**RESEARCH PAPER**

# Utilization Pattern of Antihistamines among Dermatology Inpatients in a Tertiary Care Hospital in Salem

Dr. Shanmadi Jayaprakash[1]*, Hariharasudhan AB[2], Harisundar Shanmugarajeswaran[3], Harshavardhini Muralidharan[4] and Dr. Arul Balasubramanian[5]

*Department of Pharmacy Practice, Vinayaka Missions College of Pharmacy, Salem-636008, Tamil Nadu, India*
*Email: ideauseful68@gmail.com*

***Received: 24th April, 2026; Revised: 20th May 2026; Accepted: 30th June, 2026; Available Online: 10th July, 2026***

**ABSTRACT**

**Background:** Antihistamines are widely prescribed for the symptomatic management of allergic and inflammatory dermatological disorders. Drug utilization studies help evaluate prescribing trends, promote rational drug use and improve the quality of patient care. This study assessed the utilization pattern of antihistamines among dermatology inpatients in a tertiary care hospital.

**Methods:** A prospective observational cross-sectional study was conducted over six months in the dermatology inpatient department of a tertiary care teaching hospital. A total of 150 adult patients prescribed at least one antihistamine were enrolled. Data regarding demographics, diagnosis, antihistamine class, dose, route, frequency, duration, concomitant medications were collected using a structured case record form. Drug utilization was evaluated using WHO prescribing indicators and the ATC/DDD methodology, while disease severity, quality of life, pain, treatment response and medication adherence were assessed using validated tools.

**Results:** Patients aged 61–70 years constituted the largest group (37.3%), with females accounting for 54.7% of the study population. Contact dermatitis was the most common diagnosis, followed by urticaria and eczema. Chlorpheniramine was the most frequently prescribed antihistamine and topical administration was the predominant route. Three-times-daily dosing and a 14-day treatment duration were most common. Most patients did not receive additional medications, while antifungals and antibiotics were the common concomitant therapies. A majority of patients had severe or very severe disease with substantial impairment in quality of life, although mild pain predominated.

**Conclusion:** Antihistamine prescribing generally reflected prevailing dermatological practice; however, the frequent use of first-generation antihistamines highlights the need for periodic prescription audits and guideline-based prescribing to optimize therapeutic outcomes and promote rational drug utilization.

**Keywords:** *Antihistamines, Drug utilization, Dermatology, Prescription pattern and Rational drug use.*

**How to cite this article:** Jayaprakash S, Hariharasudhan AB, Shanmugarajeswaran H, Muralidharan H, Balasubramanian A., Utilization Pattern of Antihistamines among Dermatology Inpatients in a Tertiary Care Hospital in Salem Int J Drug Deliv Technol. 2026;16(7): 847-852; DOI: 10.25258/ijddt.16.7.90
**Source of support:** Nil.
**Conflict of interest:** None

## INTRODUCTION

Allergic disorders are among the most common chronic health conditions worldwide and constitute a major public health concern due to their increasing prevalence and impact on quality of life. Conditions such as allergic rhinitis, urticaria, atopic dermatitis, drug allergies and insect bite hypersensitivity account for a substantial proportion of outpatient visits and hospital consultations. According to the World Allergy Organization, approximately 20–30% of the global population experiences one or more allergic diseases during their lifetime, with a steadily rising burden in developing countries, including India, owing to rapid urbanization, environmental pollution and changing lifestyles [1-2]. The growing incidence of allergic disorders has consequently increased the demand for effective and safe pharmacological management. Antihistamines remain the cornerstone of symptomatic treatment for a wide range of allergic conditions. These agents exert their therapeutic effect by antagonizing histamine H1 receptors, thereby reducing symptoms such as itching, sneezing, rhinorrhea, erythema and wheal formation[3].

First-generation antihistamines, including chlorpheniramine and diphenhydramine, are effective but are frequently associated with central nervous system adverse effects such as sedation and impaired psychomotor performance. In contrast, second-generation antihistamines such as cetirizine, levocetirizine, loratadine, fexofenadine and bilastine provide comparable efficacy with improved safety profiles and minimal sedation, making them the preferred choice in current clinical

**Author for Correspondence: ideauseful68@gmail.com*

practice[4-5]. Rational drug utilization is an essential component of quality healthcare and is defined by the World Health Organization as prescribing medications appropriate to clinical needs, in doses that meet individual patient requirements, for an adequate duration and at the lowest possible cost[6]. Drug utilization studies evaluate prescribing patterns, identify irrational medication use and provide evidence for improving prescribing practices, promoting patient safety and reducing healthcare expenditure. Such studies are particularly valuable in tertiary care hospitals where diverse patient populations and complex clinical conditions influence prescribing decisions[7]. Although antihistamines are widely prescribed across multiple medical specialties, their utilization patterns vary considerably depending on patient demographics, disease profiles, physician preferences, drug availability and institutional treatment guidelines. Inappropriate selection, unnecessary combination therapy, prolonged use and prescribing of sedating antihistamines when safer alternatives are available may adversely affect treatment outcomes and patient adherence[8].

Despite the extensive use of antihistamines in India, published data describing their prescribing patterns in tertiary care hospitals remain limited, particularly in South Indian healthcare settings. The aim of this study was to evaluate the drug utilization pattern of antihistamines in the dermatology department of a tertiary care hospital with the goal of assessing the rationality, safety and adherence to standard treatment guidelines in clinical prescribing practices.

## METHODOLOGY

**Study Design:**
Prospective observational cross-sectional study

**Study Site:**
The study was carried out in the Dermatology Inpatient Department of Vinayaka Mission's Kirupananda Variyar Medical College and Hospital, Salem, after obtaining approval from the Institutional Ethics Committee (IEC) and permission from the Department of Dermatology.

**Study Duration:**
The study was conducted over 6 months.

**Sample Size:**
A total of 150 patients/prescriptions was enrolled.

**Data Collection:**
Data were collected using a structured case record form that recorded patient demographic details (age and gender), clinical diagnosis, prescribed antihistamines including their class, dose, route, frequency and duration, concomitant medications, inclusion of the prescribed drugs in the Essential Medicines List (EML) and any documented or reported adverse drug reactions (ADRs), where applicable.

**Inclusion Criteria:**
- Patients aged ≥18 years
- Admitted to the dermatology department
- Prescribed at least one antihistamine
- Provided written informed consent

**Exclusion Criteria:**
- Prescriptions from other departments
- Incomplete or illegible records
- Patients unwilling to participate
- Patients with tuberculosis, carcinoma, or immunodeficiency disorders

**Ethical Considerations:**
IEC approval and written informed consent were obtained. Patient confidentiality was maintained and no changes were made to the prescribed treatment.

**Study Parameters:**

| Parameter | Purpose |
|---|---|
| **WHO Core Prescribing Indicators** | Assess rational prescribing |
| **ATC Classification** | Classify antihistamines |
| **Defined Daily Dose (DDD)** | Evaluate drug utilization |
| **Urticaria Activity Score (UAS7)** | Assess urticaria severity |
| **Dermatology Life Quality Index (DLQI)** | Assess quality of life |
| **Symptom Assessment Scale** | Evaluate symptom severity |
| **Treatment Response Scale** | Assess therapeutic response |
| **Morisky Medication Adherence Scale (MMAS-8)** | Measure medication adherence |
| **Beers Criteria** | Assess prescribing appropriateness in elderly patients |
| **Liverpool ADR Avoidability Scale** | Evaluate avoidability of ADRs |

**Statistical Analysis**
Data were entered into Microsoft Excel and analyzed using R software. Continuous variables were expressed as mean ± standard deviation (SD), while categorical variables were presented as frequencies and percentages. WHO prescribing indicators and the Anatomical Therapeutic Chemical/Defined Daily Dose (ATC/DDD) methodology were used to evaluate prescribing patterns. The results were presented using tables and graphs.

## RESULTS

The study included 150 patients distributed across three age groups. The highest proportion of patients belonged to

the 61–70 years age group (56 patients, 37.3%), followed by the 51–60 years age group (52 patients, 34.7%). The 18–50 years age group comprised 42 patients (28.0%). These findings indicate that antihistamine use was more common among older adults, particularly those aged 61–70 years. 82 (54.7%) were female and 68 (45.3%) were male, indicating a slightly higher proportion of female patients in the study. Figure 1 shows that contact dermatitis was the most common diagnosis (28 patients, 28%), followed by urticaria and eczema (21 patients each, 21%). Psoriasis and atopic dermatitis were the least common, with 15 patients (15%) each. Figure 2 indicated that Chlorpheniramine was the most frequently prescribed antihistamine (38), followed by levocetirizine (30), while hydroxyzine (19) was the least prescribed. Figure 3 indicates that the topical route of administration was the most commonly used (61), followed by the oral route (52), while the parenteral route (37) was the least utilized.

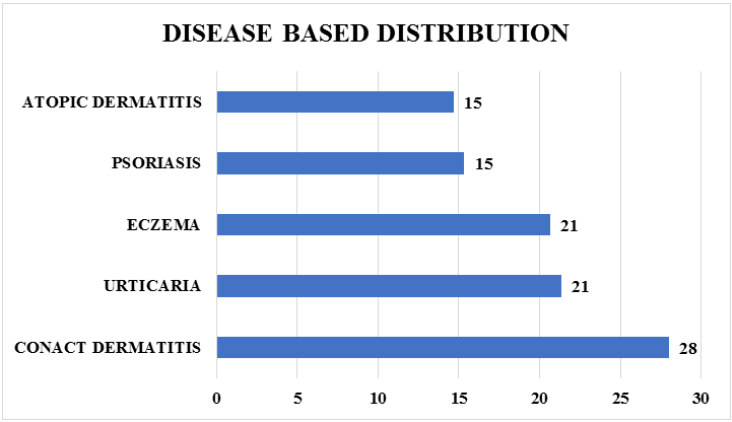


**Figure 1:** Disease based distribution

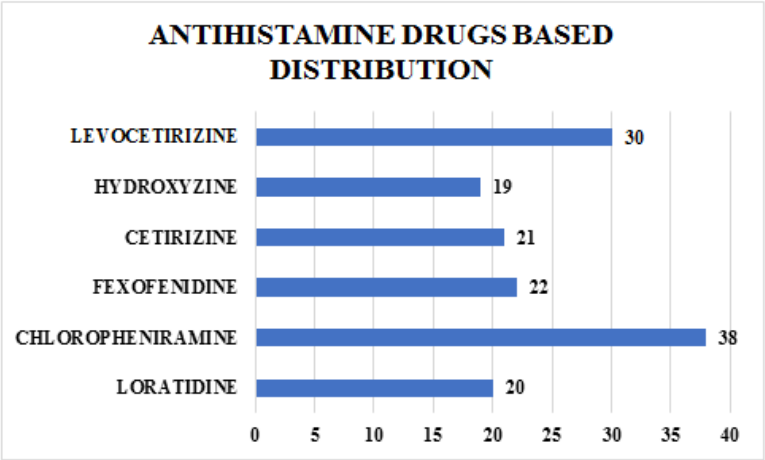


**Figure 2:** Antihistamine drugs-based distribution

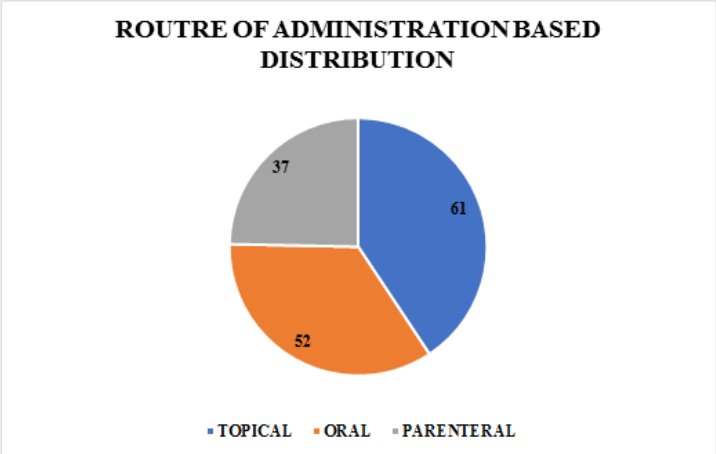


**Figure 3:** Route of Administration-based distribution

Table 1 indicates that the most common frequency of drug administration was TID (three times daily) with 55 patients, followed by OD (once daily) with 49 patients, while BD (twice daily) was prescribed to 46 patients. Figure 4 indicates that the most common duration of drug therapy was 14 days (43 patients), followed by 7 days (39 patients), 10 days (36 patients) and 5 days (34 patients). Table 2 indicates that most patients received no additional medication (39), followed by antifungals (35), antibiotics (30), steroids (25) and steroids with antifungals (21). Table 3 indicates that very severe dermatological conditions were the most common (46), followed by severe (37), moderate (33), mild (29) and well-controlled (5) cases. Table 4 indicates that very large impairment in quality of life was observed in the highest number of patients (51), followed by extremely large (41), moderate (30), mild (16) and no effect (12). Table 5 indicates that mild pain (VAS 0–3) was the most common (61), followed by moderate pain (VAS 4–6) in 48 patients, while severe pain (VAS 7–10) was reported by 41 patients.

**Table 1:** Frequency based distribution

| FREQUENCY | NO OF PATIENTS |
|---|---|
| **OD** | 49 |
| **BD** | 46 |
| **TID** | 55 |

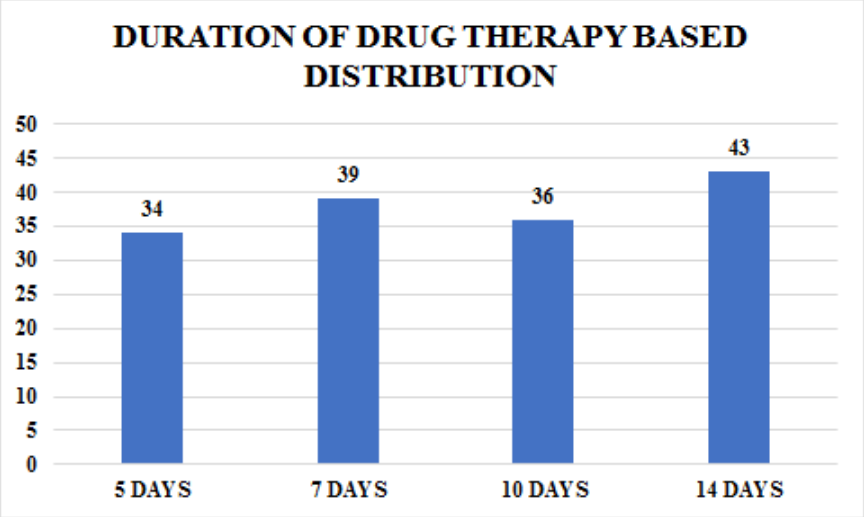


**Figure 4:** Duration of drug therapy-based distribution

**Table 2:** Other medications

| OTHER MEDICATIONS | PATIENTS |
|---|---|
| **NONE** | 39 |
| **ANTIFUNGAL** | 35 |
| **ANTI BIOTIC** | 30 |
| **STEROIDS** | 25 |
| **STEROIDS +ANTIFUNGAL** | 21 |

**Table 3:** Severity of dermatological conditions

| CATEGORY | COUNT |
|---|---|
| **WELL CONTROLLED** | 5 |
| **MILD** | 29 |
| **MODERATE** | 33 |
| **SEVERE** | 37 |
| **VERY SEVERE** | 46 |

**Table 4:** Quality of life

| CATEGORY | COUNT |
|---|---|
| **VERY LARGE** | 51 |
| **EXTREMELY LARGE** | 41 |
| **MODERATE** | 30 |
| **MILD** | 16 |
| **NO EFFECT** | 12 |

**Table 5:** Visual Analogue Scale

| CATEGORY | VAS RANGE | COUNT |
|---|---|---|
| **Mild** | 0-3 | 61 |
| **Moderate** | 4-6 | 48 |
| **Severe** | 7-10 | 41 |

## DISCUSSION

The present study showed that antihistamine use was highest among patients aged 61–70 years, followed by those aged 51–60 years. This pattern suggests that allergic and inflammatory skin disorders requiring antihistamine therapy are more frequently encountered in older adults. A recent drug utilization study conducted in a tertiary care dermatology department also reported that middle-aged and elderly patients represented the largest proportion of dermatology attendees, supporting the age distribution observed in the present study[9]. Females constituted a slightly higher proportion of the study population than males. Similar findings have been documented in recent prescription pattern studies, where female patients were more commonly represented in dermatology outpatient clinics. This trend may be related to greater healthcare-seeking behaviour among women and the relatively high occurrence of chronic dermatological conditions affecting

females[9,10]. Contact dermatitis was identified as the most frequent dermatological condition in this study, followed by urticaria and eczema. Comparable findings have been described in recent epidemiological investigations, which reported contact dermatitis as one of the leading causes of outpatient dermatology visits. The frequent use of antihistamines in these patients is mainly intended to relieve itching and improve patient comfort rather than to modify the underlying inflammatory process[11].

Among the antihistamines prescribed, chlorpheniramine was the most frequently used, whereas hydroxyzine was prescribed least often. This observation differs from several recent studies in which levocetirizine and other second-generation antihistamines were more commonly prescribed because of their favourable safety profile and reduced sedative effects. The greater use of chlorpheniramine in the present study may reflect local prescribing preferences, easy availability and lower treatment cost[12]. The topical route was the most common method of drug administration in this study, followed by the oral route. This finding is consistent with current dermatological practice, where topical preparations remain the preferred treatment option for localized skin diseases because they achieve therapeutic effects directly at the site of disease while limiting systemic exposure[10,13]. Most prescriptions in the present study were written with a three-times-daily dosing schedule. This differs from reports describing predominant use of once-daily regimens, particularly for second-generation antihistamines. The higher frequency observed in the present study can be explained by the greater use of chlorpheniramine, which has a shorter duration of action and therefore requires repeated daily administration[12].

A treatment duration of 14 days was most frequently observed, followed by 7 and 10 days. Similar treatment periods have been reported in recent dermatology drug utilization studies, where antihistamines are generally prescribed for short courses to control symptoms during the active stage of allergic or inflammatory skin diseases while minimizing unnecessary prolonged medication use[13]. The majority of patients did not receive additional medications, although antifungal agents, antibiotics and corticosteroids were commonly prescribed when clinically indicated. Recent studies have also shown that concomitant therapy depends primarily on the underlying dermatological diagnosis, with antihistamines frequently combined with topical corticosteroids or antimicrobial agents to provide comprehensive disease management[10,13]. Most patients in the present study were classified as having severe or very severe disease. In addition, a large proportion experienced marked impairment in quality of life. These findings are comparable with recent reports demonstrating that chronic dermatological disorders are associated with considerable physical discomfort, sleep disturbance, emotional stress and reduced social functioning, emphasizing the need for effective symptomatic treatment[12]. Pain assessment revealed that mild pain was more common than moderate or severe pain. Although itching remains the predominant symptom in most dermatological disorders, recent studies have shown that inflammatory skin diseases may also produce varying levels of pain and discomfort. Therefore, evaluation of both pain and pruritus is important for comprehensive patient management and assessment of treatment outcomes[11-12].

## CONCLUSION

This study provides valuable insight into the prescribing pattern of antihistamines in the dermatology department of a tertiary care hospital. Older adults and female patients constituted the majority of antihistamine users, with contact dermatitis being the most common indication. Chlorpheniramine remained the most frequently prescribed antihistamine and topical administration was preferred for most patients. The findings indicate that antihistamine use was generally consistent with clinical practice, although greater utilization of newer second-generation antihistamines may further improve patient safety and treatment adherence.

**ACKNOWLEDGMENT:** I sincerely thank my guide, professors and Principal for their valuable guidance, encouragement and support throughout the successful completion of this research work.

**AI USE STATEMENT:** No artificial intelligence (AI) or AI-assisted tools were used in the writing, data analysis, or creation of figures for this manuscript.

## REFERENCES

1. Pawankar R, Canonica GW, Holgate ST, Lockey RF, Blaiss MS, editors. WAO White Book on Allergy: Update 2013. Milwaukee (WI): World Allergy Organization; 2013.
2. Bousquet J, Khaltaev N, Cruz AA, Denburg J, Fokkens WJ, Togias A, et al. Allergic Rhinitis and its Impact on Asthma (ARIA) 2008 update. Allergy. 2008;63(Suppl 86):8-160. doi:10.1111/j.1398-9995.2007.01620.x.
3. Simons FE, Simons KJ. Histamine and H1-antihistamines: celebrating a century of progress. J Allergy Clin Immunol. 2011;128(6):1139-50.e4. doi:10.1016/j.jaci.2011.09.005.
4. Church MK, Church DS. Pharmacology of antihistamines. Indian J Dermatol. 2013;58(3):219-24. doi:10.4103/0019-5154.110832.
5. Zuberbier T, Abdul Latiff AH, Abuzakouk M, Aquilina S, Asero R, Baker D, et al. The EAACI/GA²LEN/EuroGuiDerm/APAAACI guideline for the definition, classification, diagnosis and management of urticaria. Allergy. 2022;77(3):734-66. doi:10.1111/all.15090.
6. World Health Organization. The Rational Use of Drugs: Report of the Conference of Experts. Nairobi: World Health Organization; 1985.

7. Wettermark B, Elseviers M, Almarsdóttir AB andersen M, Benko R, Bennie M, et al. Introduction to drug utilization research. In: Elseviers M, Wettermark B, Almarsdóttir AB andersen M, Benko R, Bennie M, editors. Drug Utilization Research: Methods and Applications. Chichester: Wiley Blackwell; 2016. p. 1-12.

8. Holgate ST, Canonica GW, Simons FE, Taglialatela M, Tharp M, Timmerman H, et al. Consensus Group on New-Generation Antihistamines (CONGA): present status and recommendations. Clin Exp Allergy. 2003;33(9):1305-24. doi:10.1046/j.1365-2222.2003.01753.x.

9. Naik PS, Kandra NV, Santha Bai K. A prospective, observational drug utilization study in the dermatology out-patient department of a government hospital, Nandyal andhra Pradesh. Int J Curr Pharm Res. 2024;16(6):89-92. doi:10.22159/ijcpr.2024v16.5087.

10. Jain A, Kumar R, Sharma P, et al. Analysis of prescribing practices in the dermatology outpatient department of a tertiary care teaching hospital. Cureus. 2023;15:e38919.

11. Hao A, Yu RP, Kikuchi R, Guo L, Yamamoto RK, Tolson H, et al. Contact dermatitis in the United States: a population-based study on patient visit characteristics and treatment prescription patterns. Dermatitis. 2025;36(1):1-10.

12. Dogra S, Mahajan R, Parsad D, et al. Prescription practices regarding the use of systemic drugs in the management of patients with chronic pruritus amongst Indian dermatologists: a questionnaire-based survey. Indian Dermatol Online J. 2024;15(1):32-40.

13. Reddy K, Prasad S, Rao M, et al. A prospective observational study on drug utilization pattern in dermatology OPD at a tertiary care centre in South India. Indian J Med Pharm Res. 2025.