



Original article

# Assessment of Knowledge, Attitude, Practice, and Phobia Related to Corticosteroids and Drugs Containing Corticosteroids Among Pharmacists in Ambo Town

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## ABSTRACT

**Background:** Corticosteroid-containing medications are widely available in various forms, including topical applications, injections, and inhalers. Due to concerns about their safety, healthcare providers, particularly pharmacists, often approach the use and dispensing of these drugs with caution. **Objective:** This study was conducted to evaluate pharmacists' knowledge, attitudes, practices, and phobias regarding corticosteroids and corticosteroid-containing drugs in Ambo town. **Methodology:** A cross-sectional survey was conducted from April to June 2025, involving 62 pharmacists from public health facilities and community pharmacies in Ambo town. Data were collected using a structured questionnaire covering sociodemographic characteristics, knowledge, attitudes, practices, and phobias related to corticosteroids (CSs). Descriptive statistics were used to analyze the data. **Results:** The majority of pharmacists (93.5%) correctly identified CSs as anti-inflammatory agents, but only 43.5% recognized all major systemic side effects. Attitudes were generally positive, with 80.6% agreeing on the essential role of CSs; however, concerns about misuse (45.2% neutral) and overprescription (74.2% neutral) were noted. Counseling practices were inconsistent, with only 17.7% always providing advice. Phobia was prevalent, with 79% expressing concerns about long-term effects and more than 50% avoiding CS recommendations unless necessary. **Conclusion:** While pharmacists in Ambo town demonstrate foundational knowledge of CSs, significant gaps and high levels of phobia persist. Targeted education, standardized counseling protocols, and interprofessional collaboration are recommended to enhance pharmacists' confidence, improve patient counseling, and mitigate unwarranted fears, thereby ensuring the safe and effective use of corticosteroids.

## 1. INTRODUCTION

Corticosteroids (CSs) are steroid hormones produced by the adrenal glands in response to adrenocorticotropic hormone and play essential roles in maintaining homeostasis and regulating stress responses (Samuel et al., 2017). They are widely recognized as highly effective anti-inflammatory agents

and are commonly used to treat various conditions, including autoimmune diseases, asthma, and allergic disorders (Barakat et al., 2024b; Hudson et al., 1998). Despite their therapeutic importance, their mechanisms of action remain complex, and their metabolic effects, such as increased glucose production and insulin resistance can contribute to conditions like

hyperglycemia and diabetes mellitus (Mahdy et al., 2017; Elalami et al., 2023). Additionally, long-term use is associated with serious adverse effects, including osteoporosis and adrenal suppression, highlighting the need for careful and informed use (Grounds et al., 2017; Barakat et al., 2024b).

The widespread use of corticosteroids, combined with concerns about their safety, has led to increasing attention on knowledge, attitudes, and practices surrounding these medications. Studies indicate that a significant proportion of medications, including corticosteroids, are improperly prescribed or used, contributing to adverse outcomes (Wondmkun et al., 2021). Furthermore, patients often lack adequate knowledge regarding indications, dosage, and side effects, which may be influenced by insufficient counseling and communication from healthcare professionals (Barakat et al., 2024b; Lau & Donyai, 2017). Pharmacists and physicians play complementary roles in ensuring safe and effective use through proper prescribing, dispensing, and patient education (Barakat et al., 2023b; Barakat et al., 2024c). In particular, community pharmacists are well-positioned to improve patient outcomes through effective counseling and support for self-management (Nathan et al., 2022; Giua et al., 2021).

However, concerns about adverse effects have contributed to the emergence of corticophobia, defined as an exaggerated fear or reluctance to use corticosteroids among patients and healthcare providers (Barakat et al., 2023a). This phenomenon can lead to poor adherence and suboptimal treatment outcomes, with some studies reporting non-adherence rates as high as 58% (Barakat et al., 2023a). Inadequate counseling and conflicting information from healthcare providers may further exacerbate these fears (Koster et al., 2021; Smith et al., 2010). Given the critical role of pharmacists in medication counseling, their knowledge, attitudes, and perceptions are essential for addressing misconceptions and promoting appropriate use. Therefore, assessing these factors is crucial to identify gaps that may affect patient care and to improve the safe and effective use of corticosteroids in clinical practice.

There is limited evidence on pharmacists' knowledge, attitudes, practices, and phobias regarding corticosteroids in Ethiopia, particularly in smaller towns like Ambo. Understanding these factors is essential to identifying gaps that may affect patient counseling and safe medication use. Therefore, this study aimed to assess knowledge, attitudes, practices, and phobias related to corticosteroids among pharmacists in Ambo town.

The objective of this study was to evaluate pharmacists' knowledge, attitudes, practices, and phobias regarding corticosteroids and corticosteroid-containing drugs in Ambo town. Specifically, the study aimed to assess pharmacists' knowledge levels, examine their attitudes toward corticosteroid use, explore their dispensing and counseling practices, and determine the prevalence of corticophobia.

## 2. METHODOLOGY

### 2.1 Study Design and Setting

A facility-based cross-sectional study was conducted from April to June 2025 among pharmacists working in public health facilities and community pharmacies in Ambo town, Oromia region, Ethiopia, located approximately 119 km west of Addis Ababa.

### 2.2 Study Population and Sampling

The study included all pharmacists working in the study area who were available during the data collection period and consented to participate. Since the total number of pharmacists in Ambo town was limited, a census approach was used. A total of 62 pharmacists (total eligible population = 62) were included in the study.

### 2.3 Eligibility criteria

#### *Inclusion criteria*

- Pharmacists working in public health facilities and community pharmacies
- Only those who volunteer to participate

#### *Exclusion criteria*

- Pharmacists who are not volunteers
- Who is unavailable at the time of visits

### 2.4 Study variables

*Dependent variables:* Knowledge, Attitude, Practice, Phobia.

*Independent variables:* Age, Type of practice setting, Gender, Patient interaction

### 2.5 Data Collection Tool and Validation

Data were collected using a structured questionnaire adapted from previously published studies (Barakat et al., 2023b.; Barakat et al., 2024a). Experts reviewed the questionnaire for content validity and pretested it on a small group of pharmacists outside the study area to ensure clarity, consistency, and reliability. Necessary modifications were made based on the pretest results.

## 2.6 Data Collection Procedure

Data were collected through self-administered questionnaires distributed by the principal investigator.

## 2.7 Data Analysis

Data were entered and analyzed using SPSS version 26. Descriptive statistics, including frequencies, percentages, mean, and median, were used. The knowledge score was calculated by assigning one point for each correct answer, with a total possible score of 7. Due to the skewed distribution (mean = 3.89, median = 5), median values were used for interpretation.

## 2.8 Operational definitions

*Knowledge:* The level of understanding and awareness about corticosteroids and drugs containing corticosteroids, measured through a structured questionnaire assessing factual information, indications, contraindications, side effects, and proper usage.

*Attitude:* The perceptions, beliefs, and feelings of individuals toward corticosteroids and corticosteroid-containing drugs, evaluated using a Likert-scale survey to gauge positive, negative, or neutral sentiments.

*Practice:* The actual behaviors and actions related to the use of corticosteroids and corticosteroid-containing drugs, assessed through self-reported data on adherence to prescribed regimens, misuse, or avoidance.

*Phobia:* The presence and intensity of irrational fear or anxiety related to corticosteroids and corticosteroid-containing drugs, measured using a validated phobia assessment tool or scale to quantify fear levels and associated avoidance behaviors.

*Corticosteroids:* A class of steroid hormones used to reduce inflammation and suppress the immune system, including both systemic (e.g., prednisone) and topical forms (e.g., hydrocortisone cream).

*Drugs Containing Corticosteroids:* Medications that include corticosteroids as an active ingredient, whether prescribed or over-the-counter, used for treating conditions such as asthma, allergies, skin disorders, and autoimmune diseases.

## 3. RESULTS

### 3.1 Sociodemographic Characteristics

A total of 62 pharmacists participated in the

study. The majority were male (n = 48, 77.4%). Regarding workplace distribution, nearly half of the participants worked in hospital pharmacies (n = 30, 48.4%), followed by community pharmacies (n = 28, 45.2%) and health centers (n = 4, 6.4%).

In terms of professional experience, 54.8% (n = 34) had 5–10 years of experience, while 38.7% (n = 24) had less than 5 years, and a small proportion (6.5%) had more than 10 years of experience, as shown in Table 1.

**Table 1:** Sociodemographic characteristics of the study participants

| Parameters                  |                    | Frequency | Percent |
|-----------------------------|--------------------|-----------|---------|
| Age                         | 20-30              | 16        | 25.8    |
|                             | 31-40              | 41        | 66.1    |
|                             | 41-50              | 3         | 4.8     |
|                             | 50-60              | 2         | 3.2     |
| Gender                      | Male               | 48        | 77.4    |
|                             | Female             | 14        | 22.6    |
| Pharmacists' place of work: | Hospital pharmacy  | 30        | 48.4    |
|                             | Community pharmacy | 28        | 45.2    |
|                             | Health centers     | 4         | 6.4     |
| Years of experience         | <5                 | 24        | 38.7    |
|                             | 5-10               | 34        | 54.8    |
|                             | 11-20              | 4         | 6.5     |
| <b>Total</b>                |                    | 62        | 100     |

### 3.2. Pharmacists' knowledge about corticosteroids

Overall, pharmacists demonstrated moderate knowledge regarding corticosteroids. The mean knowledge score was  $3.89 \pm 0.89$ , while the median was 5 out of 7, indicating a negatively skewed distribution: most respondents scored relatively high, but a few low scores reduced the mean. Most respondents (93.5%) correctly identified corticosteroids as anti-inflammatory agents. However, only 43.5% identified all major systemic side effects, indicating a significant knowledge gap. Similarly, only 24.2% correctly identified the recommended duration of use for high-potency topical corticosteroids. These findings suggest that while general knowledge is adequate, important gaps remain in specific clinical areas (Table 2).

### 3.3. Attitudes of pharmacists towards corticosteroids.

The majority of pharmacists demonstrated a generally positive attitude toward corticosteroids. Most

respondents (80.6%) agreed that corticosteroids are essential in managing inflammatory conditions. Additionally, a high proportion (93.5%) reported confidence in counseling patients.

However, uncertainty was observed in certain areas. A large proportion (74.2%) remained neutral about whether corticosteroids are overprescribed, suggesting ambiguity or a lack of clear perception of prescribing practices.

The mean attitude score was 3.64 out of 5, indicating an overall favorable but cautious attitude (Table 3).

### 3.4. Practice of Corticosteroid Use and Counseling

Corticosteroids were frequently dispensed, with 43.5% of pharmacists reporting daily dispensing. However, counseling practices were inconsistent: only 17.7% reported always providing counseling, while the majority (56.5%) did so only sometimes.

Despite high self-reported confidence, this inconsistency suggests a gap between perceived competence and actual practice. Encouragingly, 71% of pharmacists reported tracking patients who frequently request corticosteroids, and 45.2% reported refusing to dispense due to concerns about misuse (Table 4).

### 3.5. Pharmacists' phobias toward corticosteroid dispensing

A high level of corticophobia was observed among pharmacists. Most respondents (79.0%) expressed concern about the long-term effects of corticosteroids. Additionally, 61.3% reported avoiding recommending corticosteroids unless necessary.

The mean phobia score was 3.78 out of 5, indicating a relatively high level of concern and cautious behavior toward corticosteroid use (Table 5).

## 4. DISCUSSION

This study assessed pharmacists' knowledge, attitudes, practices, and phobias regarding corticosteroids in Ambo town and identified several important findings with implications for clinical practice.

Although pharmacists demonstrated a good understanding of the basic role of corticosteroids as anti-inflammatory agents, significant knowledge gaps were identified in critical areas, including systemic side effects and the appropriate duration of use. The relatively low proportion of respondents who correctly identified major adverse effects is concerning, as this knowledge is essential for effective patient counseling and safe medication use. Compared to findings from

the United Arab Emirates, where a higher proportion of healthcare professionals demonstrated awareness of corticosteroid-related adverse effects, this study indicates a need for improved education in this setting (Barakat et al., 2024b).

Despite generally positive attitudes toward corticosteroids, the results indicate a cautious and uncertain approach among pharmacists. While most participants acknowledged the importance of corticosteroids in clinical practice and expressed confidence in counseling, a large proportion remained neutral regarding overprescription. Similar patterns have been reported in previous studies, in which healthcare professionals expressed mixed perceptions of corticosteroid prescribing practices (Barakat et al., 2023b).

A key finding of this study is the inconsistency between pharmacists' reported confidence in counseling and their actual practice. Although the majority of respondents felt confident in providing patient education, only a small proportion consistently offered counseling during dispensing. This discrepancy has also been reported in other settings, where pharmacists demonstrated adequate knowledge but suboptimal counseling practices due to time constraints and a lack of structured guidelines (Kang et al., 2020; Nathan et al., 2022).

The study also revealed a high level of corticophobia among pharmacists, which appears to influence their professional behavior. A substantial proportion of respondents expressed concern about long-term adverse effects and reported avoiding corticosteroid recommendations unless necessary. Similar findings have been reported in previous studies, in which fear of adverse effects contributed to hesitation in prescribing and dispensing corticosteroids (Barakat et al., 2024a; Ahmad et al., 2014). Excessive corticophobia may lead to underutilization of effective therapies and negatively impact patient outcomes.

Furthermore, corticophobia has been identified as a major factor contributing to poor adherence and suboptimal treatment outcomes among patients. Studies have shown that misconceptions and fear surrounding corticosteroids can result in non-adherence rates of up to 58%, highlighting the importance of proper counseling and education (Farrugia et al., 2016; Barakat et al., 2023a). Inadequate communication between healthcare professionals and patients may further exacerbate these concerns (Koster et al., 2021).

**Table 2:** Pharmacists' knowledge about corticosteroid medications

| Questions  | Correct answers  | Percentage of pharmacists, n (%) |
|--|--|----------------------------------|
| What are corticosteroids primarily used for?   | Anti-inflammatory purposes   | 58(93.5)                         |
| Which of the following conditions are corticosteroids commonly prescribed for? (Select all that apply) | Asthma, Eczema, Rheumatoid arthritis                               | 21(33.9)                         |
| What are the potential systemic side effects of long-term corticosteroid use? (Select all that apply)  | Hyperglycemia, Osteoporosis, Increased infection risk, Weight gain | 27(43.5)                         |
| True or False: Corticosteroids are man-made hormones normally produced by the adrenal glands.          | True   | 41(66.1)                         |
| True or False: Topical corticosteroids can cause skin thinning with prolonged use.                     | True   | 38(61.3)                         |
| True or False: Corticosteroids are mainly used to induce inflammation and suppress the immune system.  | False  | 41(66.1)                         |
| What is the recommended duration for using class I topical corticosteroid creams?                      | 2-4weeks   | 15(24.2)                         |
| Knowledge score (out of 7): median, mean   | 5(71.4%), 3.89(55.6%)  |                                  |

**Table 3:** Pharmacists' attitude towards corticosteroid medication

| Statements   | Likert Scale         | Frequency | Percent |
|--|----------------------|-----------|---------|
| I believe corticosteroids are essential for managing inflammatory conditions.                    | 4(agree)             | 50        | 80.6    |
|  | 5(strongly agree)    | 9         | 14.5    |
|  | 3(neutral)           | 3         | 4.8     |
| I am concerned about the misuse of corticosteroids by patients.                                  | 3(neutral)           | 28        | 45.2    |
|  | 4(agree)             | 27        | 43.5    |
|  | 2(disagree)          | 4         | 6.5     |
|  | 1(strongly disagree) | 2         | 3.2     |
| I feel confident in counseling patients about the proper use of corticosteroids                  | 5(strongly agree)    | 1         | 1.6     |
|  | 4(agree)             | 53        | 85.4    |
|  | 5(strongly agree)    | 5         | 8.1     |
|  | 3(neutral)           | 3         | 4.8     |
| I think corticosteroids are overprescribed by healthcare providers                               | 2(disagree)          | 1         | 1.6     |
|  | 3(neutral)           | 46        | 74.2    |
|  | 2(disagree)          | 10        | 16.1    |
|  | 1(strongly disagree) | 3         | 4.8     |
| I believe patients should be educated about the risks and benefits of corticosteroids before use | 4(agree)             | 3         | 4.8     |
|  | 4(agree)             | 44        | 71      |
|  | 3(neutral)           | 9         | 14.5    |
|  | 5(strongly agree)    | 8         | 12.9    |
| Total respondents  | 2(disagree)          | 1         | 1.6     |
|  |                      | 62        | 100     |

Table 4: Pharmacists' experience or practice with dispensing corticosteroids

| Questions  |   | N (%)    |
|--|---|----------|
| How often do you dispense corticosteroid-containing drugs?                                 | Daily   | 27(43.5) |
|  | Rarely  | 15(24.2) |
|  | Weekly  | 19(30.6) |
|  | Monthly   | 1(1.6)   |
| Do you provide counseling to patients when dispensing corticosteroids?                     | Sometimes   | 35(56.5) |
|  | Rarely  | 16(25.8) |
|  | Always  | 11(17.7) |
| What information do you typically provide to patients about corticosteroids?               | Contraindications, Duration of use, Potential side effects, Proper dosage | 29(46.8) |
|  | Proper dosage   | 24(38.7) |
|  | Duration of use, Potential side effects, Proper dosage                    | 5(8.1)   |
|  | Potential side effects  | 2(3.2)   |
|  | Proper dosage Contraindications   | 1(1.6)   |
|  | Proper dosage, Potential side effects                                     | 1(1.6)   |
|  |   |          |
| Have you ever refused to dispense corticosteroids due to concerns about misuse or overuse? | No  | 34(54.8) |
|  | Yes   | 28(45.2) |
| Do you keep track of patients who frequently request corticosteroids?                      | No  | 18(29)   |
|  | Yes   | 44(71.0) |
| Total  |   | 62(100)  |

The observed difference between the mean and median knowledge scores indicates a skewed distribution, suggesting variability in knowledge levels among pharmacists. While the majority demonstrated adequate knowledge, a subset of respondents scored lower, lowering the overall mean. This variability highlights the need for targeted educational interventions to ensure consistent knowledge across all practitioners.

Overall, the findings suggest that while pharmacists in Ambo town have a foundational understanding of corticosteroids, gaps in knowledge, inconsistent practices, and high levels of phobia may compromise optimal patient care. Addressing these issues through targeted training, standardized counseling guidelines, and strategies to reduce unwarranted fears is essential to improve the safe and effective use of corticosteroids.

## 5. LIMITATIONS

This study has several limitations. The cross-sectional design limits causal inference and temporal analysis. The relatively small sample size ( $n = 62$ ) restricts generalizability beyond Ambo town. The use of self-reported data may introduce response bias. Additionally, the study focused only on pharmacists and did not include other healthcare providers or patients, limiting a broader understanding of corticosteroid use. Future studies should involve

larger, more diverse populations and incorporate multiple stakeholders to provide more comprehensive insights.

## 6. CONCLUSION AND RECOMMENDATIONS

This study highlights that although pharmacists in Ambo town have a basic understanding of corticosteroids, important knowledge gaps, inconsistent practices, and high levels of corticophobia remain. These issues may affect patient counseling and the safe use of corticosteroids, indicating the need for targeted interventions.

To address these challenges, educational programs should be implemented to improve pharmacists' knowledge, particularly regarding side effects and appropriate use. Strengthening counseling practices and monitoring systems is also essential to prevent misuse. Efforts should be made to reduce corticophobia through professional support and patient education initiatives. Additionally, enhanced collaboration between pharmacists and prescribers is recommended. Future research involving larger populations and longitudinal designs is needed to explore these findings further.

**Table 5:** Pharmacists' phobias toward corticosteroid dispensing

| Statements   | Likert Scale         | Frequency | Percent |
|--|----------------------|-----------|---------|
| I feel concerned about the long-term effects of corticosteroids on patients.             | 4(agree)             | 49        | 79      |
|  | 3(neutral)           | 7         | 11.3    |
|  | 5(strongly agree)    | 6         | 9.7     |
| I avoid recommending corticosteroids unless absolutely necessary.                        | 4(agree)             | 31        | 50      |
|  | 3(neutral)           | 16        | 25.8    |
|  | 5(strongly agree)    | 7         | 11.3    |
|  | 2(disagree)          | 4         | 6.5     |
|  | 1(strongly disagree) | 4         | 6.5     |
| I believe corticosteroids are often misunderstood and feared by patients.                | 3(neutral)           | 44        | 71      |
|  | 2(disagree)          | 9         | 14.5    |
|  | 4(agree)             | 4         | 6.5     |
|  | 5( strongly agree)   | 5         | 8.1     |
| I feel stressed when patients demand corticosteroids without a prescription.             | 4(agree)             | 44        | 71      |
|  | 3(neutral)           | 9         | 14.5    |
|  | 5(strongly agree)    | 6         | 9.7     |
|  | 2(disagree)          | 3         | 4.8     |
| I would prefer to suggest alternative treatments over corticosteroids whenever possible. | 4(agree)             | 28        | 45.2    |
|  | 3(neutral)           | 27        | 43.5    |
|  | 2(disagree)          | 4         | 6.5     |
|  | 5(strongly agree)    | 3         | 4.8     |
| Mean phobia score (out of 7)   | 3.78                 |           |         |
| Total respondents  |                      | 62        | 100     |

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### Conflict of Interest

The authors declare that there is no conflict of interest.

### Ethical Approval

Ethical approval was obtained from the Ambo University, College of Medicine and Health Sciences, Department of Pharmacy. Written informed consent was obtained from all participants prior to data collection.

### Declaration of Generative AI

No artificial intelligence (AI) tools were used in the preparation of this manuscript

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