

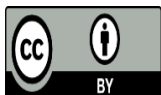
Knowledge and attitudes regarding topical misuse of corticosteroids in Libya

Intesar A.A. Alkilane*  , Mustafa A. Alsageer  , Fatima A. Almahdi  and Fatima K. Ahmed 

Department of Pharmacology, Faculty of Pharmacy, Sebha University, Sebha, Libya

*Author to whom correspondence should be addressed

Received: 02-01-2024, Revised: 23-02-2024, Accepted: 28-02-2024, Published: 31-03-2024



This is an open-access article distributed under the [Creative Commons Attribution License](https://creativecommons.org/licenses/by/4.0/), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

HOW TO CITE THIS

Alkilane et al. (2024) Knowledge and attitudes regarding topical misuse of corticosteroids in Libya. *Mediterr J Pharm Pharm Sci.* 4 (1): 111-120. [Article number: 149]. <https://doi.org/10.5281/zenodo.10732533>

Keywords: Aware, female, hyperpigmentation, lightening, self-medication, topical corticosteroid

Abstract: Prescription drug misuse has emerged as a significant problem over the past decade, particularly topical corticosteroids for skin lightening. This study aimed to assess the misuse of topical corticosteroids among the female population in southern Libya; to determine prevalence, awareness, attitude, and practice regarding this drug misuse. A descriptive, cross-sectional questionnaire was distributed on January 2022 to females aged between 16-45 years old in southern Libya. Out of 200 distributed questionnaires, 155 were returned with a response rate of 77.5%. The majority of the participants were aged 16-25 years (n=138, 89.0%) and over two-thirds of participants, said they obtained lightening products containing cortisone from pharmacies (n=107, 69.0%) while 36 participants indicated they obtained these products from cosmetic shops (23.2%). More than three-quarters of the participants said they were aware that they should read product ingredients (n=120, 77.4%). Just over one-quarter of respondents indicated they used the product on their face almost daily (n=41, 26.5%) while 28 participants denied using it (18.1%). The most common source of information about topical corticosteroids among participants was the Internet (n=51, 32.9%), followed by dermatologists (n=41, 26.5%), and pharmacists (n=31, 20.0%). Almost half of respondents were aware that topical corticosteroids can cause harmful effects (n=75, 48.4%). The most common indications reported for using topical corticosteroids were whitening (23.3%), and acne treatment (54.2%). Over two-thirds of participants, declared they would not use topical lightening products if they contained corticosteroids (n=107, 69.0%). In a similar attitude, nearly a third of participants stated that they would never use corticosteroid medications again if they knew about the negative effects of whitening (n=51, 32.9%). The majority of females, (87.7%), concur that only pharmacies should be able to sell and prescribe topical corticosteroid medications. The study's findings indicate that topical corticosteroids are frequently misused and that to lessen contraindications, especially for prolonged use, it is imperative to provide basic care to females who continue using topical corticosteroids in public or unlicensed marketing settings.

Introduction

Prescription drug misuse has emerged as a significant problem over the past decade, particularly topical corticosteroids for skin lightening. The prevalence of prescription drug misuse is considered to be the use of prescription drugs from a non-medical source, use of more than a prescribed dose, or use for a non-medical or recreational purpose [1]. Self-medication has traditionally been defined as “the taking of drugs, herbs or home remedies on one's initiative, or on the advice of another person, without consulting a doctor [2, 3]. The

underlying motivations for use may include using the medication for self-treatment of systemic or topical health problems. A misperception in some people is that prescription drugs are relatively safer or less harmful for users than non-prescribed products. However, there is a range of short- and long-term health consequences of these products as illegal drugs when used without medical supervision. There is a growing admission of unhealthy consequences that can arise as a result of the non-medical use of prescribed drugs and pharmaceutical products [4]. Topical corticosteroids (TCs) are considered the most commonly prescribed medications in dermatology clinics since they have favorable clinical effects mediated by their anti-inflammatory, vasoconstrictive, anti-proliferative, immunosuppressive properties [5] potent antipruritic, atrophogenic, melanopenic, sex-hormonelike on the skin [6]. TCs particularly the potent ones may produce hazardous side-effects if they are used inappropriately without proper indications or for a prolonged period. A large bulk of topical preparations are sold from community pharmacies and medical shops. While some of these are sold as prescription drugs, a large proportion is sold without prescriptions. TCs may also be combined with other medicines to treat bacterial or fungal infections. Since the introduction of the first topical TCs “hydrocortisone” in 1952, multiple agents have come up in the armory ranging from low potency to ultrahigh potency TCs [7]. Meanwhile, the misuse of topical steroids has also increased indiscriminately, especially over the face which further has increased various adverse effects [8]. However, the prescriber must be aware of several factors that must be considered before the drug is prescribed. A major concern for dermatologists in recent years has been the irrational use of topical steroids due to unethical selling by community pharmacy staff not only as prescription drugs but also as non-prescription drugs. Topical steroids are highly susceptible to misuse by patients, pharmacists and physicians themselves as shown by several studies. In several countries where potent TCs are easily available over-the-counter at a low price, misuse has been noticed among the general population, producing many adverse effects [9]. Inappropriate usage of TCs can lead to side effects some of which such as depigmentation has led to the use of the medication as a "fairness" cream. Disorders of hyperpigmentation and skin lightening treatments significantly impact the dermatologic, physiologic, psychologic, economic, social, and cultural aspects of life. Skin-lightening compounds or bleaching agents are chemicals used to achieve a lighter skin tone or whiten skin effects [9]. A review of the scientific literature demonstrates that individuals from diverse communities around the world, including Africa, North America, Europe, Asia, and the Middle East practice skin bleaching [10]. In Nigeria, about 75.0% of women bleach their skin thus making it the greatest rate of bleaching product usage in Africa [11]. Most Ghanaian women believe that beauty is incomplete if their skin remains black [11]. TCs have long been used for their skin-lightening properties and are often the most commonly used skin lighteners in Africa [12]. Despite being a common problem, there is little information available in Libya about the use of TCs in communities. This study aims to investigate the attitudes, knowledge, and practices of females in southern Libya about the non-medical use of TCs to gain a better understanding of TCs use.

Materials and methods

This is a descriptive, cross-sectional survey to study the misuse of TCs among the female population in southern Libya. The study period started in January until June 2022. They completed a structured, self-administered questionnaire adapted from previous studies [4]. The survey contained 17 item questions that required varied response types. Most questions required specific categorical answers but some questions included another box to allow for more expressive answers. The questionnaire was translated to Arabic language form. The questionnaire was designed to incorporate four principal sections: The content of the first part of the questionnaire included socio-demographic variables (age, gender, marital status, and education level). Participants were provided with the survey and asked verbally to agree to participate in the study by the investigators. To describe the goal of the survey, the investigators produced an educational leaflet. The

questionnaire's anonymity was also mentioned in their explanation. The produced data will only be used for research purposes, and participants have been promised that it will be kept private.

Statistical analysis: The data were collected and completed questionnaires were coded, and reviewed for accuracy by the investigators and were analyzed using Statistical Packages for Social Sciences (SPSS), version 18. A SEM < 95% and a lower level of significance α 0.05 were considered. Mann-Whitney test and Kruskal Wallis test were used to test the mean difference between non-parametric variables.

Results

Participants' demographics: In **Table 1**, the 200 questionnaires were distributed and 155 were retained with a response rate of 77.5%. Out of 155 females who participated in this study, the majority of participants were in the youngest group aged 16-25 years (89.0%). However, a minority of respondents from ages groups 26-35 years was represented by 9.0%, and those aged 36-45 years were only 2.0%. The majority of participants were unmarried 89.7% compared with 10.3% of respondents who were married.

Table 1: Participants' demographics

| Response of participants age groups | | |
|-------------------------------------|-----------|------------|
| Age, years | Frequency | Percentage |
| 16-25 | 138 | 89.0% |
| 26-35 | 14 | 9.0% |
| 36-45 | 3 | 2.0% |
| Marital status | | |
| Married | 16 | 10.3% |
| Single | 139 | 89.7% |
| Education level | | |
| Postgraduate | 2 | 1.3% |
| University | 147 | 94.8% |
| Secondary | 5 | 3.3% |
| Elementary | 1 | 0.6% |
| Medical | 138 | 89.0% |
| Non-medical | 17 | 11.0% |
| Nationality of the participants | | |
| Libyan | 144 | 92.9% |
| Non-Libyan | 11 | 7.1% |

Participants practice of topical corticosteroids: In **Table 2**, When asked about the source of obtaining lightening products containing cortisone, over two-thirds of the participants indicated that they obtained it from the pharmacy (n=107, 69.0%), compared with less than a quarter of respondents who said they obtained it from cosmetic shops (n=36, 23.2%). The majority of respondents declared they have used TCs on their face (n=127, 82.0%) and nearly half of the participants admitted they used one time or more weekly (49.1%). Crosstabulation showed married women more likely to use corticosteroids on their faces than unmarried with a statistically significant difference (P = 0.023, **Table 5**).

Based on the data collected, participants justified using TCs for moisturizing and whitening of the skin by of respondents 20.0% and 25.8%, respectively. However, over half of the respondents indicated that acne treatment was the reason for using corticosteroids (54.2%, n=84). However, 25.8% of the participants indicated that they used the medication containing cortisone for treatment, and 20.0% of the participants stated they used it for whitening. Nearly two-thirds of the participants (63.2%, n=98), denied they had health problems during or after using TCs compared with 9.7% of the participants who admitted they had it. Regarding the duration of using TCs, just over a quarter of respondents reported they used TCs for months (25.5%) and a minority of the respondents (13.5%) used for days while those used for years reported (15.5%). As shown in **Table 2**, data reveals that while 70 respondents (45.2%) denied using corticosteroid-containing products in connection with sunscreen or whitening, a sizable portion of the participants, n=65 (41.9%), said they were using sunscreen in conjunction with therapy or whitening. The results of cross-tabulation analysis showed a highly significant difference in the frequency of topical corticosteroid usage based on whether or not it was concurrent with the use of sunscreen cream, with a $p < 0.001$ (**Table 5**).

Knowledge of topical corticosteroids among females: Most of the participants acknowledged they were aware that they should read product ingredients (77.4%, n=120). 26.5% of the respondents use the product on their face almost daily and 18.1% do not use it.

Table 2: Participants' practice of using topical corticosteroids

| Participants' responses about the source of obtaining lightening products | | |
|---|-----------|------------|
| Source obtaining | Frequency | Percentage |
| Pharmacy | 107 | 69.0 |
| Cosmetic shop | 36 | 23.2 |
| How often do you use this product on your face | | |
| Almost daily | 41 | 26.5 |
| At least twice | 31 | 20.0 |
| At least once a week | 4 | 2.6 |
| Once a month | 51 | 32.9 |
| I do not use | 28 | 18.1 |
| Have you had any health problems during or after using it | | |
| Yes | 15 | 9.7 |
| No | 98 | 63.2 |
| I don't know | 42 | 27.1 |
| For whitening or treatment, how long the use period | | |
| Days | 21 | 13.5 |
| Months | 38 | 24.5 |
| Years | 24 | 15.5 |
| I don't know | 72 | 46.5 |
| Participants use sunscreen with treatment or whitening | | |
| Yes | 65 | 41.9 |
| No | 70 | 45.2 |
| I don't know | 20 | 12.9 |

The common source of information about TCs reported by the participants was via Internet use (32.9%, n=51), dermatologists (26.5%, n=41), pharmacists (20.0%, n=31), relatives & friends (18.1%, n=28), and beauty-center (2.6%, n=4). Approximately half of the respondents (48.4%) admitted were aware that TCs can cause harmful side effects and 63.2% of the participants had not gotten any health problems during or after using it. Regarding reasons for using TCs were whitening reported at 23.3% followed by facial acne at 20.6%, facial hair by 19.0%, fungal skin infection at 10.5%, hyperpigmentation at 8.3% and cutaneous atrophy at 10.8% (Table 3).

Table 3: Participants' knowledge about topical corticosteroids

| | Frequency | Percentage |
|---|-----------|------------|
| The reasons for using these products | | |
| Moisturizing | 31 | 20.0 |
| Whitening | 40 | 25.8 |
| Acne treatment | 84 | 54.2 |
| When using a product, do you read its ingredients | | |
| Yes | 120 | 77.4 |
| No | 35 | 22.6 |
| Did you know that whitening produced as a result of using cortisone is one of its side effects | | |
| Yes | 69 | 44.5 |
| No | 38 | 24.5 |
| I do not know | 48 | 31.0 |
| Do you know the side effects of these products | | |
| Yes | 75 | 48.4 |
| No | 52 | 33.5 |
| I do not know | 28 | 18.1 |
| Which of the following signs may be a side effect of topical corticosteroids | | |
| Facial Acne | 32 | 20.6 |
| Fungal skin infection | 15 | 10.5 |
| Whitening | 39 | 23.3 |
| Excessive Facial hair | 40 | 25.4 |
| Hyperpigmentation | 13 | 8.3 |
| Cutaneous atrophy | 17 | 10.8 |

In Table 4, about participants' attitudes towards TCs, nearly two-thirds of the participants do not use these products if they know that they contain corticosteroids (69.0%) compared with 25.2% of the respondents who indicated they will use these products even if they contain corticosteroids. However, nearly two-thirds of respondents (63.2%) believed that the cost of these products used was medium priced compared with 21.9% of the participants who said the price was expensive. 32.9% of the respondents said they would never use the products again if they knew they contained corticosteroids, while 45.8% said they would if they knew the drug's corticosteroid side effects came from its use for whitening purposes. Despite being aware of the negative effects of cortisone, a small percentage of respondents claimed they would still use it (11.6%).

The majority of participants agreed that TCs products should only be sold in pharmacies with a prescription (87.7%), while the neutral and opposing responses 9.0% and 3.2%), respectively, were expressed by the remaining participants (Table 4).

Table 4: Attitudes of Libyan females about topical corticosteroids

| | Frequency | Percentage |
|--|-----------|------------|
| Do you use these products if you know that they contain cortisone | | |
| Yes | 39 | 25.2 |
| No | 107 | 69.0 |
| I do not know | 9 | 5.8 |
| Did you know that whitening produced as result of using cortisone is one of its side effects | | |
| Yes | 69 | 44.5 |
| No | 38 | 24.5 |
| I do not know | 48 | 31.0 |
| Are you satisfied with the use of these products that contain cortisone elements | | |
| Yes | 35 | 22.6 |
| No | 74 | 47.7 |
| I do not know | 46 | 29.7 |
| Was the cost of the products used | | |
| Cheap | 23 | 14.8 |
| Medium priced | 98 | 63.2 |
| Expensive | 34 | 21.9 |
| If you knew the cortisone side effects that a result from its whitening purpose use, do you used it again | | |
| Yes | 18 | 11.6 |
| If necessary | 71 | 45.8 |
| Never | 51 | 32.9 |
| I do not know | 15 | 9.7 |
| Topical corticosteroid products should be selling only in pharmacies with prescription | | |
| Agree | 136 | 87.7 |
| Neutral | 14 | 9.0 |
| Disagree | 5 | 3.2 |

Table 5: Crosstabulation how often using topical corticosteroids with some variables

| Marital situation vs the frequency of using topical corticosteroids | | | | | | | Mann-Whitney U test P = 0.023 |
|--|-----------|---------------|-----------|---------|-----------|-------|----------------------------------|
| Marital situation | Daily | Twice/week | Weekly | Monthly | Never | Total | |
| Married | 9 (56.3) | 3 (18.8) | 2 (12.5) | 1 (6.3) | 1 (6.3) | 100% | |
| Unmarried | 45 (32.6) | 21 (15.2) | 24 (17.4) | 5 (3.6) | 43 (31.2) | 100% | |
| Total | 54 (35.1) | 24 (15.6) | 26 (16.9) | 6 (3.9) | 44 (28.6) | 100% | |
| Concomitant use of sunscreen cream vs the frequency of using topical corticosteroids | | | | | | | Kruskal-Wallis test P = 0.000 |
| Yes | No | I do not know | Total | | | | |
| Yes | 38 (58.5) | 13 (20.0) | 6 (9.2) | 1 (1.5) | 7 (10.8) | 100% | |
| No | 15 (21.7) | 10 (14.5) | 19 (27.5) | 4 (5.8) | 21 (30.4) | 100% | |
| I do not know | 1 (5.0) | 1 (5.0) | 1 (5.0) | 1 (5.0) | 16 (80.0) | 100% | |
| Total | 54 (35.1) | 24 (15.6) | 26 (16.9) | 6 (3.9) | 44 (28.6) | 100% | |
| Practice reading the instructions of the products vs the frequency of using topical corticosteroids | | | | | | | Mann-Whitney U test P = 0.002 |
| Yes | No | Total | | | | | |
| Yes | 47 (39.5) | 21 (17.6) | 20 (16.8) | 4 (3.4) | 27 (22.7) | Yes | |
| No | 7 (20.6) | 3 (8.8) | 6 (14.7) | 2 (5.9) | 17 (50) | No | |
| Total | 54 (35.1) | 24 (15.6) | 26 (16.9) | 6 (3.9) | 44 (28.6) | Total | |

Discussion

In many developing countries, the overuse of TCs has been identified as a serious issue, particularly about applications to the face, which have increased the frequency of several unfavorable effects such as atrophy, irritating dermatitis, acne, purpura, hypertrichosis, and dyspigmentation [13]. It may get worse in Libya as a result of improper prescriptions and the accessibility of notable TCs as dispensing without prescription (OTC). The significant percentage of patients who attend dermatology offices and have unfavorable TCs effects parallels this illogical medication use [14]. The current study highlighted the overuse of TCs among women in Libya because it may pose a health risk to the population. It also attempted to increase public awareness of the dangers of using these drugs without a prescription. In Libya, buying medication without a prescription is one of the most frequent reasons people go to community pharmacies [15]. TCs are commonly available OTC and, like fairness creams, are often used as a depigmenting agent in conjunction with hydroquinone. Today, it is customary for TCs to be sold by private pharmacies, and patients may anticipate buying TCs without medical counseling. The current findings found that the majority of respondents got their TCs products and used them as face cosmetics on their faces and more than two-thirds of females purchase TCs from pharmacies, and only about a third buy them from shops. This is in line with a previous study [16] which found the source of these products among participants of the study were purchased from pharmacies. However, a previously published study reported that a physician's prescription is the main source of obtaining TCs, while less commonly seeking directly from local pharmacies [17]. This variation could be related to the difference of drug policy and health regulations between countries.

Along with new information technologies, the variety of potential sources for health and medication information that consumers have access to is changing and expanding. Patients obtain health information from multiple sources, over half of respondents claimed they have been advised to use TCs by non-medical sources. According to our study, the most familial source of cosmetic products was from websites, social media, physicians, and pharmacists, respectively. The Internet is currently a major source of health- and medical-related information at least in Libya. Evidence found that physicians and pharmacists are ranked as the most preferred and trusted sources [18, 19]. In this study, the internet (social media) is the most common source of TCs product usage followed by dermatologist then pharmacists. This finding is in line with the Korean' study which found that the mass media was the most common information source of TCs, and only one-third of the surveyed people relied on pharmacists or physicians for information [20]. Our study reveals that the main cause of utilizing the TCs was for treatment, lighting, and moisturizing; which is partially similar to Saudi Arabia study; where they demonstrated that the main reason for using the TCs was to lighten skin color and reduce wrinkles [21]. In our study, over one quarter of respondents indicated they use TCs for whitening. In contrast, lightening of skin color was the main reason for using TCs in the absence of any primary dermatosis [17]. This variation in results between the two studies may be due to how the trials were conducted differently. Part of the respondents in our study admitted they would keep using topical corticosteroids even after learning about their components, while the majority of the participants said they would quit using the items if they knew they contained corticosteroids. A significant difference was found between the two variables in the crosstabulation between the frequency of using TCs and the practice of reading product ingredients. This suggests that individuals who used TCs more frequently were also more likely to read the ingredients than those who used the product less frequently. However, a substantial of females stated they denied reading the ingredients of products and read the constituents. A considerable number of university students use TCs on the face without knowing their nature [22]. The majority of the respondents believed corticosteroid use was safe and some of the participants did not feel guilty for using such prescriptions, this attitude may indicate that they view TCs as a safe substance [14]. Although it was previously revealed that TCs were bought from community pharmacies, and those individuals did not get adequate instruction on how to use these products

for responsible medication use and beneficial societal healthcare results. This important knowledge may be compromised by incomplete or inaccurate pharmacological information, which could have a negative impact on healthcare. Patients must be told the risks of applying topical creams to their faces, how to apply the cream, and how long they should continue treatment. As pharmacists are the last point of contact with the patient before taking the medications, they have the unique opportunity to educate patients and promote the rational use of TCs. Indeed, pharmacists had appropriate knowledge and a positive attitude toward their potential role in preventing the misuse of TCs [23].

The current findings revealed that nearly one-third of them were uninformed of the negative effects of TCs. In contrast, In Saudi Arabia, a significant portion of the population was ignorant of the negative consequences of topical steroids [4]. Although the populations of the two trials have a similar culture, there may be a difference in the participants' knowledge of side effects due to the various targeting methods. TCs are frequently prescribed and made available for purchase from private healthcare facilities. Misuse of potent products is prevalent due to their easy availability without a prescription, which has a substantial impact on dermatological practice and is the cause of a large share of visits to dermatology clinics [134, 24]. It is a multifaceted issue that requires collaboration from all community sectors to solve. The most crucial actions that might be taken to lessen this issue are educating the public through specific media programs, introducing continuing medical education programs for medical and paramedical staff, and regulating the ease of pharmacy access [13]. Jaccob et al. [16] come in tune with these results and claim that there are many causes behind the abuse but the lack of education, lack of restriction, profitability for sellers and low prices are the main ones [16]. Participants in this project concur that if there are many restrictions, the severity of these drugs' misuse may be reduced. For instance, products must be purchased from pharmacies after a prescription has been completed by pharmacists or dermatologists [17]. Similar to this, numerous other research has demonstrated the necessity of raising patient knowledge generally and putting policies in place to stop the community's irrational prescribing behaviors [25]. Community pharmacists are qualified to advise patients and caregivers on the most effective uses of TCs, and their provision of the best possible counseling is associated with better therapeutic outcomes [26]. However, if patients receive conflicting information about TCs from community pharmacists or information that deviates from what dermatologists' counsel patients, there may be a gap in interprofessional cooperation between dermatologists and pharmacists. According to a previous study in the United States, better communication between pharmacists and dermatologists can guarantee patients obtain correct and uniform counseling on TCs [27]. Patients should always get accurate information on TCs, and community pharmacists have a key role to play when dispensing TCs. Thus, increasing awareness of public toward the seriousness of steroids, and how to use products containing steroids.

Conclusion: Topical corticosteroids are commonly misused and the majority of the female participants are aware that they should read product ingredients. About half of respondents were aware that topical corticosteroid can cause harmful effects. Media may incorporate in the improvement of topical corticosteroids practice among Libyan females.

References

1. Novak SP, Håkansson A, Martinez-Raga J, Reimer J, Krotki K, Varughese S (2016) Nonmedical use of prescription drugs in the European Union. *BMC Psychiatry*. 16 (1): 274. doi: 10.1186/s12888-016-0909-3
2. Hernandez-Juyol M, Job-Quesada JR (2002) Dentistry and self-medication: a current challenge. *Medicina oral*. 7 (5): 344-347. PMID: 12415218.
3. El yamani MA, Fathi M. Sherif FM (2021) Assessment of drug prescribing pattern and prescription errors in elderly patients. *Mediterranean Journal of Pharmacy and Pharmaceutical Sciences*. 1 (2): 46-50. doi: 10.5281/zenodo.5171325

4. Dhafiri MA, Alali AB, Alghanem ZA, Alsaleh ZW, Boushel EA, Alali ZB, Alnajjar AA (2022) Topical steroid damaged face: a cross-sectional study from Saudi Arabia. *Clinics and Practice*. 12 (1): 140-146. doi: 10.3390/clinpract12010018
5. Hughes J, Rustin M (1997) Corticosteroids. *Clinics in Dermatology*. 15 (5): 715-721. doi: 10.1016/s0738-081x(97)00020-5
6. Saraswat A, Lahiri K, Chatterjee M, Barua S, Coondoo A, Mittal A, Panda S, Rajagopalan M, Sharma R, Abraham A, Verma SB, Srinivas CR (2011) Topical corticosteroid abuse on the face: a prospective, multicenter study of dermatology outpatients. *Indian Journal of Dermatology, Venereology and Leprology*. 77 (2): 160-166. doi: 10.4103/0378-6323.77455
7. Dey VK (2014) Misuse of topical corticosteroids: A clinical study of adverse effects. *Indian Dermatology Online Journal*. 5 (4): 436-440. doi: 10.4103/2229-5178.142486
8. Jha AK, Sinha R, Prasad S (2016) Misuse of topical corticosteroids on the face: A cross-sectional study among dermatology outpatients. *Indian Dermatology Online Journal*. 7 (4): 259-263. doi: 10.4103/2229-5178.185492
9. Ladizinski B, Mistry N, RKundu RV (2011) Widespread use of toxic skin lightening compounds: medical and psychosocial aspects. *Dermatologic Clinics*. 29 (1): 111-123. doi: 10.1016/j.det.2010.08.010
10. Dadzie OE, Petit A (2009) Skin bleaching: highlighting the misuse of cutaneous depigmenting agents. *Journal of the European Academy of Dermatology and Venereology*. 23 (7): 741-750. doi: 10.1111/j.1468-3083.2009.03150.x
11. Joana A, Obinnim E, Selase GR, Emefa AF (2016) Skin bleaching and it's negative effects on the physical appearance of the black skin. A case study of youthful ladies and women in Houston municipality in Ghana. *Research in Humanities and Social Sciences*. 6 (12): 67-73. doi: Nil.
12. Wone I, Tal-Dia A, Diallo OF, Badiane M, Touré K, Diallo I (2000) Prevalence of the use of skin bleaching cosmetics in two areas in Dakar (Sénégal)]. *Dakar Medical*. 45 (2): 154-157. PMID: 15779174.
13. Hengge UR, Ruzicka T, Schwartz RA, Cork MJ (2006) Adverse effects of topical glucocorticosteroids. *Journal of American Academy of Dermatology*. 54 (1): 1-15. doi: 10.1016/j.jaad.2005.01.010
14. Al-Samman DK, Al-Banna IM, Al-Shakarchy WN, Attar-bashi MM (2019) The effect of misuse of topical corticosteroids on skin. *Iraqi Journal of Pharmacy*. 14 (1): 63-75. doi: 10.33899/iph.2019.161196
15. Allsageer MA, Hassan AO, Rajab MO (2021) Descriptive analysis to use the community pharmacy by patients and customers. *Mediterranean Journal of Pharmacy and Pharmaceutical Sciences*. 1 (4): 59-66. doi: 10.5281/zenodo.5806134
16. Jaccob AA, Yaqoub AA, Rahmani MA (2020) Impact of abuse of topical corticosteroids and counterfeit cosmetic products for the face: prospective demographic study in Basrah City, Iraq. *Current Drug Safety*. 15 (1): 25-31. doi: 10.2174/1574886314666191001100357
17. Sendrasoa FA, Ranaivo IM, Andrianarison M, Raharolahy O, Razanakot HO, Ramarozatovo LS, Rapelanoro Rabenja F (2017) Misuse of topical corticosteroids for cosmetic purpose in Antananarivo, Madagascar. *BioMed Research Internation*. ID: 9637083. 1-4. doi: 10.1155/2017/9637083
18. Hesse BW, Nelson DE, Kreps GL, Croyle RT, Arora NK, Rimer BK, Viswanath K (2005) Trust and sources of health information: the impact of the Internet and its implications for health care providers: findings from the first Health Information National Trends Survey. *Archives of Internal Medicine*. 165 (22): 2618-2624. doi: 10.1001/archinte.165.22.2618
19. Närhi U (2007) Sources of medicine information and their reliability evaluated by medicine users. *Pharm. World Science*. 2 (6): 688-694. doi: 10.1007/s11096-007-9131-1
20. Seo H, Song SY, Kim D, Park JH, Shin Y, Lee KH, Choi SA, Lee J-Y, Kim DY, Shin WG, Kim E (2022) General public knowledge regarding topical corticosteroids: a nationwide survey in South Korea. *Korean Journal of Clinical Pharmacy*. 32 (2): 84-92. doi: 10.24304/kjcp.2022.32.2.84
21. Al Tannir M, Alharbi AI, Alfawaz AS, Zahran RI, Altannir M (2016) Saudi adults' satisfaction with community pharmacy services. *SpringerPlus*. 5: ID 774. 1-5. doi: 10.1186/s40064-016-2442-8
22. Majed D, Alnujaidi M, Almohammadi N, Kokandi A (2018) Use of topical steroids on the face among university students in Saudi Arabia. *Biomedical Research*. 29 (13): 2786-2789. doi: 10.4066/biomedicalresearch.29-17-3818
23. Shakeel S, Nesar S, Iffat W, Rehman H, Aziz S, Mumtaz T, Hadi H, Jamshed S (2021) Pharmacists' insights and behaviors in preventing the misuse of topical corticosteroids in Pakistan: a mixed-method study. *Cosmetics*. 8 (3): 72. doi: 10.3390/cosmetics8030072
24. AlSamanhodi H, Almehary M, Amoh K, Aldekhail S, Alkatheri A, Alharbi S, AlAmmari M, AbuRuz S, Albekairy A (2017) Evaluation of the causes and cost impact of returned intravenous medications at a tertiary care hospital in Riyadh, Saudi Arabia. *Tropical Journal of Pharmaceutical Research*. 16 (1). 231-237. doi: 10.4314/tjpr.v16i1.31

25. Karekar SR, Marathe PA, Nagarajan VB, Khopkar US, Chikhalkar SB, Desai PK, Dongre MS (2020) Use of topical steroids in dermatology: a questionnaire-based study. *Indian Dermatology Online Journal*. 11 (5): 725-730. doi: 10.4103/idoj.IDOJ_566_19
26. Kang MJ, Park JH, Park S, Kim NG, Kim EY, Yu YM, Kim DY, Lee JY, Shin WG, Choi SA (2020) Community pharmacists' knowledge, perceptions, and practices about topical corticosteroid counseling: A real-world cross-sectional survey and focus group discussions in Korea. *PLoS One*. 15 (7): e0236797. doi: 10.1371/journal.pone.0236797
27. Millard AN, Stratman EJ (2019) Assessment of topical corticosteroid prescribing, counseling, and communication among dermatologists and pharmacists. *JAMA Dermatology*. 155 (7): 838-843. doi: 10.1001/jamadermatol.2018.5353

Author contribution: IAAA, FAA & FKA conceptualized, designed the study, and participated in data collection. All authors participated in data analysis and interpretation. IAAA & MAA drafted the manuscript. All authors approved the final version of the manuscript and agreed to be accountable for its contents.

Funding: The authors declare the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Ethical issues: Including plagiarism, informed consent, data fabrication or falsification, and double publication or submission have completely been observed by authors.

Data availability statement: The raw data that support the findings of this article are available from the corresponding author upon reasonable request.

Author declarations: The authors confirm that all relevant ethical guidelines have been followed and any necessary IRB and/or ethics committee approvals have been obtained.