

# A DETAILED SURVEY ON PRESCRIBING PREFERNCES OF DERMATOLOGICAL DRUGS

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## ABSTRACT

The aim of the present study was to investigate prescribing preference of dermatological drugs. The study was a prospective, cross sectional observational study, carried out in retail and wholesale pharmacy in Thrissur and Palakkad district. 75 patients with dermatological diseases were analyzed for a period of 3 months from April 2023 to June 2023. From this a total of 200 prescriptions, 553 drugs were studied. The data like demographic details of the patients, disease prevalence, prescribing patterns, price distribution, were collected and the collected data was assessed to determine the prescribing trend. Regarding the demographic profile of 75 patients, 45.33% were male and 54.67% were female. Age wise distribution of the study population where more than 50% of the patients were from the age group of 21 to 40 years. Acne vulgaris was found to be most common dermatological disorder followed by eczema. Among all the category of drugs, Anti histamines, Antibiotic, Steroids and Antifungal were most commonly prescribed category of dermatological drugs, levocetirizine( 29.3%), clobetasol propionate(19.4%), clotrimazole(17.4%), clindamycin phosphate(26.1%) are the top four prescribed dermatological drugs. Topical agents constitute almost 60% of the total prescription and average number of drug per prescription was 2.76, irrespective of dosage form prescribed. On the 553 drugs 506 were prescribed by brand names and 47 were prescribed by generic name.

The study shows a very wide price variation of different brands of the same content of drug in dermatology. For long term adherence of treatment, cost of drug plays an important role for successful drug therapy. Brand with aggressive marketing promotion have the highest cost as compared to brand with no marketing promotion. In present day most of drugs are marketed in dermatology is based on different promotional patterns, in which sale promotion is dominating followed by advertisement, global branding, gimmicks, public relation and lowest promotion by person selling.

## INTRODUCTION

**Dermatology** is a medical discipline that deals with the study, research, diagnosis, and management of any health conditions that may affect the skin, hair, nails and membranes. It is a specialized field that involves the study of both medical and surgical aspects of skin conditions, including infections, allergic reactions, autoimmune diseases, genetic disorders, and skin cancers. Dermatologists use variety of techniques to diagnose and treat skin conditions such as physical examination, blood tests, biopsies, and imaging studies. They may also prescribe medications or perform surgical procedures such as excision, skin grafts, and laser therapy, depending on the specific condition.

**Skin** is the part of integumentary system that constitutes the largest organ of the human body and hence it is exposed to injury by various factors such as environmental, chemical, infectious agents etc. Skin serves many vital functions, including protecting from the outside environment as well as the internal organs from injury and bacteria. Keeping the skin healthy is necessary because it can directly affect the rest of your body, especially your immune system. It also indicates the good health of the human body.

Skin diseases, also known as dermatological or cutaneous disorders, are conditions that affect the skin. There are numerous types of skin diseases, each with its causes, symptoms, and treatments. Some common examples of skin diseases include:

**Acne vulgaris** is a common chronic skin disease involving blockage or inflammation of pilosebaceous units (hair follicles and their accompanying sebaceous gland).

**Psoriasis** refers to a skin disease that causes rash with itchy, scaly patches, most commonly on the knees, elbows, trunks and scalp. Psoriasis is a common, long term disease with no cure. It can be painful and may interfere with sleep and make it hard to concentrate.

**Eczema** is a type of skin swelling mostly causes dry, itchy skin and rashes on the face, inside the elbow and behind the knees, and on the hands and feet.

**Dermatophytosis** is a common disorder of skin, developed in response of a fungal infection which is characterized by erythema, itching and rashes on any of the region of the body and skin-to-skin contact is considered as a critical mode for its transmission. It is a term used to describe infections caused by a group of fungi that usually remain localized to the superficial layers of the skin, hair, or nails.

**Urticaria** is a skin reaction that causes itchy, raised, red or skin coloured welts on the skin surface. It is a skin rash triggered by reaction to food, medicine and other irritants

These skin diseases can be managed with proper medication, skin care, and life style changes. Skin disorders have serious detrimental effect on quality of life of general population by increasing the suffering in terms of social, psychological and financial burden. Skin disease can cause physical symptoms such as itching, pain, rashes and discomfort, which can affect individual's quality of life. In some cases, scarring occurs, which can be permanent and affect an individual's self-esteem. In addition, it can affect a person's

social life as they may feel self-conscious or embarrassed about their appearance. As a result they may avoid social situations lead into feeling of isolation and loneliness.

Skin diseases can also have significant impact on an individual's mental health, causing stress, anxiety and depression. The negative impact on mental health can further exacerbate the physical and social effects of skin diseases. In addition, individuals with skin diseases may face discrimination and stigma from society, which can further contribute to their mental health issues. Hence it is essential to provide medical care and psychological support to improve their overall well-being.

Some health conditions like diabetes, inflammatory bowel disease, lupus etc. can increase the chances of developing skin diseases. For example, people with diabetes may have trouble with wound healing, particularly on their feet. Skin changes can also be the result of pregnancy, stress or hormonal changes. For example, melasma is a common skin disease that mostly affects pregnant women. Conditions like alopecia areata, acne, Raynaud's phenomenon or rosacea may get worse when you're stressed.

The treatment of skin disease depends on the specific type of skin disease and its severity. In phototherapy, exposures to ultraviolet rays may alleviate symptoms of skin diseases such as psoriasis, eczema and vitiligo. Topical or oral medications such as antibiotics, anti-fungal agents, corticosteroids, immunosuppressant, and antihistamines may be prescribed to treat skin diseases. In some cases, surgical procedures may be necessary to remove lesions or affected skin areas. Making certain life style changes such as avoiding allergens, maintaining good hygiene, and adopting a healthy diet may improve symptoms of skin disease. There is no single cure for all skin disease, and some may require ongoing management and treatment to prevent recurrence of symptoms. Additionally prevention is also key in the management of some skin diseases. By maintaining the proper hygiene and avoiding contact with certain allergens or irritants, individuals can reduce the risk of developing skin diseases. [7]

**Marketing** is the science and art of exploring, creating, and delivering value of satisfying the need of target market at a profit. Marketing identifies unfulfilled need and desires. It pinpoints which segments the company is capable of serving best and designs and promotes the appropriated product and services. The use of marketing provides a competitive edge, penetration into the new market, the acquiring of new customers, and the pharmaceutical industry since World War II led the discovery and use of new and effective drug substances. It also changes the role of pharmacist. It involves identifying the needs and wants of target markets and satisfying them through the design, promotion, pricing, and distribution of products or services. The ultimate goal of marketing is to build strong relationships with customers and create long-term value for the organization. Marketing encompasses a wide range of activities, including market research, advertising, sales, branding, public relations, and customer service. [8]

Marketing in dermatology involves promoting dermatological services, treatments, and products to potential customers. Dermatologist may use various marketing strategies to attract new patients and retain existing ones. Techniques in dermatologist include referral marketing, Digital marketing, Event marketing, Content marketing and Direct mail marketing.

**Promotional strategies** for dermatologic drugs typically involve a combination of marketing and educational initiatives aimed at healthcare professionals and patients. Here are some commonly used strategies in the pharmaceutical industry:

- **Physician Education:** Companies often organize medical conferences, seminars, and workshops where they present scientific data and clinical trial results to dermatologists and other healthcare professionals. These events serve as opportunities to educate physicians about the drug's efficacy, safety, and potential benefits for patients.
- **Direct-to-Consumer Advertising:** Pharmaceutical companies may employ direct-to-consumer advertising to raise awareness about their dermatologic drugs. This can be done through television commercials, print advertisements, online campaigns, and social media promotions. Such advertisements often provide general information about the condition the drug treats, symptoms to look out for, and a call-to-action encouraging patients to consult their healthcare provider.
- **Key Opinion Leader (KOL) Engagement:** KOLs are influential healthcare professionals who have expertise and credibility in the field of dermatology. Engaging KOLs can help promote dermatologic drugs by leveraging their endorsement, involvement in clinical trials, and participation in educational events. KOLs may also contribute to publications, speak at conferences, or provide educational materials on behalf of the pharmaceutical company.
- **Sample Distribution:** Providing samples of dermatologic drugs to dermatologists allows them to test the product and evaluate its effectiveness firsthand. By offering samples, pharmaceutical companies aim to generate interest and encourage prescribing physicians to try the medication on appropriate patients.
- **Patient Support Programs:** Many pharmaceutical companies offer patient support programs, which may include educational materials, online resources, and helplines staffed by healthcare professionals. These programs provide patients with information about the condition, treatment options, and how to properly use the medication. They may also offer financial assistance programs to help patients access the drug.
- **Continuing Medical Education (CME) Activities:** Pharmaceutical companies may organize or sponsor CME activities focused on dermatology. These activities are designed to provide healthcare professionals with updated knowledge and skills related to the diagnosis, treatment, and management of dermatologic conditions. By supporting CME activities, pharmaceutical companies can establish relationships with healthcare professionals and demonstrate their commitment to advancing medical education.

Marketing in dermatology must be conducted ethically and responsibly, with a focus on providing accurate and helpful information to patients. The goal of marketing in dermatology should be to help patients make informed decisions about their skin health and connect them with the best possible care. [9]

**Global dermatology drug marketing** involves promoting and selling dermatological medications on a global scale. Pharmaceutical companies invest significant resources in researching, developing, and

marketing new dermatology drugs, which can be used to treat a variety of skin conditions such as psoriasis, acne, eczema, and skin cancer. Effective global dermatology drug marketing requires a deep understanding of the complex and rapidly evolving healthcare landscape, as well as the ability to adapt to new trends and market conditions.

To achieve such results, however, requires more than just marketing plan. It requires the effective management of the plan within the organization’s environment and competitive position, both of which are continually shifting. Marketing has the ability to enhance a product or services image but effectively positioning it with a given market and communicating the benefits and satisfaction that follows a purchase. Such pharmaceutical product and services usually go through different stages, each stage being affected by different competitive conditions. Most pharmaceutical companies spend more than one-third of their sales revenue on marketing, approximately double the amount they spend on research and development, in an attempt to retain and maximize their market share. [10]

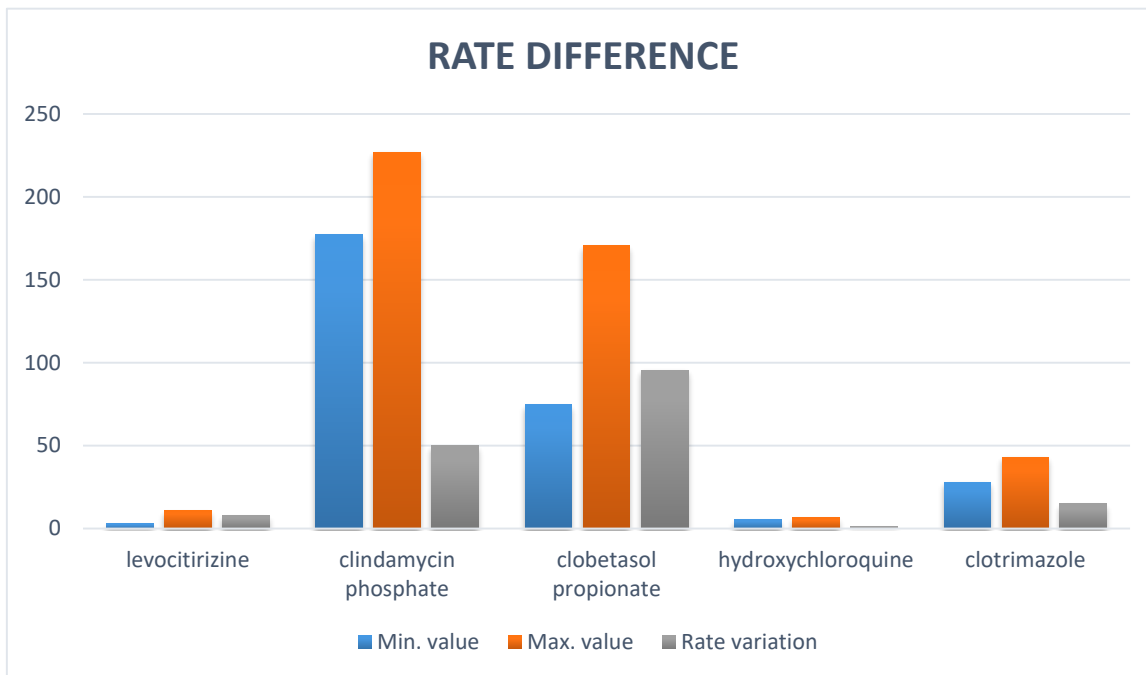
In the recent past, the technical innovations in dermatology are quite promising and it will take the research in dermatology to another level. Skin regeneration, Dermoscopy, Advanced dermatological therapy, Nano polymer drug delivery, Bio fabrication are the new advanced wings of dermatology. Dermatological research is a very big field and stretches from animal work and basic lab based research on human samples to population based studies. The list of important companies working in dermatology drug marketing includes AbbVie Inc., Pfizer Inc., DermBiont, Novartis, LEO Pharma and Gal derma. [11]

**KEYWORDS:** DERMATOPHYTOSIS, ACNE VULGARIS, GIMMICKS, URTICARIA.

**OBSERVATION**

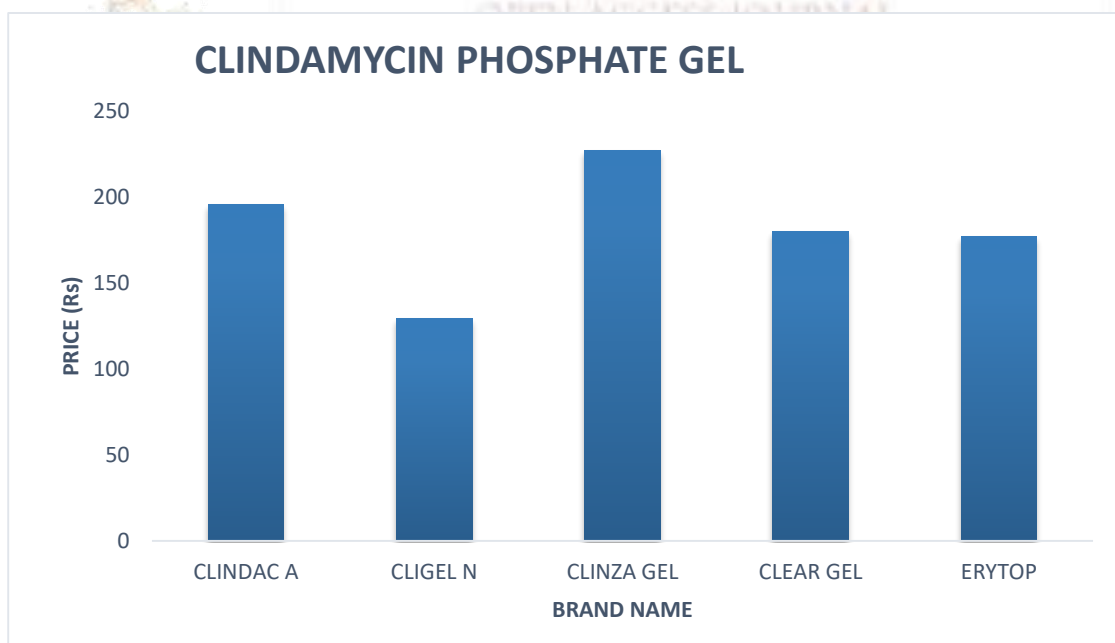
**1. RATE DIFFERENCE**

SL NO	DRUG	MIN VALUE	MAX VALUE	PRICE VARIATION
1	LEVOCITIRIZINE	3.2	11.07	7.87
2	CLINDAMYCIN PHOSPHATE	177	227.05	50.05
3	CLOBETASOL PROPIONATE	75	170.50	95.5
4	HYDROXYCHLOROQUINE TABLET	5.4	6.6	1.2
5	CLOTRIMAZOLE	28	43	15



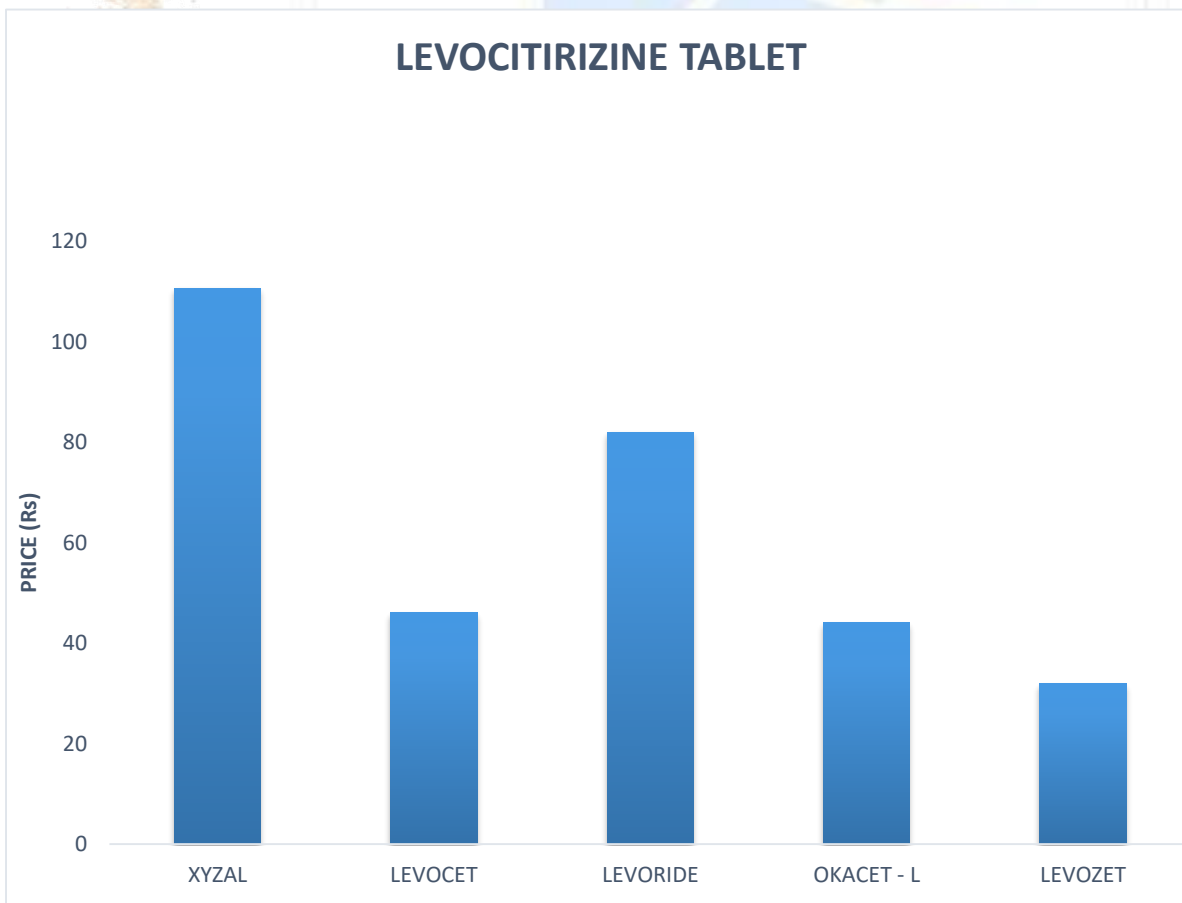
**A. CLINDAMYCIN PHOSPHATE GEL**

SI NO	BRAND NAMES	PRICE
1	CLINDAC A	195.50
2	CLIGEL N	129.20
3	CLINZA GEL	227.05
4	CLEAR GEL	180
5	ERYTOP	177



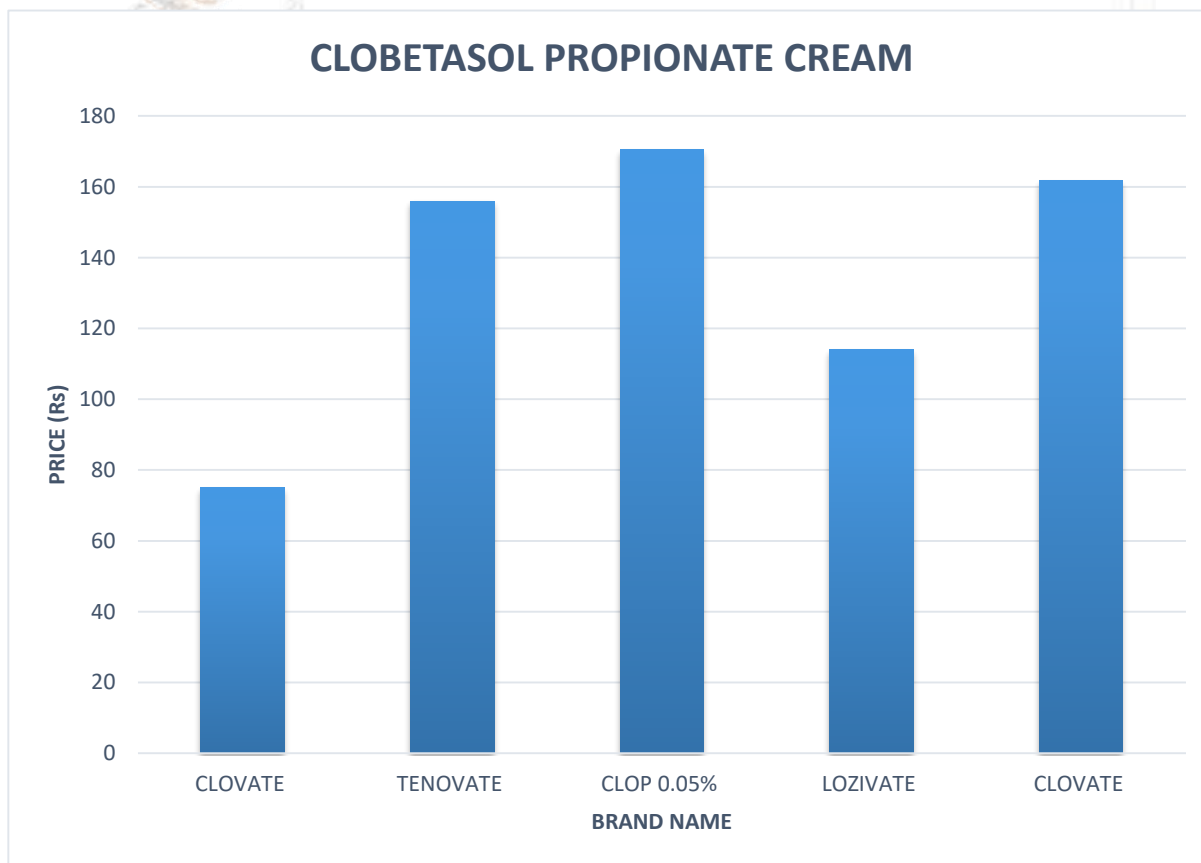
## B. LEVOCITIRIZINE TABLET

SI NO	BRAND NAMES	PRICE
1	XYZAL	110.7
2	LEVOCET	46
3	LEVORIDE	82
4	OKACET – L	44
5	LEVOZET	32



### C. CLOBETASOL PROPIONATE CREAM

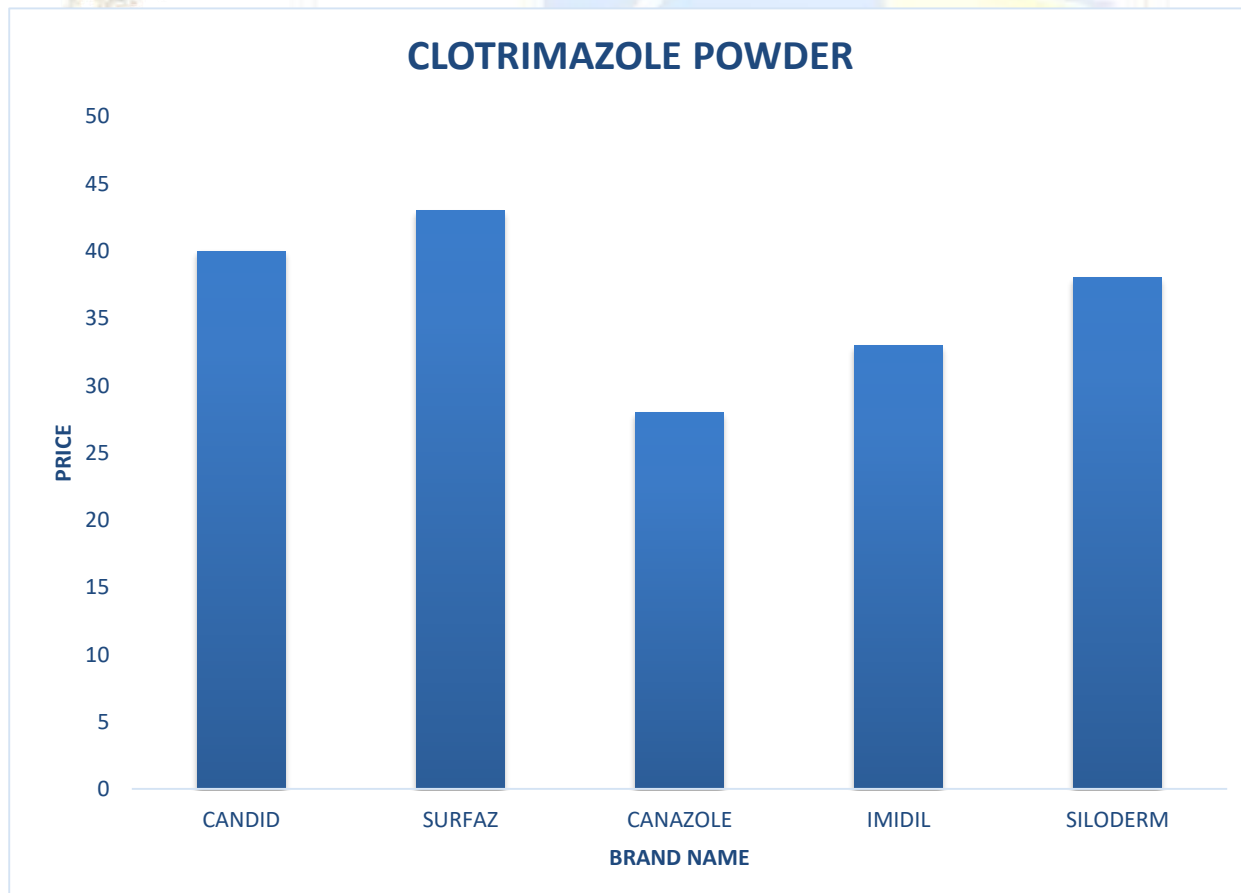
SI NO	BRAND NAME	PRICE
1	CLOVATE	75
2	TENOVATE	156
3	CLOP 0.05%	170.50
4	LOZIVATE	114
5	COSVATE	149.21





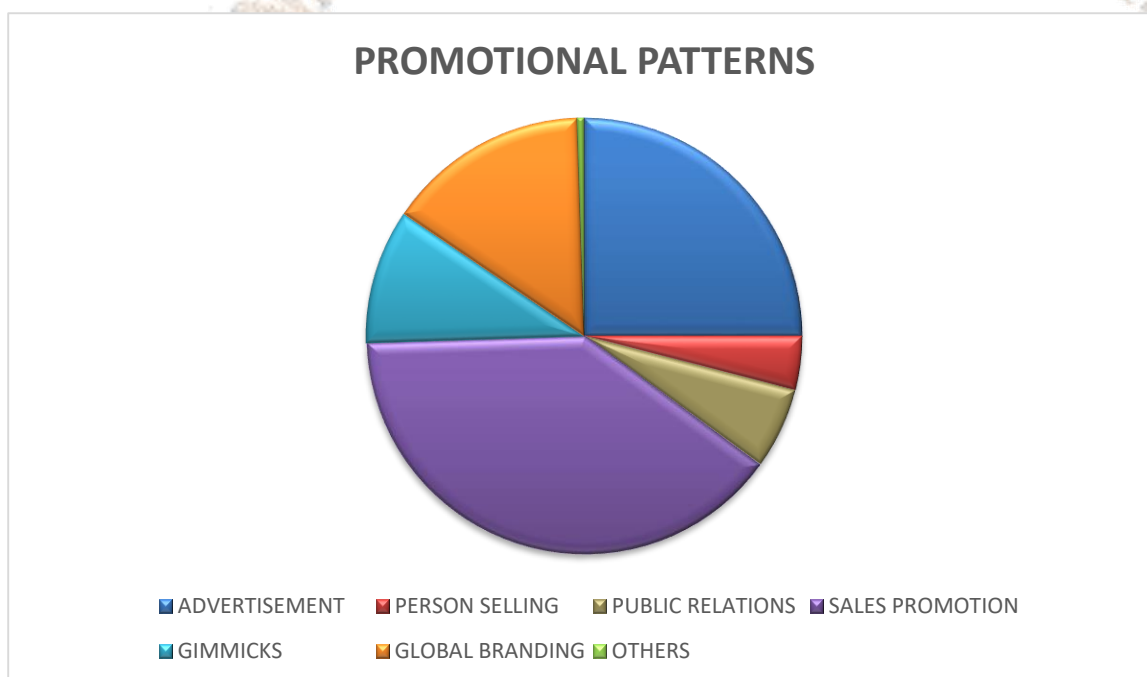
### D. CLOTRIMAZOLE POWDER

SL.NO	BRAND NAME	PRICE
1	CANDID	40
2	SURFAZ	43
3	CANAZOLE	28
4	IMIDIL	33
5	SILODERM	38



## 2. PROMOTIONAL PATTERNS

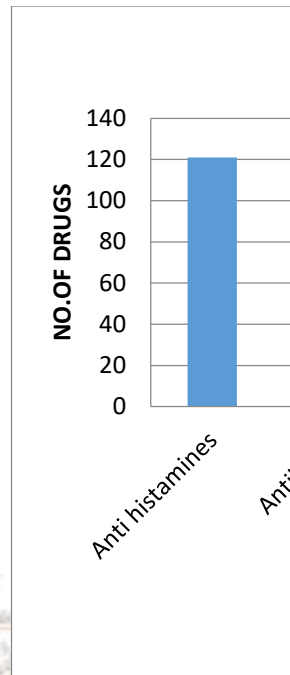
SI NO	PARAMETERS	PERCENTAGE (%)
1	ADVERTISEMENT	25
2	PERSON SELLING	4
3	PUBLIC RELATIONS	6
4	SALES PROMOTION	39.5
5	GIMMICKS	10
6	GLOBAL BRANDING	15
7	OTHERS	0.5



## 3. CATEGORIES OF DRUGS

SI NO	CATEGORIES OF DRUGS	TOAL NO:OF DRUGS (N=553)	PERCENTAGE
1	ANTIHISTAMINES	121	21.88%
2	ANTIBIOTIC	111	20.07%
3	CORTICOSTEROIDS	94	16.99%
4	ANTIFUNGAL	66	11.95%
5	EMOLLIENT	49	8.86%
6	RETINOID	44	7.96%
7	IMMUNOSUPRESSANT	23	4.15%
8	OTHERS	45	8.14%

SI NO	DISEASE	NO OF PATIENTS (N=75)
1	ACNE VULGARIS	25
2	ECZEMA	17

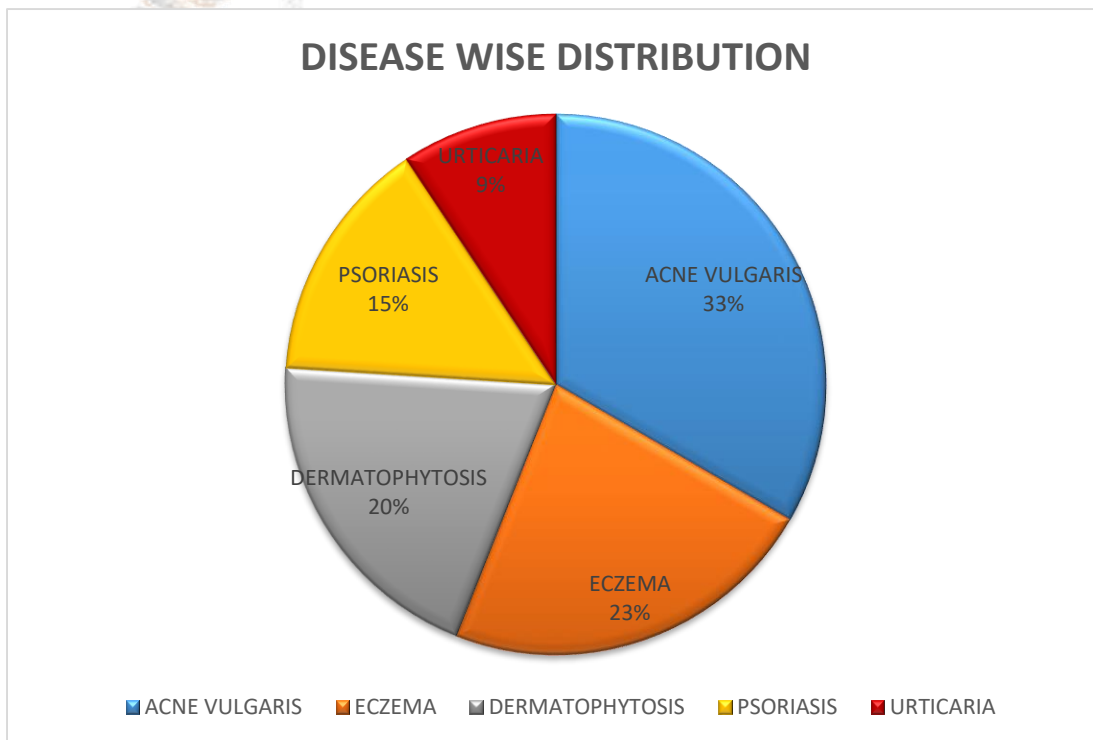


#### 4. DOCTORS PRESCRIPTION RATE

SL NO	DRUGS	PRESCRIBED RATE (%)
1	LEVOCITIRIZINE	29.3
2	CLINDAMYCIN PHOSPHATE	26.1
3	CLOBETASOL PROPIONATE	19.4
4	CLOTRIMAZOLE	17.4
5	HYDROXYCHLOROQUINE	7.8

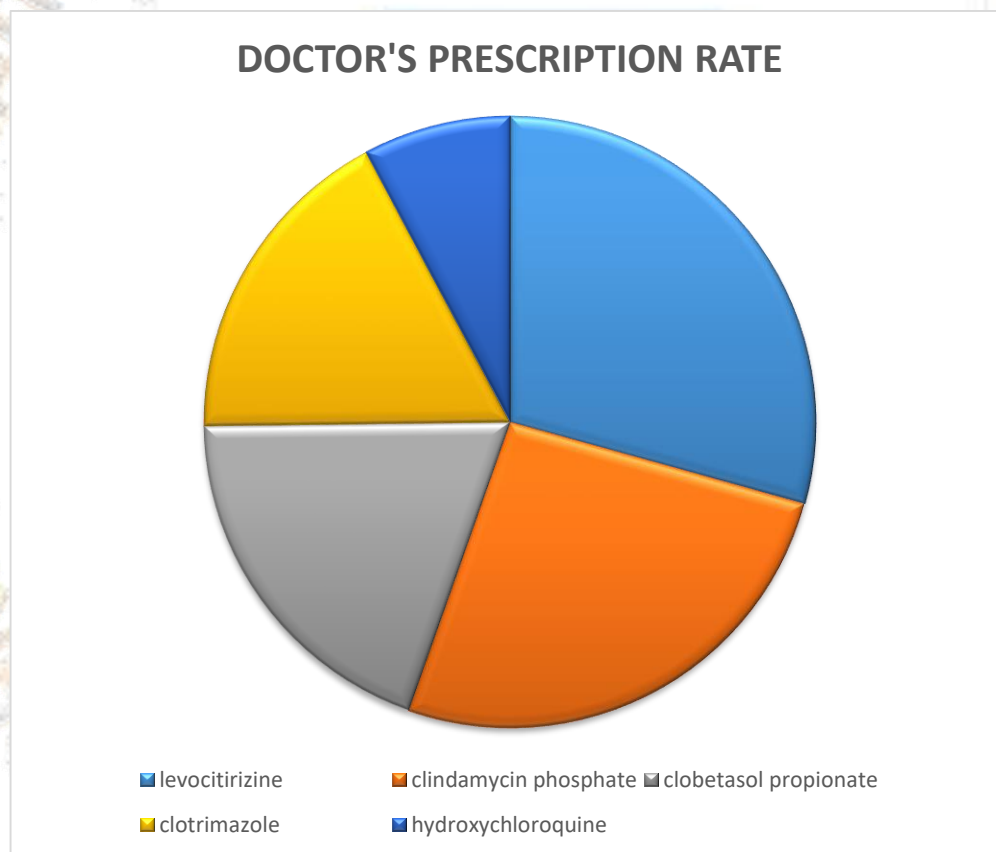
#### 5. DISEASE WISE DISTRIBUTION

3	<b>DERMATOPHYTOSIS</b>	<b>15</b>
4	<b>PSORIASIS</b>	<b>11</b>
5	<b>URTICARIA</b>	<b>07</b>



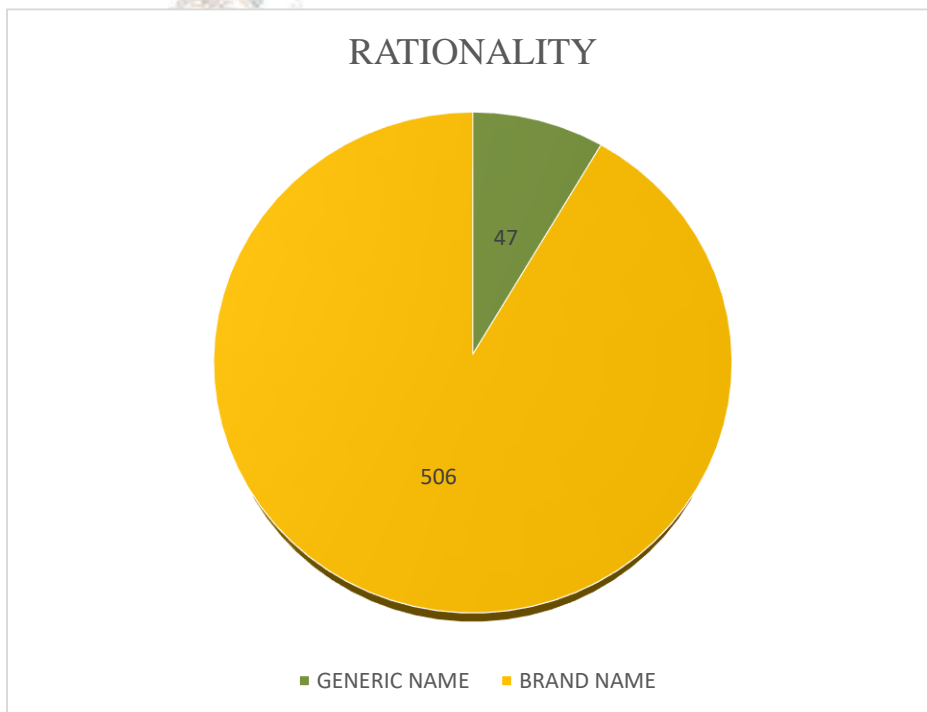
## 6. DOSAGE DISTRIBUTION

SL.NO	DOSAGE FORM	NO.OF DRUGS (N =553)
1	TABLETS	211
2	LOTIONS	79
3	OINTMENTS	133
4	GELS	68
5	POWDERS	33
6	CAPSULE	29



## 7. RATIONALITY

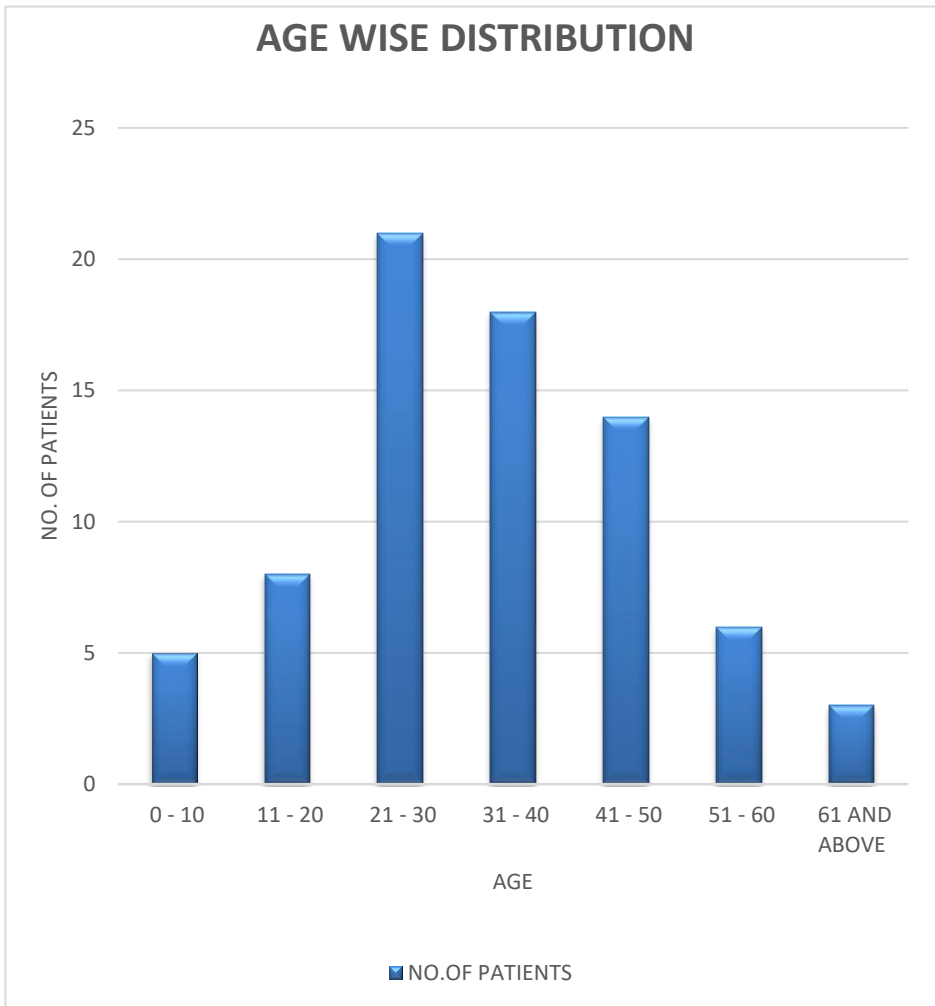
SI NO	PARAMETERS	TOTAL NO:OF DRUGS (N=553)	PERCENTAGE
1	Drugs prescribed by generic name	47	8.4%
2	Drugs prescribed by brand name	506	91.6%



## 8. AGE WISE DISTRUBUTION

SI NO	AGE DISTRUBUTION	NO:OF PATIENTS (N=75)	PERCENTAGE
1	0-10	5	6.69%
2	11-20	8	10.7%
3	21-30	21	27.93%
4	31-40	18	24%

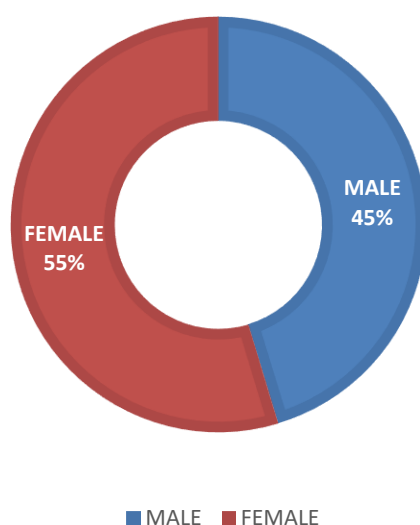
5	41-50	14	18.7%
6	51-60	6	7.9%
7	61-above	3	3.99%



### 9. SEX WISE DISTRIBUTION

SI No	GENDER	NO. OF PATIENTS (N=75)	PERCENTAGE (%)
1	MALE	34	45.33
2	FEMALE	41	54.66

## SEX WISE DISTRIBUTION



## RESULTS

On the basis of inclusion and exclusion criteria, 75 patients were selected from the dermatology over a period of 3 months from the study. Out of 75 patients, the average number of drugs given per prescription was 2.76 out of 200 prescription among all the age group.

Among these prescriptions, there includes certain patients with psoriasis, patients of eczema, acne vulgaris, dermatophytosis and urticaria. Among all the drugs, tablet form of drug was prescribed commonly (38%), followed by ointment (24%), lotion (14%), gel (13%), powder (6%), and capsule (5%) according to various dosage form given in [table 4].

Among all the category of drugs, anti-histamines were most commonly prescribed (21.8%) then followed by antibiotics (20.07%), corticosteroids (16.9%). Other than these drugs, Antifungal drugs (11.9%), emollient (8.86%), retinoid (7.96%), immunosuppressant (4.15%) and others (8.14%) are prescribed [table] in the prescription.

On the 553 drugs prescribed 47 (8.4%) were prescribed by generic and 503 (91.6%) were prescribed by brand names [table]. Among all the drugs prescribed by doctors, levocetirizine (29.37%) was most commonly prescribed, followed by clindamycin phosphate (26.1%), clobetasol propionate (19.4%), clotrimazole (17.4%), and hydrochloroquine (7.7%) [Table]

Among all the drugs prescribed, clindamycin phosphate gel have a price variation of Rs. 50.05, when compared with minimum and maximum value, similiarly levocetirizine(Rs.7.87), clobetasol propionate (Rs 95.5), adapalene (Rs 190), clotrimazole (Rs.15) and hydroxychloroquine (Rs.1.2) have the respective price variations.



Among all the drugs prescribed, female patients were more prone to dermatological diseases (54.6%), followed by men (45.3%). Similarly, sale promotion is most commonly used promotional tool in marketing of the dermatological medication (39.5%), followed by advertisement (25%), global branding (15%), gimmicks (10%), public relation (6%), person selling (4%), and others (0.5%).

## CONCLUSIONS

Dermatology is a branch of medicine dealing with the skin and its structure, function and diseases. Topical dermatological agents applied directly on the skin to treat the skin conditions. The current study was focused on the prescribing preferences of dermatological drugs in market. Drug promotion plays a major role in stimulating the prescription and the sales of pharmaceuticals in market. This study helps us to focus on the deviations from rational prescribing standards by prescriber. Such periodic evaluation may lead to rational practice hence improves the quality of prescription. The drug utilization study provides an insight to the prescriber regarding the various issues related to polypharmacy, rational use of pharmaceuticals, availability and use of essential drugs, cost analysis and prevalent disease pattern in the region.

Skin diseases are common and cause a huge disease burden globally. Collectively skin is the 18<sup>th</sup> leading cause of health burden worldwide. As a result, a steep rise in advancement in the treatment of these diseases was observed in recent years to address their unmet healthcare needs creating opportunities for drug manufacturers fueling the dermatological therapeutics.

There was a wide price variation of different brands of the same generic medicines in dermatological diseases. Although it was generally recognized that prices for brand name drugs have raised, a review of trends in recent years is warranted. For long term adherence to the treatment, cost of drug plays an important role for successful drug therapy. Periodic auditing of prescriptions in form of drug utilization studies are important tool to enhance the therapeutic efficacy, to minimize the adverse effect, to optimize the cost of the treatment and to provide useful feedback to the clinician.

The present study reveals that the 80% of adolescents is affected by acne vulgaris followed by eczema and dermatophytosis, also the antihistamines are the commonly prescribed drugs were it is expected to hold the major market share in dermatological field. This study concludes that the drug promotion by medical representative is the main factor that influence the prescriber's prescribing decisions and selection of drugs. However there is a need to sensitize the dermatologist and make them aware to adopt generic drug so as to ensure cost effective and rational utilization of drug.