score system:
The survey instrument was a self-administered questionnaire, The questionnaire participant's answers to the survey questions. The questionnaire consists of three parts. Part 1 starts with a brief description of the study and the consent question. Part 2 includes demographic features such as age, gender, residential area, educational qualifications, and income. Part 3, The participants was asked about the prevalence and general knowledge regarding the side effects of topical steroids.

Pilot test:
Fifteen people were given the questionnaire and requested to complete it. This was done in order to assess the study's viability and the ease of use of the questionnaire. The pilot study's results were not included in the study's final analysis.

Analyzes and entry method:
The data was initially entered into the device using Microsoft Office Excel for Windows (2021). Afterwards, it was transferred to the Statistical Package for the Social Sciences (SPSS) software, version 25.

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Results:

Table (1) displays various demographic parameters of the participants with a total number of (400). The age distribution is relatively young with a mean of 30.4 years, standard deviation of 9.1 years. Of significance in this regard is the fact that almost half (51.3%) of participants aged below 29 years and flying above 35 years represents an appropriate balance. A total of 45.8% of our sample is married while single participants account for only 43.8%. It is important for appreciating the different ways that this sample of people approach and represent their lives. Almost half the participants hail from southern region, which could indicate geographic patterns that may have socio cultural dynamics. The occupational categories present are impressive of educational attainment; 68.8% achieved a university level or higher, likely allowing for this and the occupational categories to coexist, a 38.5% unemployed number signifies potential economic challenges within this demographic.

Table (1): Sociodemographic characteristics of participants (n=400)

Parameter		***No.***	***Percent (%)***
Age (Mean: 30.4, STD: 9.1)	Less than 23	96	24.0
	23 to 28	109	27.3
	29 to 35	85	21.3
	More than 35	110	27.5
Gender	Female	400	100.0
Marital status	Single	175	43.8
	Married	183	45.8
	Divorced	34	8.5
	Widowed	8	2.0
Residential region	Southern region	197	49.3
	Central region	71	17.8
	Eastern region	11	2.8
	Western region	121	30.3
Educational level	Middle school	4	1.0
	High school	121	30.3
	University and higher education	275	68.8
Occupation	Student	105	26.3
	Employed	128	32.0
	Retired	13	3.3
	Unemployed	154	38.5

As shown in figure 1, The data illustrated in this provided picture of a population with a significant preference for the skin topical treatments. A total sample size of 400 individuals and 4.5% (18 participants) out of the total population reported not use any form of skin topical treatment. However, with stark contrast, a large proportion, or 95.5% (382 people), said they do use such treatments.

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Figure (1): Illustrates whether participants use skin topical treatment.

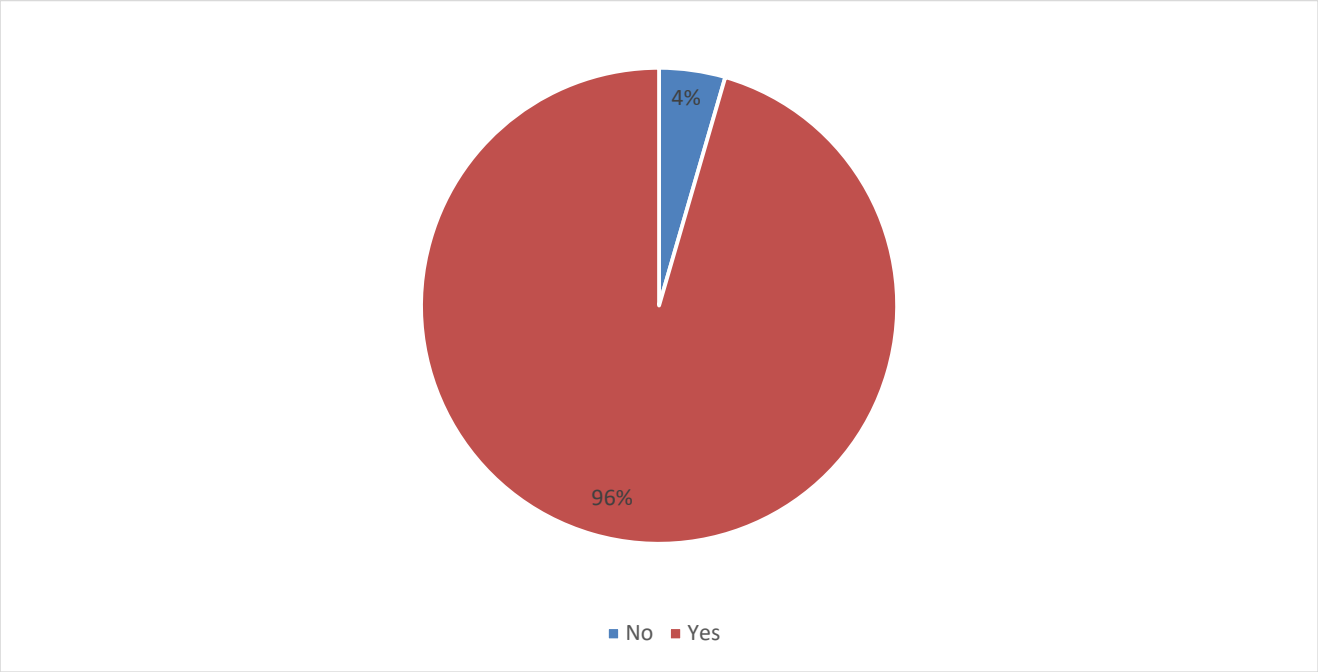

Table 2 shows tremendous prevalence of use of topical corticosteroids (TCS) without medical prescription among 400 subjects surveyed. An impressive number of 95.5% said topical treatments, and an upfront 90% of those thought their products contained TCS. What's more alarming: 72.3 percent of respondents said they purchased these corticosteroids without a doctor's prescription, suggesting an important flaw in medical oversight and patient education. Notably, the bulk of information about TCS usage was from nonprofessional sources, with 57.8 percent of them coming from internet search, family and friends underwent 47.8 percent.

Table (2): Parameters related to prevalence of topical corticosteroids use without prescription (n=400).

Parameter		***No.***	***Percent (%)***
Do you use any skin topical treatment?	No	18	4.5
	Yes	382	95.5
Is this topical skin treatment containing TCS?	No	40	10.0
	Yes	360	90.0
Are you using topical steroids products with doctors' prescription?	No	289	72.3
	Yes	111	27.8
What is the main source of information you learned about the Topical steroid? *	Articles or news from magazines, newspapers, and/or broadcasts	122	30.5

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	Friends and/or family	191	47.8
	Pharmacist	77	19.3
	Doctor	152	38.0
	TV health programs	51	12.8
	Leaflets	83	20.8
	Internet search	231	57.8
	Advertisement	105	26.3
	Others	18	4.5
how did you get access to topical steroid? *	I am using someone else's TCS	60	15.0
	Pharmacy and / or online pharmacy	289	72.3
	Online shopping websites	115	28.8
	Others	40	10.0

Results may overlap

As shown in figure (2), the data presented on the reasons for buying topical corticosteroids without prescription shows that there is a lot to understand about people's behavior in taking care and consumption of healthcare. 36.25% of the total sample of 400 respondents reported (115 people) that they considered their health problems to be too trivial to be investigated by a certified health professional. In addition, familiarity from the same medication led to self-medication in 36.75% (147 respondents), reaffirming the role of familiarity in health decisions. However, cost related barriers were evident, with 9.25% (37) mentioning that medical visits are unaffordable, and 8.25% (33), that they did not have enough time. Furthermore, 7.5% (30) of respondents stated their limited availability of appointments and 9.5% (38) mentioned restricted hospital access.

Figure (2): Illustrates reasons for purchasing topical corticosteroid without prescription among participants.

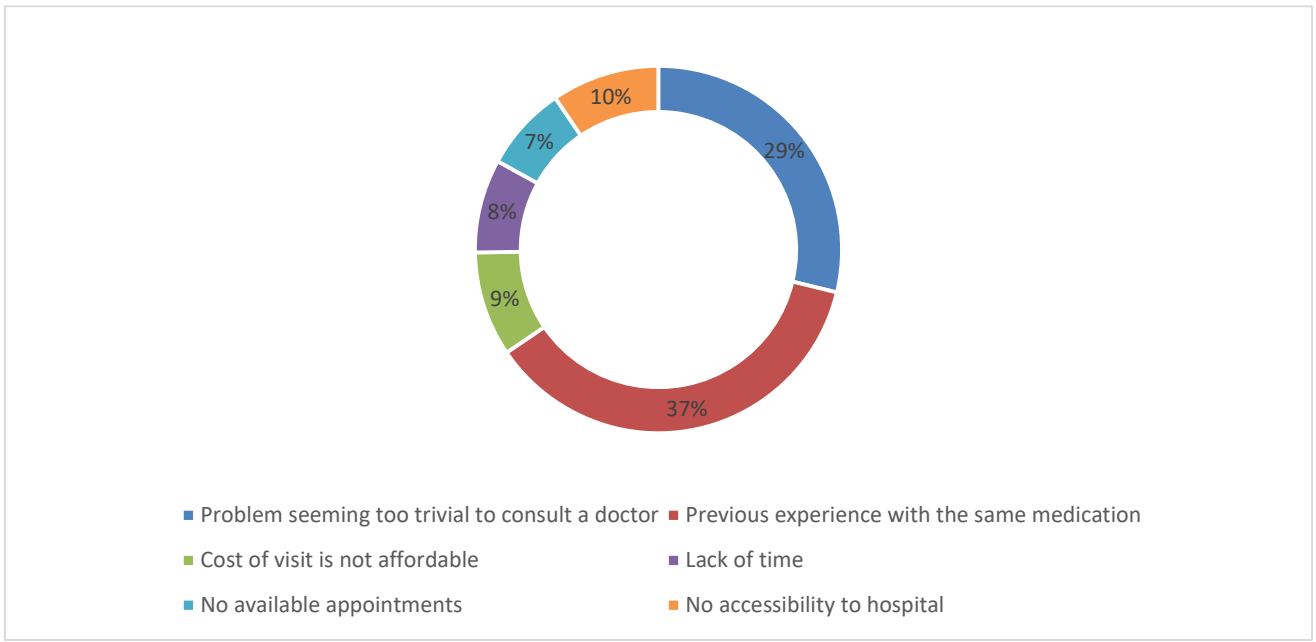

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Table 3 indicates that the data can give us important insights of use patterns and perception of topical corticosteroids in 400 participants. A major discovery is that 36.8% of respondents cited previous experience with the same product as their primary motivation to buy these over the counter in advance of medical consultation. If this is true, patient safety may be compromised because of a reliance on personal history rather than information relayed by professional guidance. There are several different reasons for utilization and 44.8% of utilizers use topical steroids for skin whitening and 27.8% for acne, two common reasons for nonprescription usage. Of note, most, particularly more than half (56.5%), state awareness of side effects, although a large number are either unaware or believe there are none. This is a cause for concern about the awareness and education of the public about potential risks with prolonged use of topical corticosteroids, as 39% of respondents don't identify any side effects.

Table (3): participants' reason for using topical steroids and awareness of their side effects (n=400).

Parameter		***No.***	***Percent (%)***
What are the Reasons for purchase Topical corticosteroid without prescription?	Problem seeming too trivial to consult a doctor	115	28.7
	Previous experience with the same medication	147	36.8
	Cost of visit is not affordable	37	9.3
	Lack of time	33	8.3
	No available appointments	30	7.5
	No accessibility to hospital	38	9.5
What are the Reasons of using Topical corticosteroid? *	Eczema	72	18.0
	Whitening	179	44.8
	Moisturizing	104	26.0
	Acne	111	27.8
	Rash or erythema	46	11.5
	Atopic dermatitis	39	9.8
	Seborrheic dermatitis	39	9.8
	Arthritis or pain relief	17	4.3
	Itchy skin	89	22.3
	Nappy rash	13	3.3
	Psoriasis	29	7.3
	Fungi infection	12	3.0
	Others	44	1.1
Are you aware of the side effects of topical steroids?	Aware of the side effects	226	56.5
	Unaware of the side effects	57	14.2
	No side effects	117	29.3
What are the side effects? *	Thinning of the skin	148	37.0
	Changes in skin color	99	24.8
	Itchy skin	59	14.8
	Skin irritation	92	23.0
	Telangiectasia	69	17.3
	Dry skin	63	15.8

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	Susceptibility to skin infections	38	9.5
	Acne	28	7.0
	Easy bruising	45	11.3
	Hypertrichosis	22	5.5
	Others	22	5.5
	Systemic side effects	33	8.3
	I don't know	156	39.0
How often do you use TCS?	Once a day	143	35.8
	Twice a day	94	23.5
	More than 2 times a day	8	2.0
	As needed	155	38.8
For What duration have you been using topical corticosteroid?	Less than a month	171	42.8
	1-6 months	145	36.3
	6-12 months	48	12.0
	More than 12 months	36	9.0

Results may overlap

Table (4) shows that using topical steroids products with doctors' prescription has statistically significant relation to age (P value=0.0001), marital status (P value=0.001), residential region (P value=0.0001), educational level (P value=0.0001), and occupational status (P value=0.0001).

Table (4): Relation between using topical steroids products with doctors' prescription and sociodemographic characteristics.

Parameters		***Are you using topical steroids products with doctors' prescription?***		***Total (N=400)***	***P value****
		No	**Yes**		
Age	Less than 23	54	42	96	0.0001
		18.7%	37.8%	24.0%	
	23 to 28	73	36	109	
		25.3%	32.4%	27.3%	
	29 to 35	70	15	85	
		24.2%	13.5%	21.3%	
	More than 35	92	18	110	
		31.8%	16.2%	27.5%	
Marital status	Single	113	62	175	0.001
		39.1%	55.9%	43.8%	
	Married	136	47	183	
		47.1%	42.3%	45.8%	
	Divorced	32	2	34	
		11.1%	1.8%	8.5%	
	Widowed	8	0	8	
		2.8%	0.0%	2.0%	

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Residential region	Southern region	133	64	197	0.0001
		46.0%	57.7%	49.3%	
	Central region	51	20	71	
		17.6%	18.0%	17.8%	
	Eastern region	3	8	11	
		1.0%	7.2%	2.8%	
	Western region	102	19	121	
		35.3%	17.1%	30.3%	
Educational level	Middle school	0	4	4	0.0001
		0.0%	3.6%	1.0%	
	High school	103	18	121	
		35.6%	16.2%	30.3%	
	University and higher education	186	89	275	
		64.4%	80.2%	68.8%	
Occupational status	Student	61	44	105	0.0001
		21.1%	39.6%	26.3%	
	Employed	112	16	128	
		38.8%	14.4%	32.0%	
	Retired	9	4	13	
		3.1%	3.6%	3.3%	
	Unemployed	107	47	154	
		37.0%	42.3%	38.5%	

****P value was considered significant if ≤ 0.05.***

Table (5) shows being aware of the side effects of topical steroids has statistically significant relation to residential region (P value=0.004), educational level (P value=0.003), and occupational status (P value=0.013). It also shows statistically insignificant relation to age and marital status.

Table (5): Aware of the side effects of topical steroids in association with sociodemographic characteristics.

Parameters		***Are you aware of the side effects of topical steroids?***		***Total (N=400)***	***P value****
		Aware	**Unaware or no**		
Age	Less than 23	54	42	96	0.580
		23.9%	24.1%	24.0%	
	23 to 28	66	43	109	
		29.2%	24.7%	27.3%	
	29 to 35	43	42	85	
		19.0%	24.1%	21.3%	
	More than 35	63	47	110	
		27.9%	27.0%	27.5%	
Marital status	Single	99	76	175	0.832
		43.8%	43.7%	43.8%	
	Married	106	77	183	

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		46.9%	44.3%	45.8%	
	Divorced	17	17	34	
		7.5%	9.8%	8.5%	
	Widowed	4	4	8	
		1.8%	2.3%	2.0%	
Residential region	Southern region	113	84	197	0.004
		50.0%	48.3%	49.3%	
	Central region	28	43	71	
		12.4%	24.7%	17.8%	
	Eastern region	9	2	11	
		4.0%	1.1%	2.8%	
	Western region	76	45	121	
		33.6%	25.9%	30.3%	
Educational level	Middle school	2	2	4	0.003
		0.9%	1.1%	1.0%	
	High school	53	68	121	
		23.5%	39.1%	30.3%	
	University and higher education	171	104	275	
		75.7%	59.8%	68.8%	
Occupational status	Student	52	53	105	0.013
		23.0%	30.5%	26.3%	
	Employed	85	43	128	
		37.6%	24.7%	32.0%	
	Retired	4	9	13	
		1.8%	5.2%	3.3%	
	Unemployed	85	69	154	
		37.6%	39.7%	38.5%	

P value was considered significant if ≤ 0.05.

Discussion:

Topical corticosteroids are the most frequently prescribed medications in the field of dermatology. They are utilized for a range of skin conditions, including psoriasis, atopic dermatitis, seborrheic dermatitis, intertrigo, eczema, and lichen simplex chronicus, owing to their anti-inflammatory, immunosuppressive, and anti-mitogenic properties. TCS are categorized into various groups/classes based on their potency [11]. They provide rapid symptomatic relief in nearly all inflammatory dermatoses. The beneficial clinical effects arise from their anti-inflammatory, vasoconstrictive, anti-proliferative, and immunosuppressive characteristics. However, inappropriate or excessive use can lead to significant local adverse effects. The misuse of TCS has emerged as a major concern in many countries worldwide [12]. Contributing factors include non-prescription sales, a lack of awareness, and limited access to qualified dermatologists [13]. Dermatologists frequently encounter various side effects in daily practice due to the unintended use of topical steroids for conditions like acne, rosacea, or hypertrichosis. Additionally, topical steroids can heighten local susceptibility to infections caused by bacteria, fungi, and viruses. A new term, "topical steroid dependent face (TSDF)," has recently been introduced to describe various symptoms that worsen, such as erythema or burning sensations, when attempts are made to discontinue topical steroid use [14]. Numerous studies have sought to underscore

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the adverse effects and harm resulting from the misuse of topical steroids and their combinations, bringing these issues to the attention of regulatory authorities regarding the dangers posed by the unrestricted availability of these creams [15]. In this study, we aimed to determine the prevalence of topical corticosteroids use without prescription among females in KSA.

The findings from our study underscore a critical public health concern regarding the misuse of topical corticosteroids among surveyed females, revealing that a substantial 95.5% have engaged in the usage of topical treatments, with a striking 90% expressing the belief that these treatments contained TCS. Alarmingly, 72.3% acquired these products without medical prescriptions, reflecting significant gaps in medical oversight and patient education. These observations resonate with similar reports from other studies indicating the prevalent use of TCS for cosmetic purposes across various regions, particularly in Asian and African countries. For instance, research has shown that two-thirds of participants in Ethiopia, Iraq, and Nigeria utilize TCS primarily for skin lightening or depigmentation, mirroring the motivational trend we observed where 44.8% of our subjects pursued skin whitening as a primary reason for their TCS use [16,17,18]. Additionally, 29% of individuals in India were found to apply TCS as a fairness or aftershave cream, reinforcing the trend of using TCS as cosmetic agents [19]. In accordance with our findings that a majority of TCS users often derive their information from non-professional sources, a study by Vivek Kumar Dey et al. [20] highlighted a significant concern with 5.63% of participants experiencing misuse and adverse effects related to TCS, particularly within the 10-29-year age group, who constituted over 65% of these cases. Here too, skin lightening emerged as a primary motivation, alongside a notable incidence of acne (37.99%) and telangiectasia (18.99%) as common adverse effects. Our results align with Abir Saraswat et al.'s findings, where 14.8% reported TCS usage, with 29% using these agents for fairness/general purposes and 24% for acne treatment [21]. Furthermore, research by Al-Aojan et al. [22] highlighted that 43.1% of respondents used TCS without prescriptions, where female gender emerged as the sole risk factor for unsupervised use. The motive to bypass professional consultation, primarily due to perceiving the skin issue as trivial, was reported by 36.6% of respondents, comparable to our observation that many relied on prior experiences (36.8%) to justify their purchases. Moreover, informal sources for TCS recommendations were notably prevalent, evidenced in studies from Pakistan (64%), India (50.2%), and Iraq (20.7%) [23,24,25]. Our findings reiterated that educational status drastically influences awareness and use, similar to data indicating that individuals with lower educational backgrounds were twice as likely to use TCS without prescriptions in Ethiopia [26]. Alarming trends were also noted in Madagascar, where 34.4% of TCS misusers were illiterate, emphasizing the impact of education on health literacy [27]. Notably, a multicentric study by Saraswat et al. [28], which engaged 2296 patients with facial dermatoses, revealed that among them, 433 patients were regularly using topical steroids, further illuminating the extent of this prevalent issue and the pressing need for effective public health interventions aimed at educating the population about the risks of unsupervised TCS use.

Conclusion:

In conclusion, this study highlights a concerning prevalence of topical corticosteroid (TCS) use without prescriptions among females in Saudi Arabia, with 72.3% obtaining these products without medical guidance. The significant reliance on non-professional information sources for TCS use raises critical concerns regarding public health and patient safety. Alarmingly, a substantial portion of participants reported using TCS for cosmetic purposes, particularly skin whitening, emphasizing a trend that mirrors findings from other regions. Furthermore, the awareness of potential side effects among users remains inadequate, with many unaware of the risks associated with prolonged use. These findings prompt urgent calls for targeted public health education initiatives aimed at increasing awareness of the dangers

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of unsupervised TCS use and promoting safe skincare practices. Enhancing regulatory measures around the sale of topical corticosteroids is essential to mitigate misuse and safeguard public health, particularly among vulnerable populations such as young females.

Acknowledgement:

We thank the participants who all contributed samples to this study.

Ethical approval:

An informed consent was obtained from each participant after explaining the study in full and clarifying that participation is voluntary. Data collected were securely saved and used for research purposes only.

Funding:

There was no external funding for this study.

Conflict of interests:

The authors declare no conflict of interest.

Informed consent:

Written informed consent was acquired from each individual study participant.

Data and materials availability:

All data associated with this study are present in the paper.

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