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A PROSPECTIVE STUDY ON DRUG PRESCRIBING PATTERN AMONG THE ADULTS IN DERMATOLOGY DEPARTMENT OF A TERTIARY CARE HOSPITAL, MANDYA

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ABSTRACT

Background: Skin diseases cause a huge disease burden worldwide and constitute 2% of total OPD consultations worldwide. In India, patients in the second and third decades of age group (3.7–51.17%) form the largest population suffering from various skin diseases. Assessing the quality of care through periodic prescribing pattern review should become part of everyday clinical practice. So, the aim was to describe drug prescribing pattern among adults attending outpatient dermatology department of MIMS Teaching hospital. **Objectives**: To describe drugs prescribed to adult patients in dermatology department of tertiary care hospital, Mandya and to describe disease proportion among study population. **Methods and Methodology:** It was a prospective study. The study period was about 6 months and the relevant data was collected from outpatient prescription. **Result:** A total of 317 prescriptions were collected from dermatology OPD and analyzed. Females were more 178 (56.15%) than Males 139 (43.85%). Majority patients were belongs to age group 18 -30 years. Most common skin diseases found were Tinea infection (73). 912 drugs found in 317 prescriptions among that an average number of drugs per prescription of were 2.87%. Antifungals (227) were the most commonly prescribed class of drugs. **Conclusion:** Most of the drugs prescribed were included in the WHO essential drug list, India 2019. Fungal infections were reported most commonly so, we should create awareness regarding the personal and community hygiene. Prescription analysis should be done periodically to rationalize the prescription.

KEYWORDS: Dermatology, Skin diseases, Prescribing pattern, Outpatient dermatology department.

INTRODUCTION

Dermatology is the branch of medicine which deals with diseases pertaining to skin, nails and hair. Skin diseases are the most common disease conditions and that cause burden. These are usually chronic and require a longer duration of medical treatment. Around 3000 varieties of skin diseases were identified in the clinical literature while the most of them are rarely found. They vary from country to country and also in different regions within the same country. Various studies stated that the prevalence skin diseases as 11.6% to 63% in general population. Altogether they stand in the 18th position causing health burden. They constitute 2% of total outpatient department consultations all over the world. Patients in the second and third decades of age group (3.7-51.17%) are the largest part of the population suffering from various forms of dermatological conditions.[1]

Skin disorders such as pyoderma, acne, urticaria, dermatitis, scabies, fungal skin infections and alopecia are common in India. [2] They increases suffering in terms of physical, psychological, social as well as increases financial burden as most of skin diseases are chronic and require longer duration of treatment.[3] They have a significant impact on the quality of life of the people, due to wide variation of climate, religion, culture and socio-economic status. The categories of drugs that are commonly used in dermatology are antifungals, antihistamines, antibiotics, vitamins and minerals, antivirals, emollients, keratolytics and topical corticosteroids.[4] Some of the factors that lead to skin diseases mainly includes ignorance, low hygiene,

improper sanitization, drastic climate change, overcrowding.[5]

Prescription is an important document between the physician and the patient. Prescribing of medications is a necessary skill that needs to be continuously analyzed and refined. So, the patterns of drug use in a hospital setting need to be monitored periodically in order to analyze their rationality and increase the therapeutic benefits and reduce adverse effects. [6] Improved in the quality of life by enhancing standards of medical treatment at health care delivery system, setting standards and assessing the quality of therapy through prescription review should become part of clinical practice. [7]

WHO in collaboration with the International Network for the Rational use of Drug (INRUD) developed drug use related core indicators for assessing drug use. These indicators are widely accepted as a global standard for identification of some common problems associated with prescribing such as polypharmacy, inclination of prescribers for branded products, deviation from essential medicines list. [8]

The study of prescribing patterns is to monitor, evaluate and if necessary, suggest modifications in the prescribing behavior of medical practitioners to make medical care rational and cost-effective. This study not only improves the standards of medical treatment at in the health system, but also supports in the identification of drug use related problems such as, drug-drug interaction, polypharmacy. So, the study aims to describe the drug prescribing pattern among adults in dermatology department in a tertiary care hospital, Mandya by obtaining information on demographic characteristics and prescription.

OBJECTIVES

- To describe the drugs prescribed to adult patients in dermatology department of MIMS Teaching hospital, Mandya.
- To describe the proportion of dermatological disease.

MATERIALS AND METHODS

Study Design: Prospective study.
Study Period: This study was conducted for a period of six months. 4 months of data collection, 2 months of data analysis and write up.
Study Population: Patients presenting to the outpatient dermatology department at MIMS Teaching hospital.
Sample Size: 317 Prescriptions.
Sampling Method: Convenience sampling.
Study approval: Ethical clearance was obtained from the "Institutional Ethics Committee" of MIMS Teaching hospital, Mandya.

Inclusion Criteria
1. Patients of both sexes male and female.
2. Patients of age above 18 years.
Exclusion Criteria: 1.Burn patients.

Method of Data Collection: Data was collected from the prescriptions of adult patients attending outpatient dermatology department of tertiary care teaching hospital, Mandya.

Analysis of results
For the analysis of result, simple percentage calculation, mean and standard deviation were used to arrive at a conclusion of our study. Microsoft word and Microsoft Excel are used to generate graphs and tables wherever required.

RESULT

This study was conducted in Dermatology Department of MIMS Teaching hospital, Mandya. A total of 317 adult patients prescription in MIMS Teaching hospital were enrolled in the study based on study criteria. The required details from the patient's prescription were recorded in a suitably designed patient profile form.

Distribution of patient based on gender
The number of males were 139 (43.85%) and the number of females were 178 (56.15%). This shows that females are more prone to dermatological conditions.

Table 1: Distribution of patients based on gender.

Gender	Number of patients	Percentage
Male	139	43.85%
Female	178	56.15%
Total	317	100%

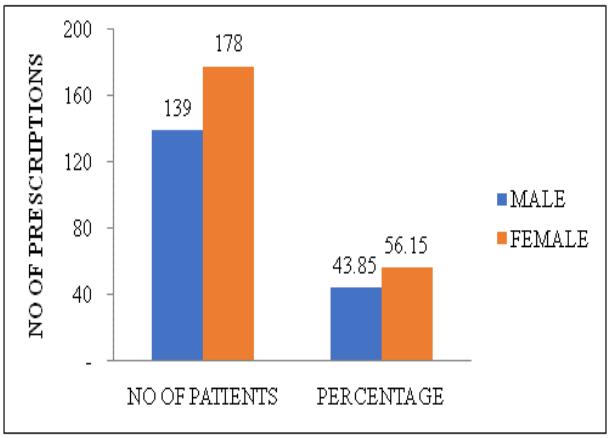

Figure 1: Distribution of patients based on gender.

Distribution of patients based on age
Among the 317 patients involved in the study, adults between age group 18-30years (119) were more affected with dermatological disorders followed by 31-40years (65), 41-50years (59), 61-70years (37), 51-60years (26) and minimum number of patients were found in the age group of >70 years (11).

Table 2: **Distribution of patient based on age.**

Age group	Number of patients	Percentage
18-30	119	38%
31-40	65	20%
41-50	59	19%
51-60	26	08%
61-70	37	12%
>70	11	03%
Total	317	100%

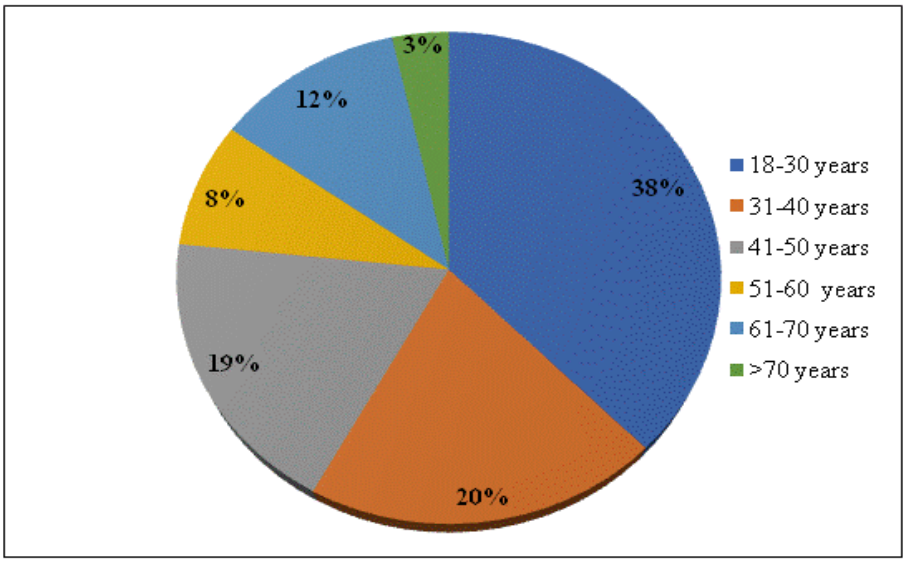

Figure 2: **Distribution of patients based on age.**

Disease distribution among study population

Among the study population, most common cases reported were Tinea infections (73) followed by acne (39), dermatitis (29), melasma (17), DHL (17), eczema (16), urticaria (12), psoriasis (12), cellulitis (11), pityriasis versicolor (10), pyoderma (7), shingles (7), xerosis (7), keloid (6), pruritis (5), vitiligo (3), scabies (2) and other skin conditions are found to be 44.

Table 3: Disease distribution among study population.

Disease	Number of patients	Percentage (%)
Tinea infection	73	23%
Acne	39	12%
Dermatitis	29	09%
Melasma	17	05%
Dhl	17	05%
Eczema	16	05%
Urticaria	12	04%
Psoriasis	12	04%
Cellulitis	11	03%
P.versicolor	10	03%
Pyoderma	07	02%
Herpes (shingles)	07	02%
Xerosis	07	02%
Keloid	06	02%
Pruritis	05	02%
Vitiligo	03	01%
Scabies	02	01%
Others	44	14%

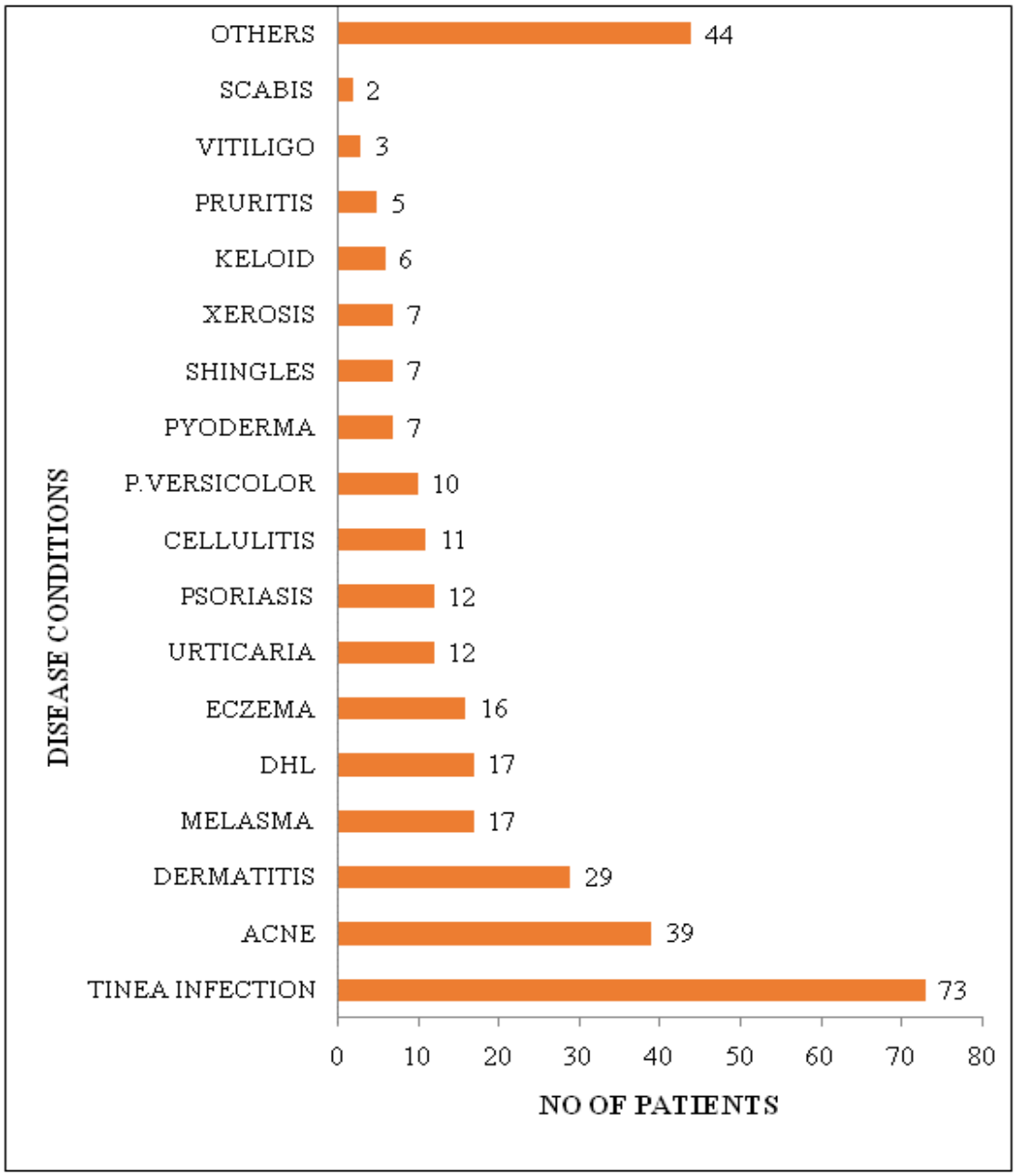

Figure 3: Disease distribution among study population.

Analysis of number of drugs per prescription

A total of 912 drugs were prescribed among that number of drugs prescribed per prescription varied from 1 to 8 drugs with an average number of drugs per prescription of 2.87%. Most of the prescriptions are consisting minimum of 3 drugs (120) followed by 2 drugs prescription (85), 4 drug prescription (55), 1 drug prescription (25), 5 drug prescription (17), 6 drug prescription (6), 7 drug prescription (5). The remaining patients were prescribed with 8 drugs per prescription.

Table 4: Analysis of number of drugs per prescription.

Number of drugs per prescription	Number of prescription	Percentage (%)
One	25	08%
Two	85	27%
Three	120	38%
Four	55	17%
Five	17	05%
Six	06	02%
Seven	05	02%
Eight	04	01%

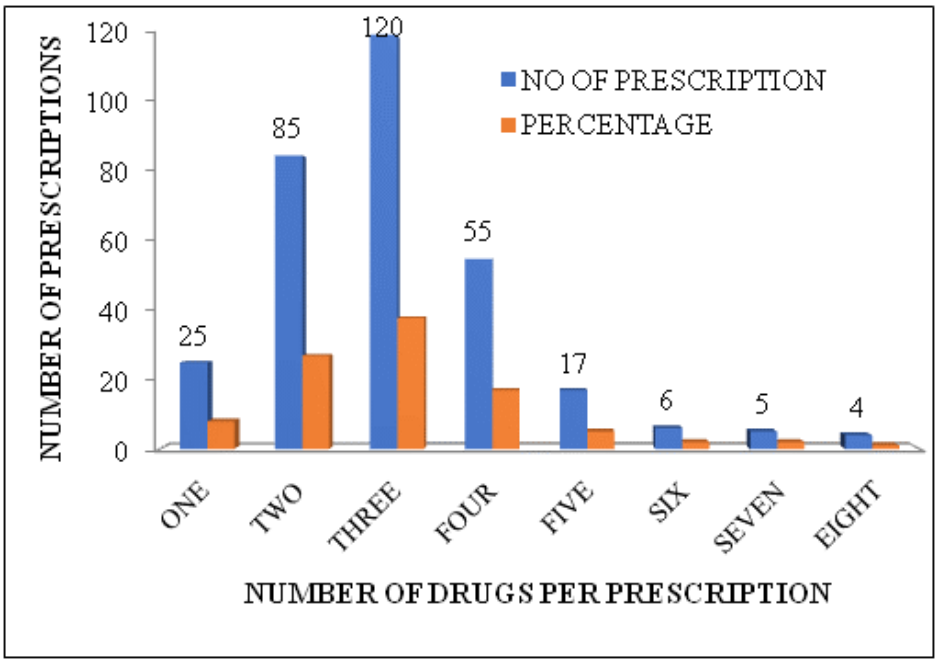

Figure 4: **Analysis of number of drugs per prescription.**

Different class of drugs prescribed

The distribution of drugs by drug class shows that the most frequently prescribed class of drug were Antifungals (227), Antihistamines (185), Antibacterial (108), Corticosteroids (76), Skin protectives (61), Emollients (50), Vitamins and minerals (46), Keratolytics and Skin lightners (45), Antacids (28), Analgesics (25), Astringent (19), Antiviral (06) and least prescribed class of drug was found to be Scabicides (02).

Table 5: Different class of drugs prescribed.

Class of drug	Number of drugs	Percentage
Antifungals	227	25%
Antihistamines	185	20%
Antibacterial	108	12%
Corticosteroids	76	08%
Skin protectives	61	07%
Emollients	50	05%
Vitamins and minerals	46	05%
Antacids	28	03%
Analgesics	25	03%
Keratolytic and skin lightners	45	05%
Astringent	19	02%
Antiviral	06	01%
Scabicides	02	00%
Miscellaneous	34	04%

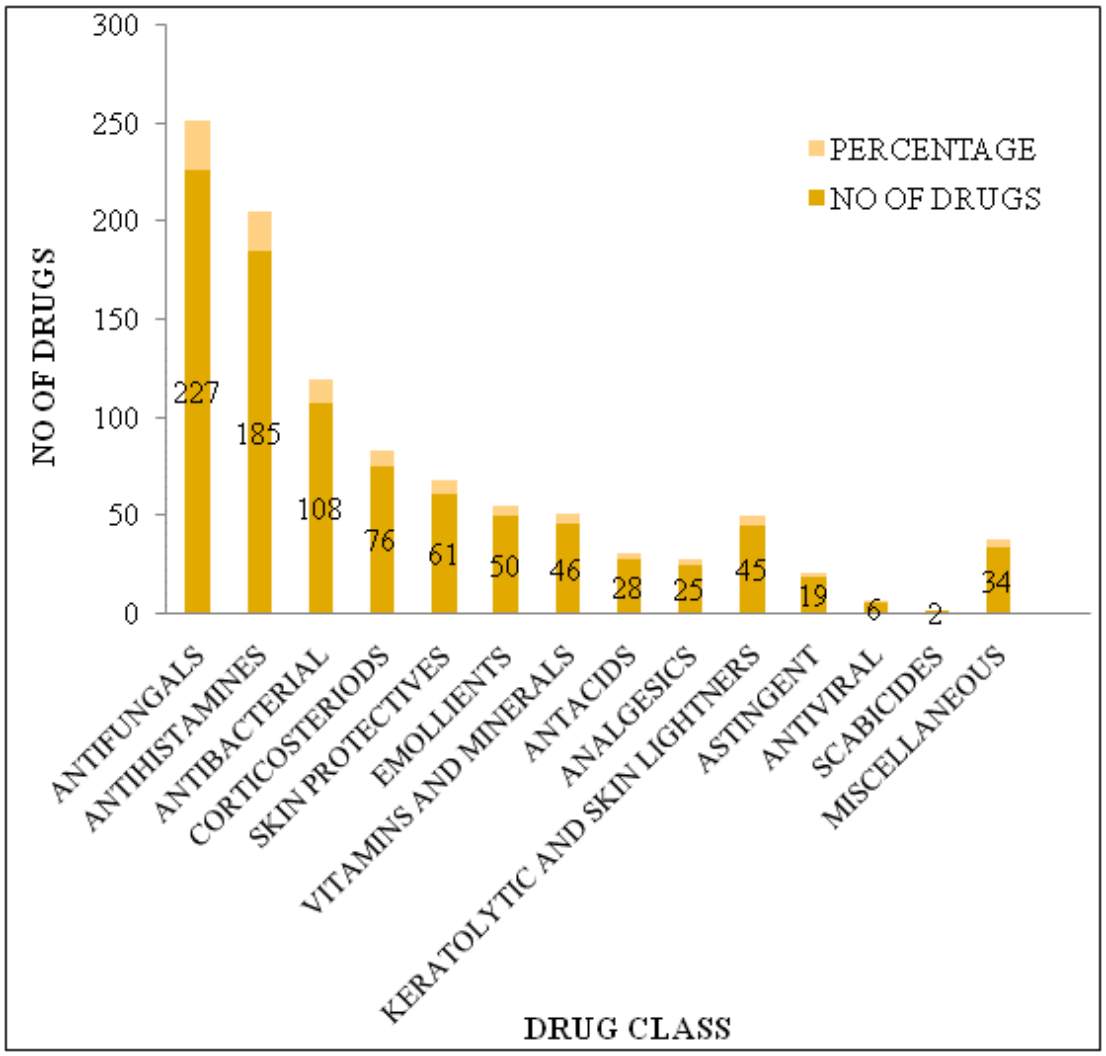

Figure 5: Different class of drugs prescribed.

Different dosage forms prescribed

The below Table represents the distribution of different dosage forms prescribed. A total of 912 drugs were prescribed in 12 different dosage forms. Majority of the drugs in the study population were prescribed as the Tablets (327, 36%) followed by Creams (200, 22%) and the others were Capsules (93, 10%), Gels (59, 06%), Shampoo (50, 05%), Lotions (45,05%), Oils (45, 05%), Ointment (43, 05%), Soaps (25, 03%), Injections (06, 0.60%), Dusting powder (04, 0.40%) and miscellaneous dosage forms (15, 02%). The reason for high percentage of tablets being prescribed that, they are an economical dosage form and easy to administer.

Table 6: **Different dosage forms prescribed.**

Dosage forms	Number of patient	Percentage
Tablets	327	36%
Creams	200	22%
Capsules	93	10%
Gels	59	06%
Shampoo	50	05%
Lotions	45	05%
Oils	45	05%
Ointment	43	05%
Soaps	25	03%
Injections	06	0.60%
Dusting powders	04	0.40%
Others	15	02%

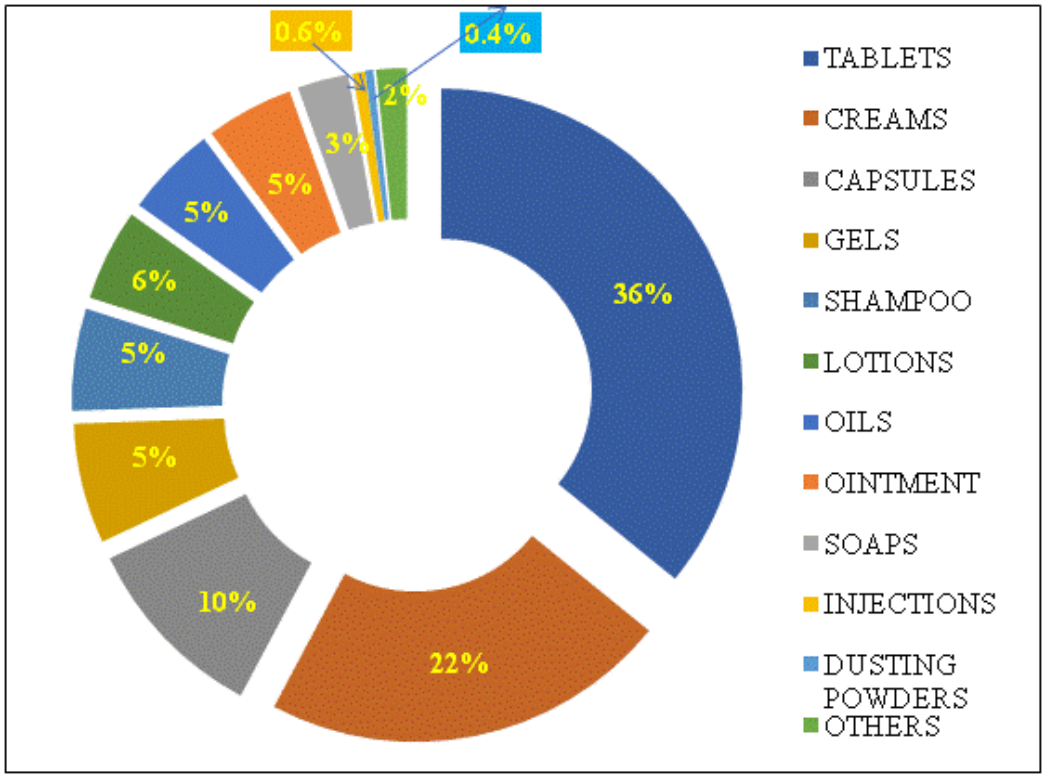

Figure 6: Different dosage forms prescribed.

Distribution of drugs prescribed by various route

A total of 912 drugs were prescribed among 317 prescriptions. The majority of the drugs prescribed were by the Topical route (486) followed by Oral route (420) and the least number of drugs were Injections (06).

Table 7: Distribution of drugs prescribed by various routes.

Route of administration	Number of patient	Percentage
Oral	420	46%
Topical	486	53%
Injections	06	01%
Total	912	100%

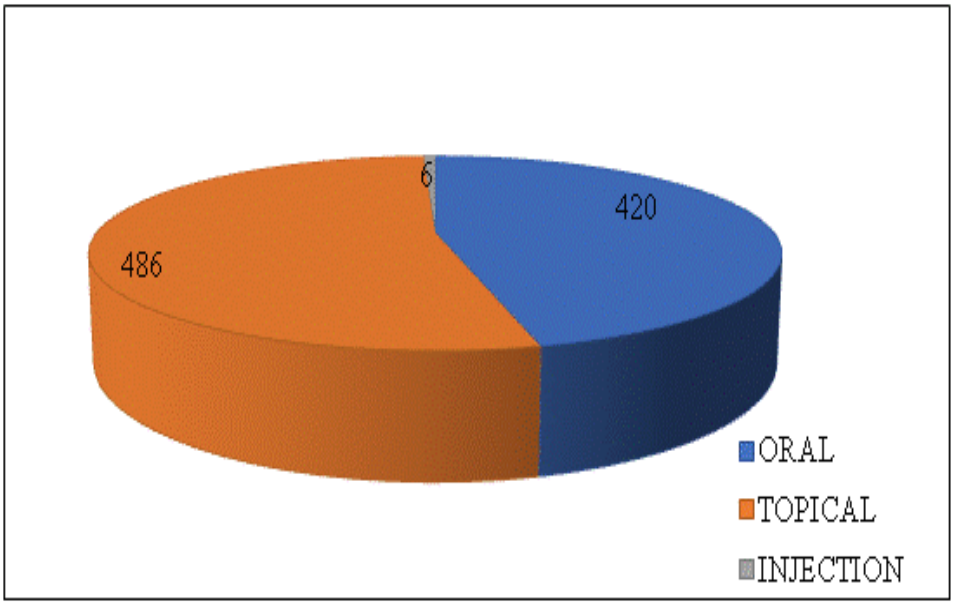

Figure 7: Percentage of drugs prescribed by different routes.

Different antihistamines prescribed

Among antihistamines cetirizine (176) were the most commonly prescribed drug followed by chlorphenaramine maleate (9).

Table 8: Different antihistamines prescribed.

Name of the drugs	Number of drugs	Percentage (%)
Ceterizine	176	95.13%
Chlorphenaramine maleate	09	4.86%
Total drugs	185	100%

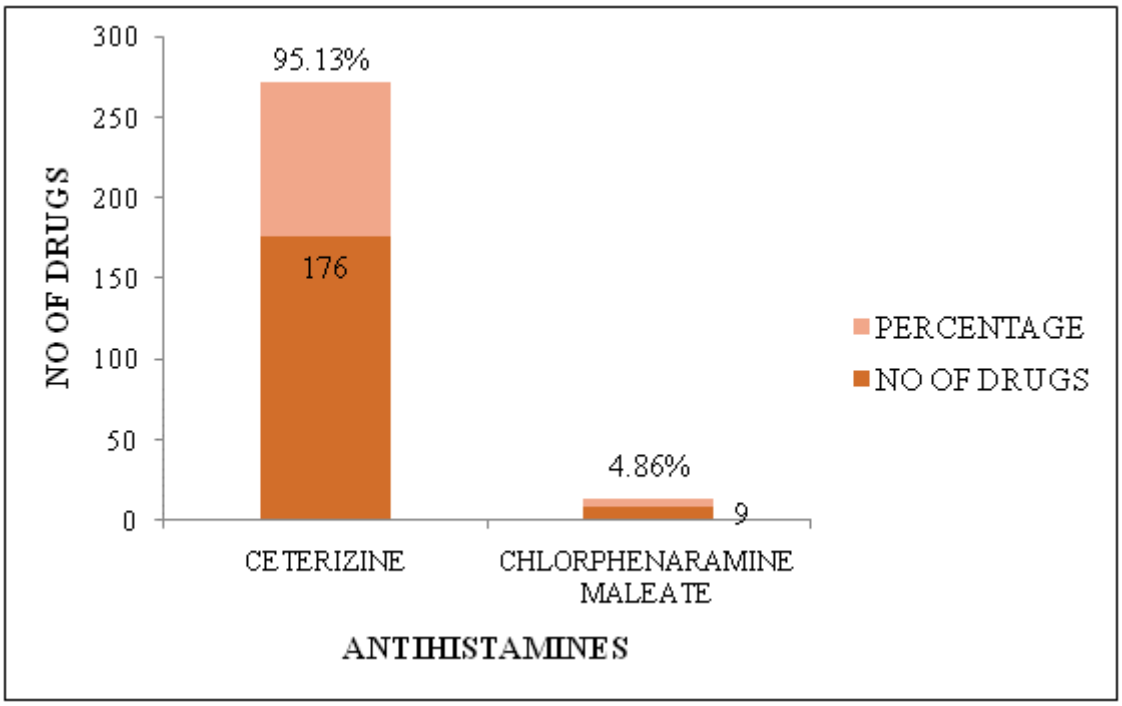

Figure 8: Different antihistamines prescribed.

Different antifungal drugs prescribed

Among antifungals, Fluconazole (45) was most commonly prescribed followed by Luliconazole (44) and Sertaconazole (41).

Table 9: Different antifungal drugs prescribed.

Name of the drugs	Number of drugs	Percentage (%)
Sertaconazole	41	18.06%
Itraconazole	25	11.01%
Luliconazole	44	19.38%
Fluconazole	45	19.82%
Ketaconazole	34	14.97%
Terbinafine	06	2.64%
Ciclopirox	02	00.88%
Clotrimazole	30	13.21%
Total drugs	227	100%

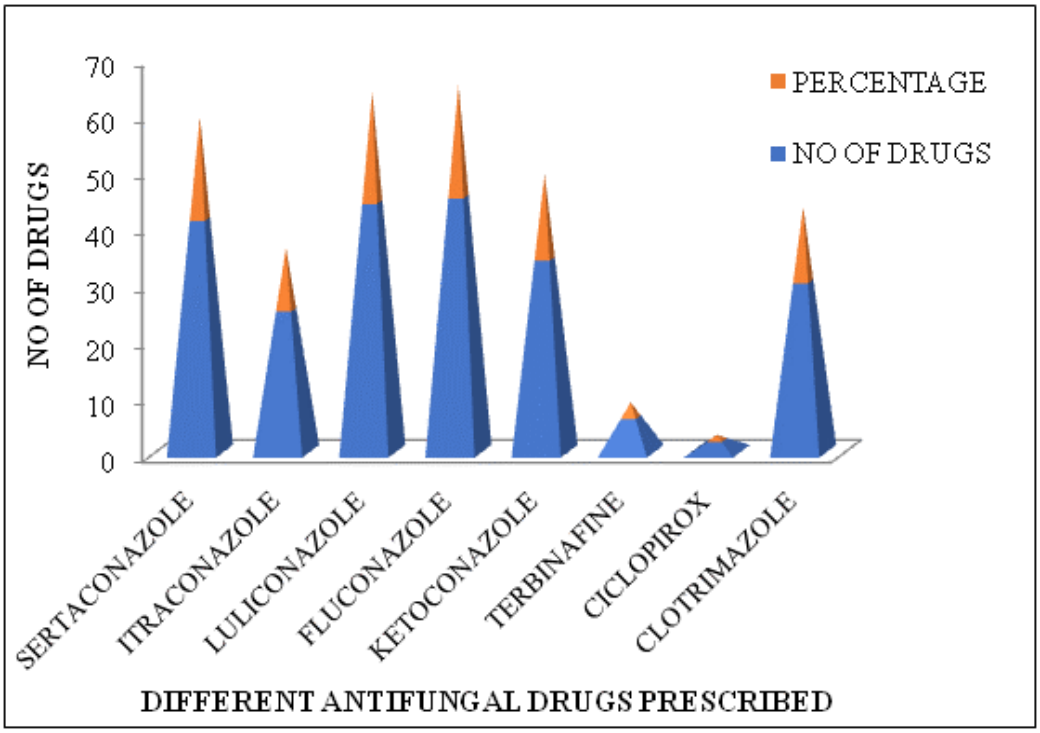

Figure 9: Different antifungal drugs prescribed.

Distribution of drugs prescribed by generic name /brand name

Among the 912 drugs, majority of drugs were prescribed by their respective generic name 615 (67%) and the remaining were prescribed by their brand names 297 (33%). This shows the good prescribing pattern in the dermatology outpatient department.

Table 10: **Distribution of drugs prescribed by generic name/brand name.**

	Number of drugs	Percentage
Generic name	615	67.44%
Brand name	297	32.56%
Total	912	100%

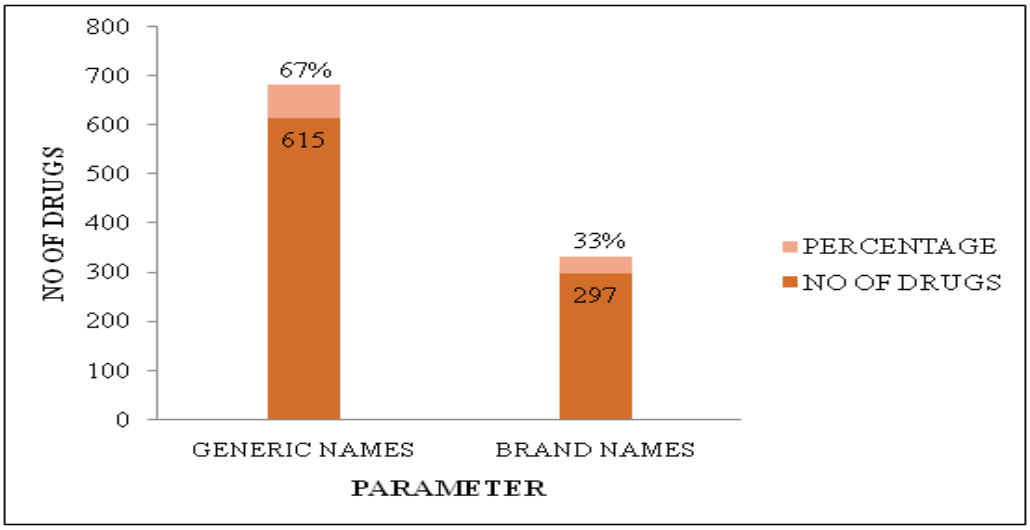

Figure 10: **Distribution of drugs by generic/brand name.**

WHO/INURD drug use indicators

Of the 912 drugs prescribed, average number of drugs per prescription was 2.87, it is more than the value given by WHO. Percentage of drugs prescribed by generic name was found to be 67.44%. Percentage of encounter with antibiotics prescribed were 11.77%. Percentage of drugs prescribed from WHO Essential drug list were 26.20%, among them Flucanazole (4.38%), Clindamycin

(3.50%), Clotrimazole (3.28%). Percentage of encounter with an injection was found to be 0.65% compare to WHO scale the obtained value of encounter with an injection is less.

Table 11: WHO/ INRUD core indicators.

Sl.no	Parameter	WHO scale	Obtained value
1.	Average number of drugs per encounter	1.6-1.8	2.87
2.	Percentage of drugs prescribed by generic name	100%	67.44%
3.	Percentage of an encounter with antibiotic prescribed	20-26.8%	11.77%
4.	Percentage of drugs prescribed from who essential drug list	100%	26.20%
5.	Percentage of encounter with an injection prescribed	13.4-24.1%	0.65%

DISCUSSION

In the present study of describing prescription pattern of 317 prescriptions, that are collected from the outpatient dermatology department of tertiary care teaching hospital, Mandya. It was found that the number of female patient were more than males this result was in concordance with the studies conducted by Anuj Kumar Pathak *et al.,* [3] and different from the study done by C Anirudh Jagannadh *et al*.[12]

Skin diseases were found most commonly in the age group between 18-30 years, when compared to people of other age and in addition to this mostly observed disease conditions in the study was found to be Tinea infections followed by Acne, Dermatitis these results were similar to the study done by Ramam Sripada *et al.,* [1] where the Eczema followed by Fungal infections, Benign skin tumors were the common diseases found in a study done by Jain *et al.*[11] this discrepancy was due to different socioeconomic status. The high incidence of infectious disease in developing countries like India may be due to inadequate medical care, poor sanitation and nutrition. The warm humid climate of Mandya region may account for high incidence of fungal infections. The incidence of viral infections (2%) was relatively low in our study which is comparable to similar studies done in Northern India (1.6%).

An average number of drugs per encounter are a main parameter for educational intervention in prescribing practices. The number of drugs per encounter varied from 1-8 with an average of 2.87 drugs per encounter which is higher than 1(WHO recommended limit), lower than the study conducted by Sumana *et al.,* [6] Vineetha *et al.*[13] where the values were 3.04, 2.95 respectively. It is preferable to prescribe the number of drugs per prescription as low as possible because highest number leads to risk of drug-drug interaction, adverse effects and cause economical burden to the patient. It is important to choose the right medicine for a patient to achieve the best results of drug therapy. In our study the various drug forms were compared, it was found that topical formulations (in the form of creams, lotions, ointments, powder, oils and gel) were commonly prescribed followed by oral formulations and injections, this result was in accordance with the study conducted in Mumbai by Narwane *et al.,* [14] This finding supports the use of topical preparation for treating skin disease as they have site specific action, less systemic absorption resulting in less side effects and convenient for patient use.

In our study, Antifungals 227 (Fluconazole (45) was the common drug) drugs were prescribed at maximum number; because the highest number of cases reported were fungal infections. Antihistamines 185 (Cetirizine (176) was the common drug) were the second most class of drugs prescribed this result was similar to study done by Khobragade *et al.,* [10]. Antihistamines were prescribed second most because most of the dermatological condition were associated with itching (Tinea infections, Eczema, Psoriasis). A total of 912 drugs were prescribed among that 615 (67.44%) were prescribed by their generic name and 297 (32.56%) were by brand name this indicates the good prescribing pattern and this result was contrast when compared to Tikoo D *et al.,* [15] study where only 19.3% drugs were prescribed under their generic names while brand names were used for 80.7% drugs. Our study reports that around 26.20% of drugs were prescribed from WHO essential drug list, which is lower compared to WHO optimum value (100%), this is because prescription were mostly prescribed with Antihistamines (cetirizine) and several topical preparation that were not included in WHO essential drug list. Percentage of encounter with an injection and antibiotic was found to be 0.65% and 11.77% respectively.

CONCLUSION

Most of the drugs prescribed in dermatology department by their generic name and were included in the WHO essential drug list, India 2019. This indicates good prescribing pattern. Fungal infections were reported most commonly among the study population may be this was due to poor hygiene and humidity. So, clinical pharmacist should create awareness regarding the personal and community hygiene which might end up in the prevention of dermatological diseases. A prescription analysis is often an eye opener and thus, it should be done periodically to rationalize the prescription, suggest cost effective management and reduce error.

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CONFLICT OF INTEREST: The authors declared no conflict of interest.

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