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DRUG UTILIZATION EVALUATION (DUE) OF DERMATOLOGICAL DISORDERS AND ASSESMENT OF ROLE OF CLINICAL PHARMACIST IN IMPROVING PATIENTS COMPREHENSIVE PSYCHOLOGICAL COMPLIANCE AND QUALITY OF LIFE (QOL)

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Abstract

Background: This research focuses on conducting a Drug Utilization Evaluation (DUE) to assess the current prescribing patterns and medication utilization for dermatological conditions and explores the pivotal role of clinical pharmacists in improving patient psychological compliance, and overall quality of life through comprehensive pharmaceutical care.

Methodology: This study is a prospective observational study involving 110 patients affected with dermatological conditions who underwent treatment at the tertiary care hospital Maharaja Institute of Medical Sciences hospital in Vizianagaram district. The information was obtained through direct interaction with dermatology patients.

Results: In the study, we reported a prevalence of 25% psoriasis cases among the study population with itching and lesions. Antihistamines followed by antibiotics were notable for being the most frequently prescribed type of medication. Patients, who encounter multiple recurrences, comprising 42% of cases, tend to exhibit lower quality of life and increased severity of depression levels compared to those experiencing a single occurrence.

Conclusion: Patients who suffer from multiple recurrences, accounting for 42% of cases, are found to have a diminished quality of life and more severe levels of depression compared to those experiencing a single occurrence which also includes psoriasis at the highest prevalence rate.

Keywords: DLQI (Dermatological Life Quality Index), PHQ-9 (Patient Health Questionnaire), Compliance, Maharaja Institute of Medical Sciences (MIMS).

INTRODUCTION

Diseases related to dermatology encompass a broad spectrum of conditions that impact the skin, hair, and nails [1]. These can include infections, inflammatory disorders, autoimmune diseases, genetic disorders, and skin cancers. Common dermatological diseases include psoriasis, pemphigus vulgaris, dermatitis, Urticaria, bullous pemphigoid, scabies, and sclerosis. Diagnosis often involves visual examination. Dermatological diseases affecting the skin encompass a broad spectrum of conditions, ranging from common irritations to severe disorders with systemic implications. As the largest organ of the body, the skin acts as a protective shield against external elements, making it susceptible to a multitude of diseases. Comprising multiple layers, each with distinct functions, the skin plays pivotal roles in protection, sensation, regulation, and communication. At its surface, the epidermis [2] acts as a shield against pathogens, UV radiation, and physical trauma, while also facilitating the synthesis of vitamin D. Beneath lies the dermis [3] rich in blood vessels, nerves, and connective tissue, providing structural support, regulating temperature, and transmitting sensory information. Ultimately, the subcutaneous tissue provides insulation for the body, stores energy, and secures the skin to the structures beneath it. Understanding the complexity

and versatility of the skin is essential in both health and disease. From dermatological disorders to cosmetic concerns, the skin embodies a fascinating intersection of biology, medicine, and society, deserving of exploration and appreciation. In recent years, the prevalence of dermatological diseases has been on the rise, attributed to factors such as changing environmental conditions, lifestyle habits, and advancements in diagnostic techniques [4].

D.U.E in Dermatology

Drug Utilization Evaluation (DUE) in dermatological diseases involves a systematic process to assess and improve the use of medications for skin-related conditions [5]. This evaluation focuses on ensuring the optimal and effective utilization of dermatological drugs while minimizing potential risks and adverse effects. Healthcare professionals, including dermatologists and pharmacists, play a crucial role in monitoring and analyzing drug utilization patterns, dosages, and patient outcomes. By conducting DUE in dermatology, healthcare providers can enhance patient care, promote evidence-based practices, and contribute to the overall improvement of treatment strategies for skin disorders [6] .

Key components of DUE in dermatology include:

1. **Evaluating Prescribing Patterns:** Analyzing the patterns of drug prescriptions to identify any deviations from established guidelines or best practices.
2. **Assessing Adverse Reactions:** Observing and assessing the incidence of adverse drug reactions and analyzing their effects on both patient safety and the effectiveness of treatment.
3. **Measuring Treatment Outcomes [7]:** Assessing the effectiveness of dermatological treatments by examining patient outcomes, such as symptom resolution, improvement in quality of life, and overall satisfaction.
4. **Monitoring Compliance:** Ensuring that patients adhere to prescribed treatment regimens and identifying factors that may contribute to non-compliance.
5. **Comparing with Guidelines:** Benchmarking prescribing practices against evidence-based guidelines to identify areas for improvement and adherence to recommended protocols.
6. **Identifying Cost-Effective Alternatives [8] :** Exploring opportunities to optimize resource utilization by identifying cost-effective alternatives without compromising therapeutic efficacy.
7. **Educating Healthcare Providers:** Providing feedback and educational interventions to healthcare providers based on DUE findings to enhance prescribing practices and promote evidence-based dermatological care.

By implementing DUE in dermatology, healthcare professionals aim to continuously improve the quality of care provided to patients with skin disorders, enhance patient safety, and contribute to the rational use of dermatological medications.

QUALITY OF LIFE (QoL) IN DERMATOLOGICAL DISEASES

Dermatological diseases not only impact individuals' physical well-being but also profoundly influence their quality of life (QoL). The visible nature of these conditions can result in psychosocial and emotional difficulties, affecting multiple facets of daily life. People with dermatological diseases frequently undergo such experiences.

1. **Psychological Distress**: Skin conditions can cause embarrassment, anxiety, depression, and low self-esteem due to visible symptoms like rashes, lesions, or scarring. Social interactions and relationships may be affected, leading to feelings of isolation and stigmatization [10].

2. **Physical Discomfort:** Itching, pain, and discomfort associated with dermatological diseases can significantly impair daily activities, sleep quality, and overall physical well-being [11]. Chronic conditions like eczema and psoriasis can also lead to fatigue and reduced mobility.

3. **Impact on Daily Functioning:** Skin conditions may interfere with work, school, hobbies, and leisure activities, affecting productivity and participation in social and recreational events. Individuals may experience limitations in clothing choices and avoidance of certain activities due to concerns about exacerbating symptoms or drawing attention to their condition.

4. **Financial Burden:** The cost of medical care, including consultations, medications, and treatments, can impose a financial strain on individuals with dermatological diseases. Additionally, expenses related to over-the-counter remedies, skincare products, and alternative therapies may accumulate over time.

5. **Body Image Concerns:** Changes in skin appearance, such as discoloration, scarring, or hair loss, can impact body image and self-perception. Individuals may experience dissatisfaction with their physical appearance and engage in avoidance behaviors or seek cosmetic interventions to conceal or improve perceived flaws.

Healthcare providers should consider incorporating QoL assessments into clinical practice to better understand patients' experiences, tailor treatment plans to individual needs, and optimize patient outcome [12].

Role of Clinical Pharmacist in Dermatological Diseases

Clinical pharmacists play a crucial role in dermatology by actively contributing to patient care and treatment outcomes. Their responsibilities in dermatology include:

1. **Medication Management:** Clinical pharmacists collaborate with healthcare teams to ensure appropriate medication selection, dosing, and monitoring for dermatological conditions. They provide expertise in managing drug interactions, side effects, and optimizing therapeutic regimens [13].

2. **Patient Education:** Clinical pharmacists educate patients about their dermatological medications, emphasizing proper application techniques, potential side effects, and the importance of adherence. This helps enhance patients' understanding and involvement in their treatment.

3. **Adverse Effects Monitoring:** Clinical pharmacists monitor patients for adverse drug reactions and work with healthcare providers to manage and mitigate these effects promptly. This proactive approach contributes to improved patient safety and treatment tolerability [14].

4. **Treatment Adherence Counseling:** Addressing adherence challenges is a key aspect of the clinical pharmacist's role. They engage in regular counseling sessions to identify and overcome barriers to medication adherence, promoting better treatment outcomes.

5. **Collaboration with Dermatologists:** Clinical pharmacists collaborate closely with dermatologists and other healthcare professionals, actively participating in patient rounds, case discussions, and treatment planning. This collaborative approach ensures a comprehensive and coordinated care strategy.

6. **Dermatological Product Knowledge:** Clinical pharmacists stay updated on the latest dermatological products and treatment modalities. Their expertise includes understanding the mechanisms of action, indications, and potential complications associated with various dermatological medications.

7. **Patient Monitoring:** Regular follow-ups and monitoring are essential components of the clinical pharmacist's role in dermatology. They track patients' progress, assess treatment efficacy, and adjust therapeutic plans as needed, contributing to better long-term outcomes.

8. **Promotion of Patient Well-being:** Beyond medication management, clinical pharmacists actively contribute to enhancing patients' overall well-being. They address concerns related to psychosocial aspects, mental health, and quality of life, fostering a holistic approach to dermatological care [15].

In summary, the role of clinical pharmacists in dermatology encompasses various aspects of medication management, patient education, and collaboration with healthcare teams, with the overarching goal of optimizing treatment outcomes and improving the overall well-being of individuals with dermatological conditions.

Materials and Methods

The study was carried out in the dermatology departments at the Maharaja Institute of Medical Sciences (MIMS), Vizianagaram district, which is a leading tertiary care facility specializing in dermatology and other medical services. It is renowned for its comprehensive patient care and advanced treatment options. This study is a prospective observational study involved 110 patients with dermatological conditions receiving treatment at the tertiary care hospital. A presentation was delivered to the institutional review boards of hospitals to seek approval for the study. Following approvals from the institutional ethics committees of Maharaja Institute of Medical Sciences, the study commenced. Participants were enlisted following the provision of written consent via an informed consent form (ICF).

The research lasted for a duration of 8 months. The study population's inclusion criteria included people of either gender who were between the ages of 10 or 80, who demonstrated a readiness to engage in the study by submitting informed consent forms (ICFs). Those falling below 10 years or exceeding 80 years, as well as those unwilling to complete an ICF, were excluded from participation.

Inclusion Criteria

- Patients of both genders admitting in dermatology ward of MIMS hospital.
- Patients of age group between 10 – 80 years.
- Patients who express their willingness to take part in the study by acquiring a Written Consent Form (ICF).

Exclusion Criteria

- Patients of age below 10 years and above 80 years.
- Patients who decline to participate in the study.

Data Collection

- Throughout the study, data was collected by directly engaging with patients who met the inclusion criteria and consented to participate after being informed about the study.
- The data was gathered via structured questionnaires during direct interactions with patients suffering from dermatological diseases.

Tools Used in the Study:

A. Proforma

With an emphasis on, we developed a structured questionnaire on the evaluation of drug utilization, patient's quality of life, and the severity of depression. The questionnaire comprises patient demographic information, diagnosis, dermatological symptoms, and a drug chart containing details such as drug class, route of administration, dosage form. It also includes aspects like combinations of drugs, recurrence and comorbid conditions. Additionally, the questionnaire incorporates scales such as the Dermatological Life Quality Index (DLQI), Patient Health Questionnaire (PHQ-9).

B. Dermatological Life Quality Index (DLQI):

The Dermatology Life Quality Index (DLQI) is a validated instrument utilized to evaluate the influence of dermatological conditions on a patient's quality of life (QoL). Devised by Finlay and Khan in 1994, the DLQI comprises ten questions addressing symptoms, embarrassment, shopping and home care, clothing, social and leisure activities, sports, work or study, close relationships, sex, and treatment.

Each query prompts patients to assess the impact of their skin condition on various aspects of their life over the preceding week. The score ranges from 0 to 30, with established descriptors indicating the extent of the effect on QoL: 0-1 = No effect, 2-5 = Small effect, 6-10 = Moderate effect, 11-20 = Very large effect, 21-30 = extremely large effect. Higher scores signify a more substantial impact [16].

C. Patient Health Questionnaire (PHQ-9):

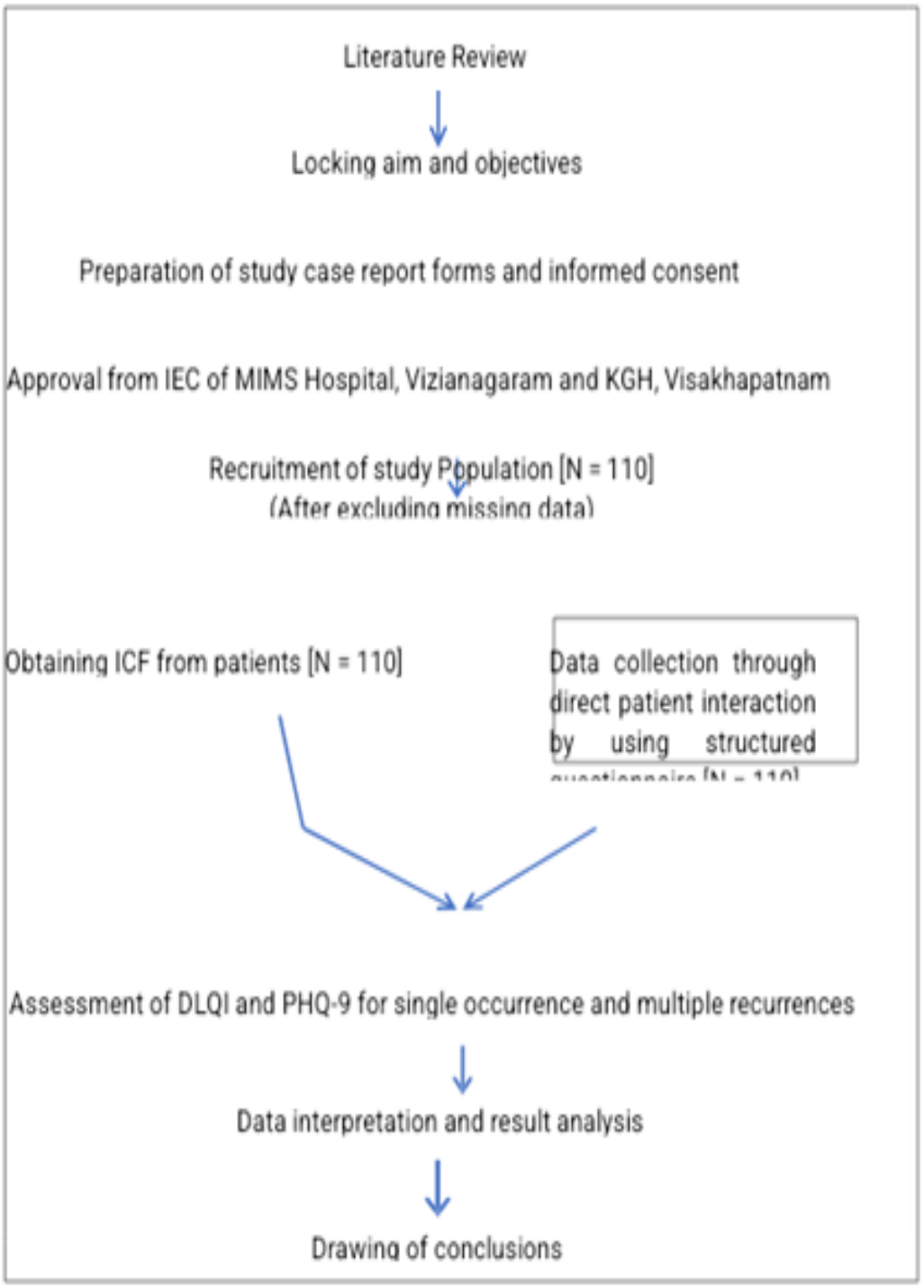
The Patient Health Questionnaire-9 (PHQ-9) is a widely utilized tool designed to assess and monitor depression severity in healthcare settings. Developed by Dr. Kurt Kroenke and colleagues, the PHQ-9 is a self-administered questionnaire consisting of nine items that correspond to the diagnostic criteria for major depressive disorder (MDD) outlined in the Diagnostic and Statistical Manual of Mental Disorders (DSM) [17].

The PHQ-9 items assess the following symptoms over the preceding two weeks:

1. **Depressed Mood**: Persistent sadness or emptiness.
2. **Anhedonia:** Absence of interest or enjoyment in activities.
3. **Sleep Irregularities:** Alterations in sleep routines, such as insomnia or excessive sleepiness.
4. **Fatigue or Lack of Vitality:** Ongoing feelings of tiredness or diminished energy.
5. **Appetite Changes**: Increased or decreased appetite, with associated weight changes.
6. **Feelings of Worthlessness or Guilt**: Negative self-perception or excessive self-blame.
7. **Difficulty Concentrating**: Impaired focus, attention, or decision-making.
8. **Psychomotor Agitation or Retardation:** Restlessness or slowed movements.
9. **Thoughts of Death or Self-Harm:** Suicidal ideation or thoughts of self-harm.

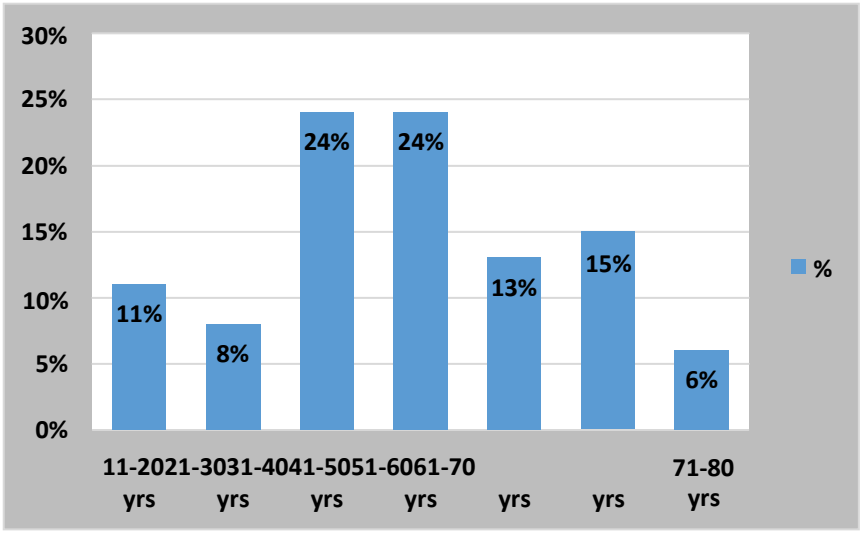
Patients are requested to assess the frequency of each symptom on a scale from 0 (absent) to 3 (almost daily), resulting in a total score ranging from 0 to 27. Elevated scores indicate more severe depression.

Data analysis:



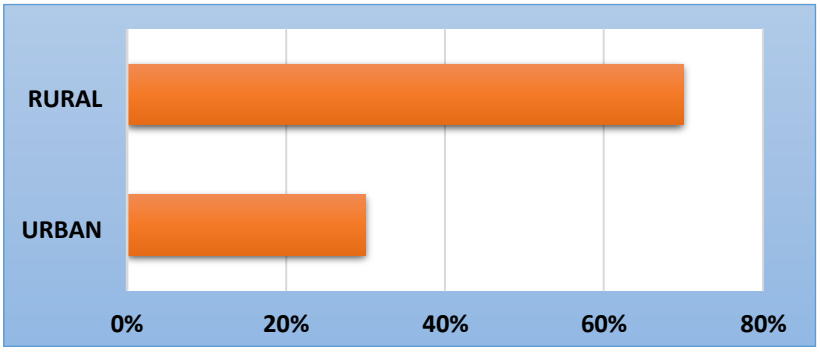
Results:

- The age groups most affected by cases exhibit the highest incidence within the 31-40 and 41-50 age ranges, accounting for 24% each, while the lowest incidence is recorded in the 71-80 age groups, constituting only 6%.



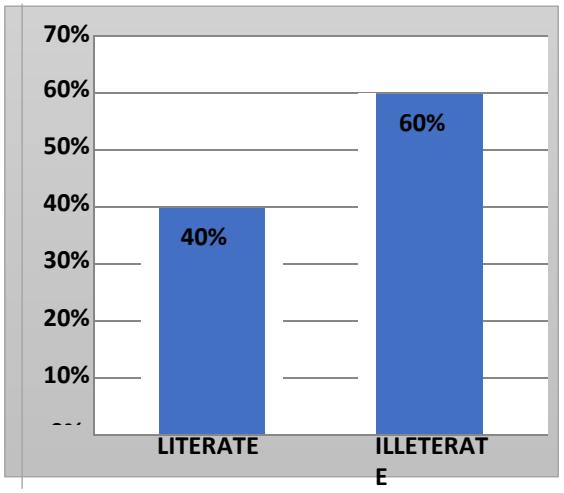
Graph 1: Illustrates different age categories and percentage.

- 33 patients lived in urban areas, comprising 30% of the total, whereas 77 patients resided in rural areas, accounting for 70%.



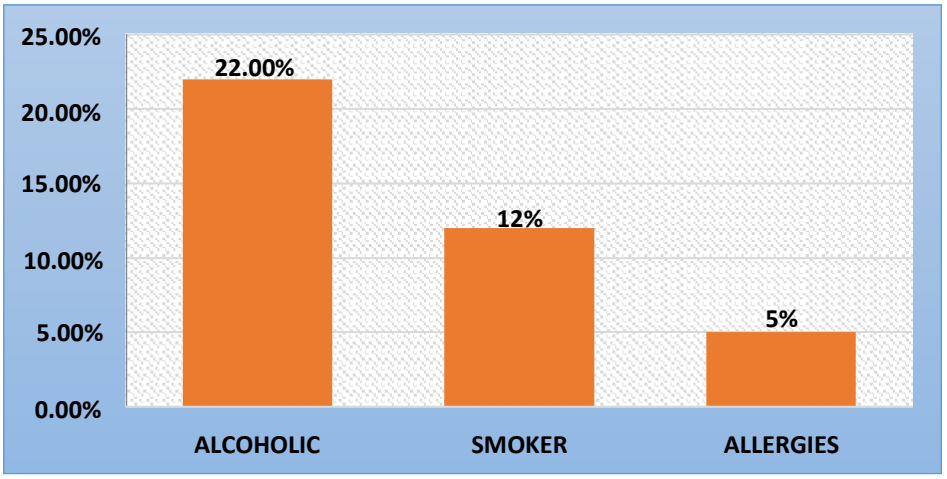
Graph 2: Illustrates locality of patients.

- Out of 110 patients, 44 were literate, constituting 40%, while the remaining 66 were illiterate, making up 60%.



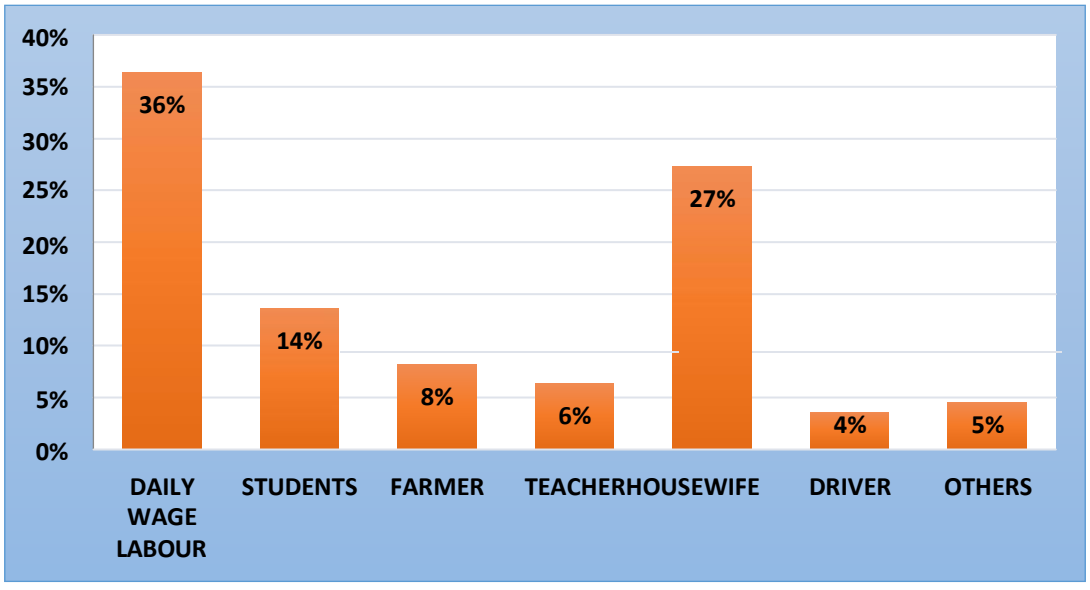
Graph 3: Depicts the educational qualifications of patients.

- Out of the 110 patients, 24 had alcoholism (22%), 13 were smokers (12%) and 5 experienced allergies (5%).



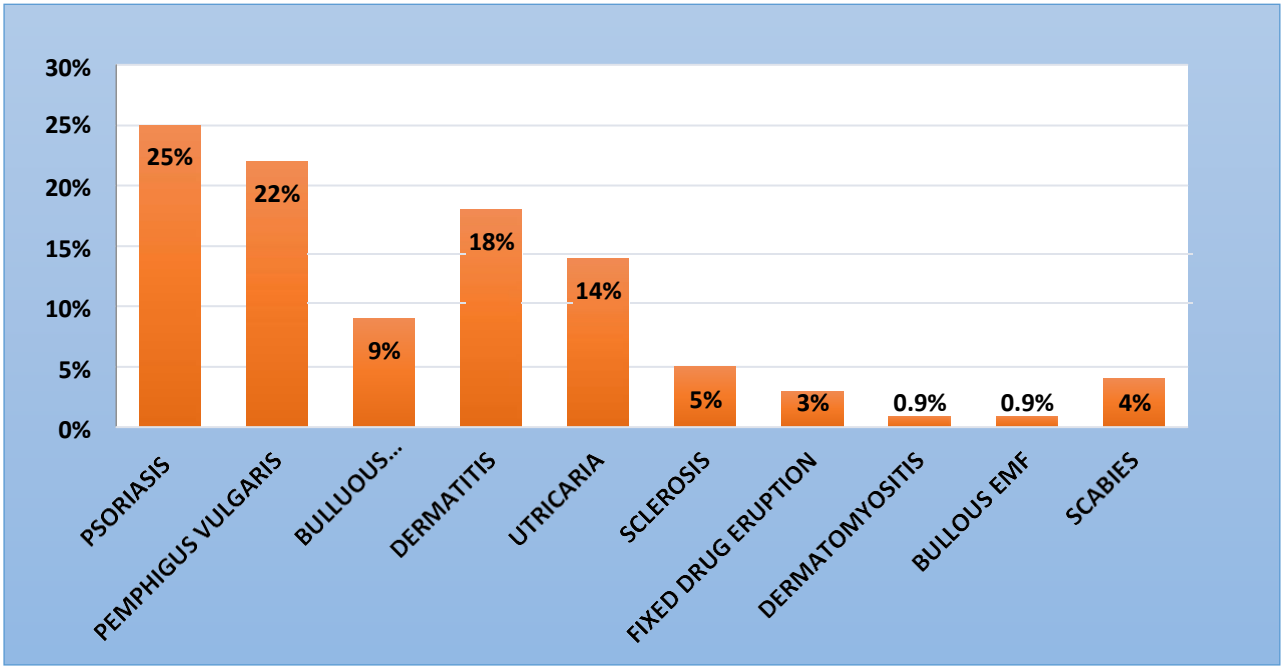
Graph 4: Illustrates individuals who consume alcohol, smoke, and have allergies

- Out of the 110 patients included in the study, the highest proportion comprises daily wage workers (34%), whereas the lowest proportion is represented by drivers (4%).



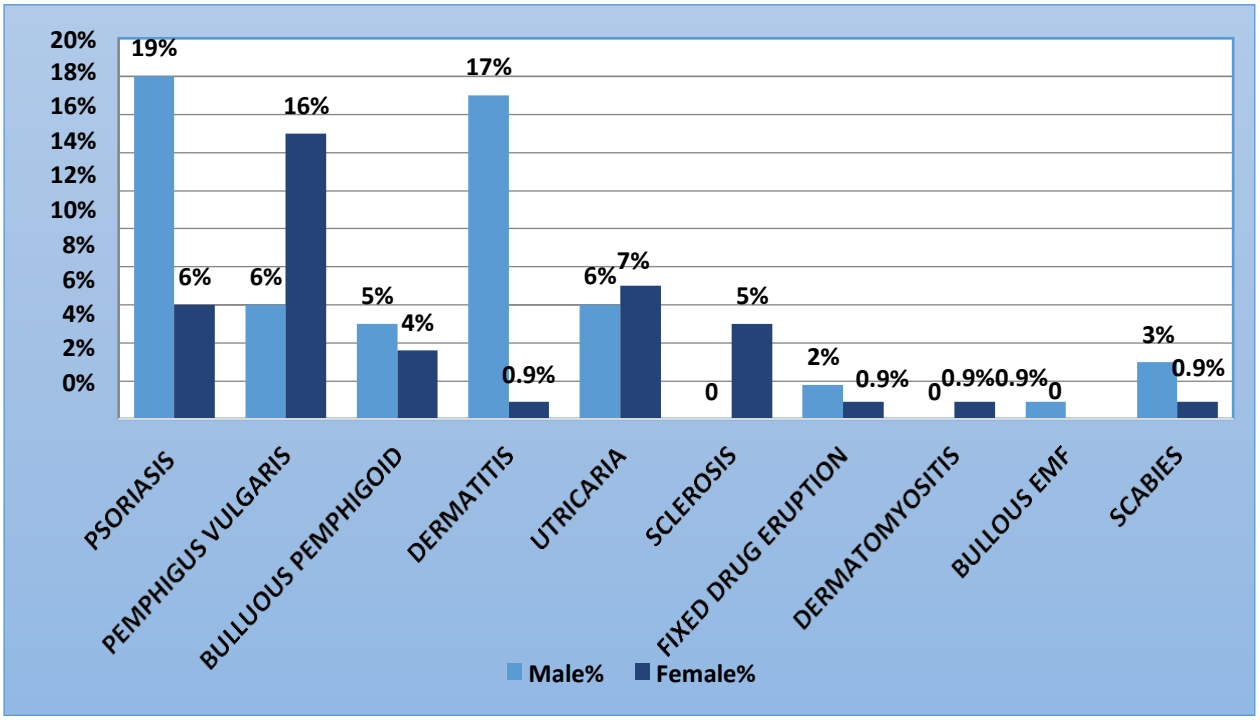
Graph 5: Demonstrates the occupation of patients.

- In this study involving 110 individuals, various diseases were observed, with psoriasis (25%) and pemphigus vulgaris (22%) being the most prevalent, while bullous EMF (0.9%) was the least prevalent.



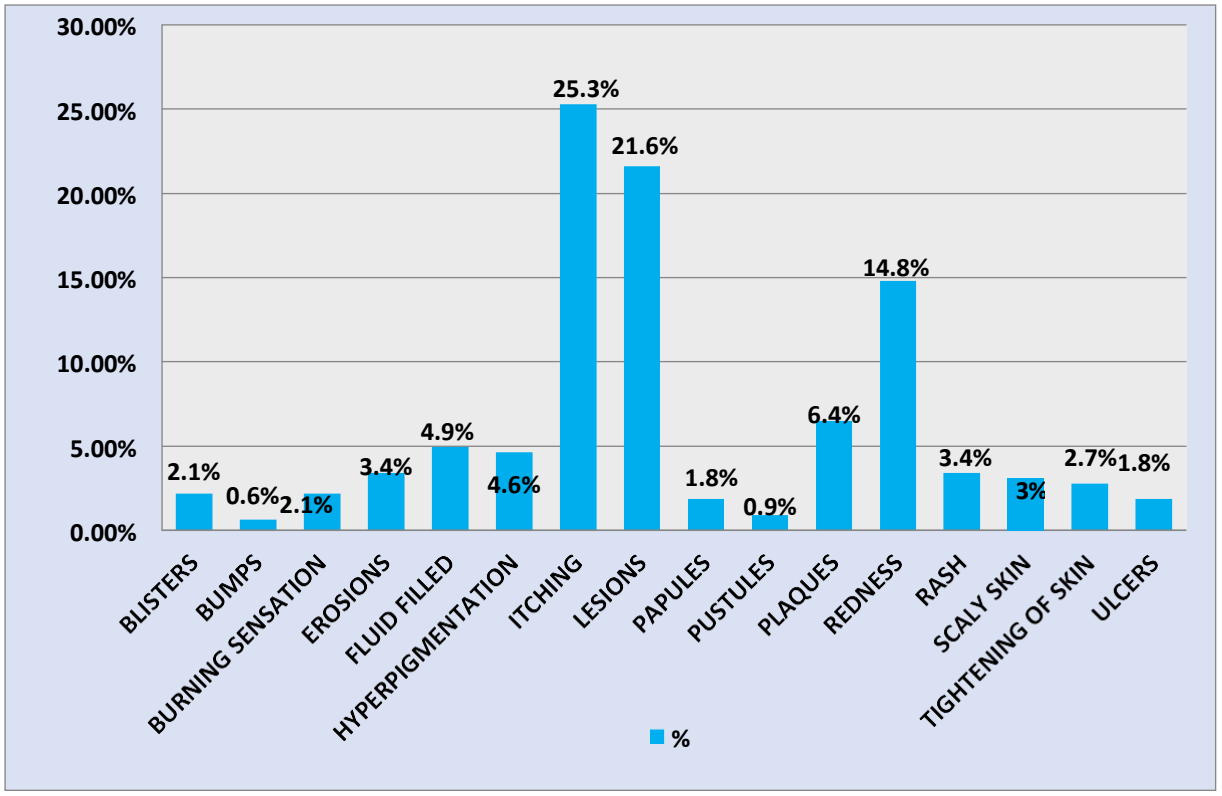
Graph 6: Represents the count of patients with various dermatological diseases.

- Psoriasis (19%) stood out as the most prevalent condition among males, while Bullous EMF (0.9%) had the lowest occurrence. Conversely, Pemphigus vulgaris (16%) emerged as the leading cause among females, while FDE (0.9%), Dermatomyositis (0.9%), and scabies (0.9%) had the least frequency of occurrences.



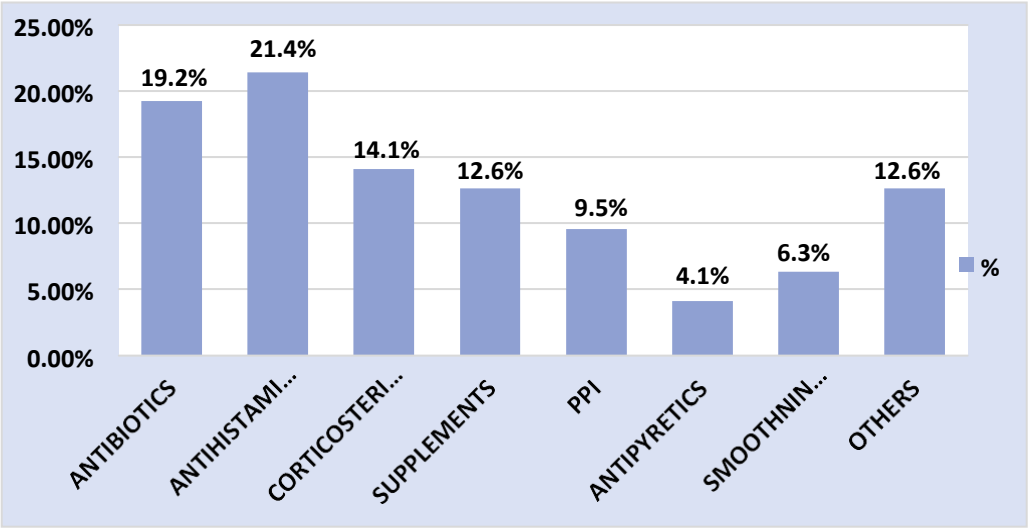
Graph 7: Illustrates the count of males and females across various dermatological diseases.

- Most of the 110 patients experienced itching (25.3%) and lesions (21.6%) as the predominant symptoms, while bumps (0.6%) and pustules (0.9%) were less frequently reported.



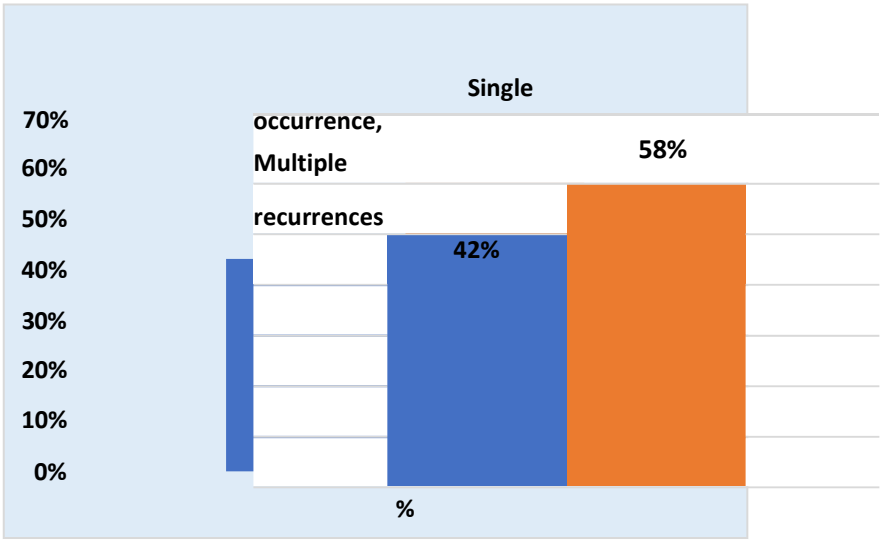
Graph 8: Illustrates the dermatological symptoms exhibited by patients.

- There were a total of 110 prescriptions, with 681 drugs prescribed. Among these, 21.44%) 146 drugs were categorized as Antihistamines and (19.24%) 131 drugs fell under the Antibiotics class.
- Other category includes Antiepileptic, Anti-diabetic, Antihypertensive and Thyroid.



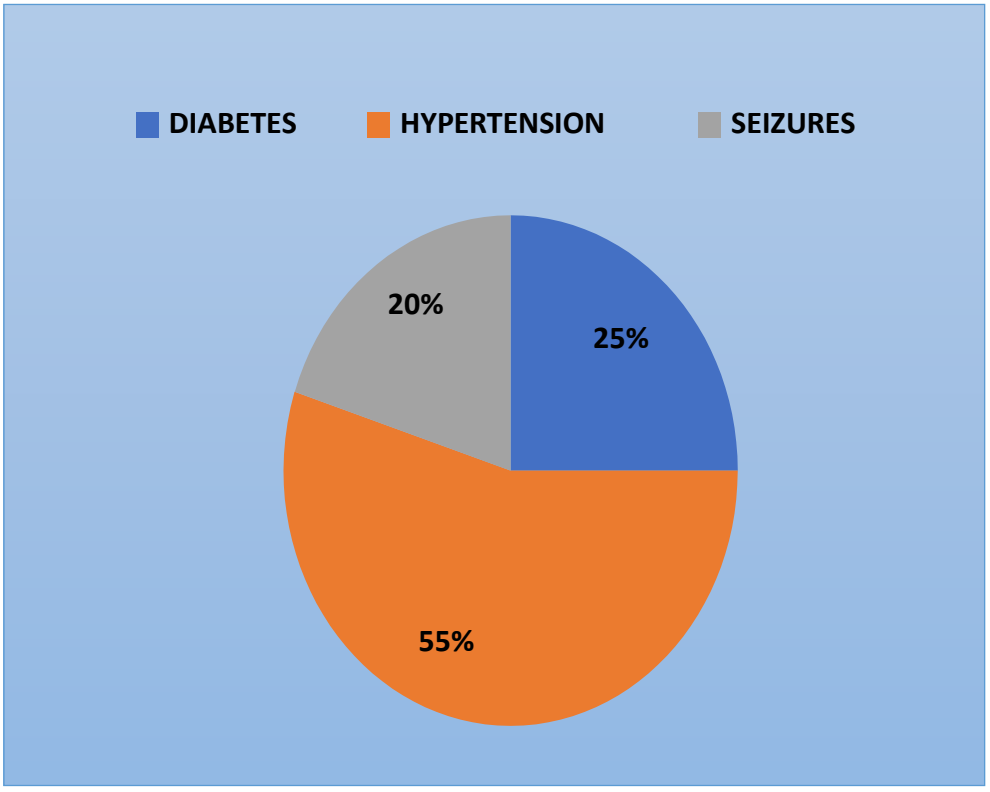
Graph 11: Illustrates the quantity of drugs within each classification.

- There were 46 instances of multiple recurrences, constituting 42% of cases, while single occurrences were observed in 64 cases, making up 58%.



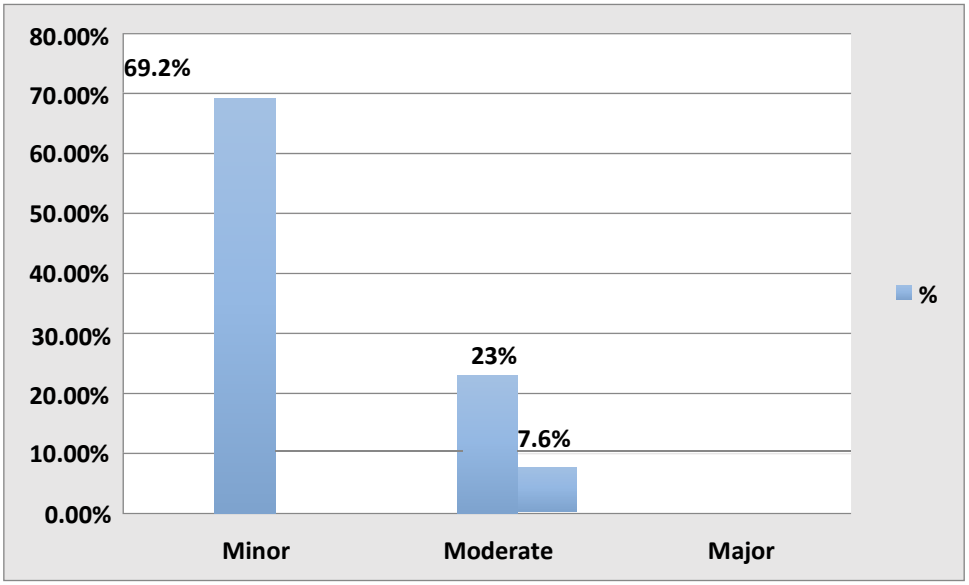
Graph 9: represents recurrence and non-recurrence cases.

- Among the 110 patients, 5 individuals had co-existing conditions like Diabetes (4.5%), 11 patients were diagnosed with hypertension (10%), and 4 patients had different additional health concerns (3.6%).



Graph 10: Illustrates the co-existing medical conditions among patients

Out of the 110 prescriptions analysed, 28 of them exhibited drug interactions, with 18 (69.2%) being minor interactions and 2 (7.6%) being major interactions.



Graph 11: Depicts intensity of drug interactions in relation to no. of prescriptions

Out of 681 prescribed drugs for 110 patients, 630 (93%) were on the Essential Drug List (EDL), while 681 (100%) were generic medications.

PARAMETERS	NO. OF DRUGS	%
EDL	630	93%
GENERIC	681	100%

Table 1: Illustrates Essential Drug List (EDL) and generic medications.

- This study involved 110 participants, with the majority exhibiting Psoriasis and experiencing lesions (19.6%). Among Bullous Pemphigoid patients, itching was the most frequently reported symptom (43.4%). Dermatitis patients commonly presented with lesions (20.8%) and itching (29.1%). Pemphigus Vulgaris patients typically displayed lesions (25.4%) and fluid-filled blisters (21.8%). Sclerosis patients commonly had lesions (34.4%). Urticaria patients commonly experienced redness (20%) and itching (23.3%). Fixed drug eruption patients showed a higher prevalence of lesions (16.6%). Dermatomyositis patients commonly exhibited lesions (50%). Patients with Bullous EMF frequently had blisters (33%). Scabies patients commonly experienced itching (50%) and redness (25%).

S. No	Diseases	Symptoms	No. of Patients	centage (%)
1	**Psoriasis**	Hyper pigmentation	4	3.90%
		Itching	16	15.60%
		lesions	20	19.60%
		plaques	16	15.60%
		papules	6	5.80%
		pustules	3	2.90%
		redness	20	19.60%
		rash	5	4.90%
		scaly skin	9	8.80%
		ulcers	3	2.90%
2	**Bullous Pemphigoid**	blisters	3	6.50%
		bumps	1	2.10%
		erosions	1	2.10%
		fluid filled	4	8.70%
		Hyper pigmentation	2	4.30%
		Itching	20	43.40%
		lesions	9	19.50%
		redness	3	6.50%
		rash	2	4.30%
		ulcers	1	2.10%
3	**Dermatitis**	burning sensation	2	4.10%
		erosions	1	2.00%
		Hyper pigmentation	2	4.10%
		Itching	14	29.10%
		lesions	10	20.80%
		papules	2	4.10%

		plaques	3	6.20%
		redness	8	16.60%
		rash	2	4.10%
		scaly skin	3	6.20%
		tightening of skin	1	2%
4	**Pemphigus Vulgaris**	bumps	1	1.80%
		burning sensation	4	7.20%
		erosions	8	14.50%
		fluid filled	12	21.80%
		Hyper pigmentation	2	3.60%
		Itching	6	10.90%
		lesions	14	25.40%
		redness	5	9%
		ulcers	3	5.40%
5	**Sclerosis**	Hyper pigmentation	4	13.70%
		lesions	10	34.40%
		Itching	3	10.30%
		redness	4	13.70%
		rash	1	3.40%
		scaly skin	1	3.40%
		ulcers	5	17.20%
		tightening of skin	1	3.40%
6	**Urticaria**	fluid filled	3	10%
		Itching	7	23.30%
		lesions	9	30%
		plaques	1	3.30%
		redness	6	20%
		rash	1	3.30%
		tightening of skin	3	10%
7	**ixed Drug Eruption**	lesions	1	16.60%
		erosions	1	16.60%
		fluid filled	1	16.6

				0%
		Itching	2	33.3 0%
		plaques	1	16.6 0%
8	**Dermatomyositis**	lesions	1	50%
		papules	1	50%
9	**Bullous EMF**	blisters	1	33%
		Itching	1	33%
		lesions	1	33%
10	**Scabies**	Itching	4	50%
		redness	2	25%
		rash	2	25%

Table 1: Illustrates dermatological symptoms specific to each disease.

	ANTIBIOTIC	ANTI HISTAMINES	CORTICOSTEROID	SUPPLEMENT	PPI	ANTI PYRETIC	SMOOTHING AGENT	OTHERS
PSORIASIS	23%	20%	12.3%	14.8%	7.4%	2.4%	10.4%	60%
EMPHIGUS VULGARIS	16.3%	12.8%	19%	12.8%	9.3%	4%	1.7%	23.3%
BULLOUS PEMPHIGOID	32%	19.7%	16%	8.6%	13.5%	4%	6.1%	0
DERMATITIS	13.3%	23.5%	13.3%	8.2%	6.3%	1.2%	7%	15.9%
UTRICARIA	9%	47.2%	10.9%	12.7%	7%	3.6%	5.4%	3.6%
SCLEROSIS	21%	10.5%	0%	26.3%	26.3%	15.7%	0%	0%
IXED DRUG ERUPTION	22.2%	11.1%	5.5%	13.8%	11.1%	16.6%	11.1%	8.3%
DERMATOMYOSITIS	14.2%	14.2%	0%	14.2%	42.8%	0%	0%	14.2%
BULLOUS EMF	0%	33.3%	33.3%	33.3%	0%	0%	0%	0%
SCABIES	0%	57.1%	0%	14.2%	0%	14.2%	0%	14.2%

Table 2: Illustrates the categories of drugs within each dermatological disease.

Out of 681 prescribed drugs, 6% are branded drugs and 94% are generic drugs.

PARAMETERS	NO.OF DRUGS	%
BRANDED	39	6%
GENERIC	642	94%

Table 3: Illustrates Essential Drug List (EDL) and generic medications.

Adverse Drug Reactions were identified in 7 instances. Of these, 3 cases were attributed to drugs causing Fixed Drug Eruption (FDE), while 1 case each was associated with Pemphigus Vulgaris, Bullous Pemphigoid, Urticaria, and dermatitis.

Type of ADR	No. of cases	Suspected Drug
AGUMENTED	5	long term usage of antibiotics and NSAID's
BIZZARE	1	TT injection
DELAYED	1	phenytoin

Table 4: The graph illustrates the relationship between drugs suspected of causing adverse drug reactions and the corresponding number of cases

S.NO	Questions	Response					
		very much	a lot	a little	not at all	not relevant	yes
1	**itchy, sore, painful or stinging**	16	21	9	0	0	0
2	**embarrassed or self-conscious**	18	14	10	4	0	0
3	**shopping, home or garden**	5	18	17	4	2	0
4	**clothes**	8	15	15	7	1	0
5	**social or leisure**	9	17	16	4	0	0
6	**sports**	4	6	7	9	20	0
7	**a) prevented work or study**	0	0	0	0	8	33
	b) if no, how much	0	0	0	5	0	0
8	**problem with partner, close friends, relatives**	4	21	16	4	1	0
9	**sexual difficulties**	0	2	5	11	28	0
10	**problematic treatment**	2	18	19	4	3	0

Table 5: Represents comparison between Dermatological Life Quality Index (DLQI) and multiple recurrences.

ANOVA						
Source of Variation	***SS***	***df***	***MS***	***F***	***P-value***	***F crit***
Rows	264.697	10	26.4697	0.402939	0.938983	2.026143
Columns	665.5909	5	133.1182	2.026414	0.090862	2.400409

Table 6: Represents "p value" for the table (5)

The p-values presented in this table assess the statistical significance of the association between DLQI scores and recurrence of dermatological disease.

S.NO	Questions	Response					
		very much	a lot	a little	ot at all	not relevant	yes
1	itchy, sore, painful or stinging	21	25	17	1	0	0
2	embarrassed or self-conscious	16	23	19	6	0	0
3	shopping, home or garden	8	16	26	13	1	0
4	clothes	6	19	25	13	1	0
5	social or leisure	13	14	23	13	1	0
6	sports	7	9	18	18	12	0
7	a) prevented work or study	0	0	0	0	17	42
	b) if no, how much	0	2	0	3	0	0
8	problem with partner, close friends, relatives	3	26	19	11	5	0
9	sexual difficulties	3	3	3	28	27	0
10	problematic treatment	5	22	21	15	1	0

7: Represents comparison between Dermatological Life Quality Index (DLQI) and single occurrence.

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Rows	520.9394	10	52.09394	0.526533	0.863216	2.026143
Columns	1216.121	5	243.2242	2.458361	0.045563	2.400409

Table 8: Represents "p value" for the table (7)

	Severity				
DISEASE	minimal depression 1 - 4	mild depression 5 - 9	moderate depression 10 - 14	moderately severe depression 15 - 19	severe depression 20 - 27
Psoriasis	2	3	5	2	0
Pemphigus Vulgaris	1	2	8	2	0
Bullous Pemphigoid	0	1	0	2	0
Dermatitis	1	2	5	1	0
Urticaria	0	2	1	0	0
Sclerosis	0	1	0	0	0
FDE	0	1	1	0	0
Dermatomyositis	0	0	0	0	0
Bullous EMF	0	0	1	0	0
Scabies	0	1	1	0	0

Table 9: Illustrates comparison between Patient Health Questionnaire (PHQ-9) with multiplerecurrences

ANOVA						
Source of Variation	***SS***	***df***	***MS***	***F***	***P-value***	***F crit***
Rows	42.08	9	4.675555556	3.497921862	0.003379548	2.152607
Columns	29.48	4	7.37	5.513715711	0.001440666	2.633532

Table 10: represents "p value" for the table (9)

DISEASE	minimal depression 1 - 4	mild depression 5 - 9	moderate depression 10 - 14	moderately severe depression 15 - 19	severe depression 20 - 27
Psoriasis	4	4	5	1	1
Pemphigus Vulgaris	0	3	7	1	0
Bullous Pemphigoid	0	2	3	2	0
Dermatitis	2	5	3	1	0
Urticaria	1	4	6	1	0
Sclerosis	0	1	2	1	0
FDE	0	1	0	0	0
Dermatomyositis	0	0	0	1	0
Bullous EMF	0	0	0	0	0
Scabies	0	1	1	0	0

Table 11: Illustrates comparison between Patient Health Questionnaire (PHQ-9) with single occurrence.

ANOVA						
Source of Variation	***SS***	***df***	***MS***	***F***	***P-value***	***F crit***
Rows	58.88	9	6.542222222	3.293064877	0.005033244	2.152607
Columns	52.48	4	13.12	6.604026846	0.000430046	2.633532

Table 12: represents "p value" for the table (11).

Discussion

The study indicates that dermatological conditions are predominantly observed in individuals aged 31-40 and 41-50, comprising 24% of cases, while the lowest incidence is seen in the age group of 71-80 (6%). The combination of environmental exposures, lifestyle factors, hormonal changes, aging-related alterations, and stressors commonly encountered during adulthood contributes to the higher prevalence of dermatological diseases in the 31-50 age groups. The majority of participants hail from rural areas, accounting for 70%, with the remaining 30% residing in urban settings. Limited socioeconomic resources and lack of awareness and education contribute to the higher prevalence of dermatological diseases among rural populations. Among the sample population, 60% are illiterate, with 40% being literate. In contrast, a study by Md. Rokon Uddin et al., [18] found that there are more literate

people than illiterate people. Illiterates are more exposed to dermatological diseases due to limited health knowledge and barriers in accessing healthcare services, stemming from their inability to read and comprehend health information. Additionally, 22% are smokers, 12% are alcohol consumers, and 5% have allergies. Alcohol, smoking, and allergies can exacerbate dermatological diseases by disrupting skin barrier function, triggering inflammation, and compromising the immune response. Most individuals in the sample are engaged in daily wage labour (34%), whereas only 4% are drivers. Others include an Electrician, Tailor and Welder as opposed to Yaman Walid Kassab et al. [19] Work which was done in a working setting, not working 60, outdoor job 15, and interior job 64. The study found that the following groups of workers made up 25% of the workforce: housewives, 26% daily wage earners, 36% farmers, 35% drivers, and 35% other workers. Daily wage labourers are more susceptible to dermatological diseases due to prolonged exposure to environmental hazards, inadequate protective measures, and limited access to healthcare resources, exacerbating skin health risks.

In this study, Psoriasis emerged as the most frequently occurring dermatological condition, accounting for 25% of cases, whereas Bullous EMF was found to be the least prevalent, representing only 0.9% of occurrences in contrast to Kavitha et al.'s [20] completely comprehensive study, Urticaria and dermatitis in particular place a heavy burden on India. Psoriasis is prevalent due to factors such as genetic predisposition, environmental influences, and lifestyle habits, contributing to its high occurrence in the region. Out of the 110 patients examined in the study, 65 were male, constituting 59% of the total, while 45 were female, accounting for 41%. Among males, Psoriasis (19%) was the most prevalent condition, while Bullous EMF had the lowest occurrence (0.9%). Conversely, among females, Pemphigus vulgaris (16%) was the most frequently observed condition, with FDE, Dermatomyositis, and Scabies having the lowest incidence rates (0.9%).

Itching (25%) and lesions (22%) were the most commonly reported symptoms, while bumps (0.6%) and pustules (0.9%) were less common. Itching and lesions are more common in dermatological diseases due to the inflammatory response triggered by various factors such as immune system deregulation, environmental exposures, allergic reactions, infections, and underlying skin conditions, leading to tissue damage, irritation, and sensory nerve activation.

The findings from this dataset of 110 patients indicated a predominance of antihistamines (21.4%) was frequently recommended to address allergic reactions and itching. This study is contrast to the research conducted by Arun Patil et al., [21] who concluded that antihistamines' utilization exceeded that of antibiotics. Furthermore antibiotics (19.2%) being prescribed primarily due to their effectiveness in eradicating bacterial infections in dermatological diseases. Notably, antipyretics (4.1%) were notably prescribed at a lower rate compared to the other mentioned medications.

Multiple recurrence cases are of 42% and single occurrence cases rate of 64%. This is contrasted with the research by C.L. Wootton et al., [22] found that out of 340 participants, 124 returned with skin conditions. The higher incidence of recurring cases is attributed to the chronic nature of conditions, inadequate treatment responses, and exacerbations of the disease. Additionally, among the 110 patients, 10% had hypertension, 4.5% had diabetes, and 3.6% had seizures. Comorbid conditions may exacerbate dermatological diseases due to the medications prescribed and impaired blood circulation. Among 110 prescriptions, 28 were

found to have drug interactions, with 18 (69.2%) characterized as minor, 6 (23%) as moderate, and 2 (7.6%) as major interactions which contrasts with Aswin Leethiyal.A [23]

Mostly prescribed drugs were Generic Drugs (100%) and (93%) 0f Drugs are from Essential Drug List (EDL), Within specific dermatological conditions, itching was prominent among bullous pemphigoid patients (43.4%), while dermatitis patients commonly presented with itching (29.1%) and lesions (20.8%). Pemphigus vulgaris patients predominantly exhibited fluid-filled lesions (25%), while those with sclerosis commonly showed lesions (23.3%). Urticarial patients were frequently affected by redness (20%) and itching (23.3%). Among patients with FDE, lesions (16.6%) were most frequently observed, while Dermatomyositis patients typically displayed lesions (50%). Bullous EMF patients experienced blisters (33%) more frequently, and those with scabies reported itching (50%) and redness (25%).

23% of medications for Psoriasis fall within the category of antibiotics, while around 2.4% belong to Anti-pyretic. Among drugs for Pemphigus Vulgaris, about 19% are classified as Corticosteroids, while approximately 1.7% falls into the category of Smoothening agents. For Bullous Pemphigoid, 32% of medications are categorized as Antibiotics, and 4% fall under the classification of Anti-pyretic.

Within Dermatitis treatment, approximately 23.5% of drugs are Antihistamines, and 1.2% was categorized as Anti-pyretic. In cases of Urticaria, 47.2% of treatments are attributed to Antihistamines, while 3.6% are classified as Antipyretics. In the context of sclerosis, 15.7% of medications fall under the category of Antipyretics, and 10.5% are classified as Antihistamines. For Fixed Drug Eruption, 22.2% of medications are categorized as Antipyretics, and 5.5% are classified as Corticosteroids. In Dermatomyositis, 42.8% of treatments involve Proton Pump Inhibitors (PPIs). For cases of Bullous Erythema Multiforme (EMF), 33.3% of drugs are under the categories of Antihistamines, Corticosteroids, and Supplements. In cases of Scabies, 57.1% of drugs are under Antihistamines while 14.2% of drugs under the categories of Supplements, Antipyretics.

94% of drug prescribed were generic and 6% of them were branded. Out of a total of 110 cases, 7 Adverse Drug Reactions (ADRs) were identified, consisting of 5 cases classified as Augmented reactions, 1 case classified as Bizarre, and 1 case classified as Delayed. This study opposed with Ganeva M et al., [24] concluded that Antimicrobial agents were the most common implicated drug class causing ADR.

Smaller sample size might be the reason for lack the statistical power to detect significant differences and can lead to increased variability and decreased ability to detect true effects.

Limitations:

Nevertheless, the current study also encounters certain constraints. The sample size in this study is restricted as a result of the limited duration of the study. DLQI's reliance on self-reported data may introduce subjective biases, while its focus on specific aspects of quality of life may overlook broader psychological and social impacts of dermatological conditions.

Conclusion:

We concluded that Drug Utilization Evaluation (DUE) in dermatological diseases typically involves synthesizing findings related to medication usage patterns, effectiveness, safety, and appropriateness of treatments. Psoriasis was the most occurring dermatological disease and Antihistamines are highest prescribed class of drug. Generic drugs were more prescribed. Augmented is the most causing type of ADR and Antibiotics are the class causing more ADR's. We also concluded that experiencing multiple recurrences is associated with lower quality of life and increased severity of depression. Clinical pharmacists should improve patient care in dermatological diseases through medication counselling, addressing treatment concerns, and collaborating with healthcare teams to enhance therapeutic outcomes and promote adherence to treatment regimens, thereby enhancing overall health and quality of life.

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Conflicts Of Interest:

The authors declared no conflicts of interest.

References

1. Davies B. (2023) *The role of autoimmunity in dermatological diseases. Dermatol Res Skin Care* .7(3):151
2. Verywell health retrieved from https://www.verywellhealth.com/skin-anatomy-4774706
3. Monteiro-Riviere N A (2006). *Structure and Function of Skin.*
4. Dalgard F J et al., (2015) *The psychological burden of skin diseases: a cross-sectional multicentre study among dermatological out-patients in 13 European countries*. J Invest Dermatol, 135(4):984-991.
5. Kalsi et al., (2022). *drug utilization review: an overview. world journal of pharmacy and pharmaceutical sciences*. 11. 851-866.
6. Shalini S et al., *Drug Utilization Studies – An Overview.* Scopus Indexed [Internet]. 2010 May 31 [cited 2024 Mar. 5];3(1):803-10.
7. Armstrong, April & Robertson, Andrew & Wu, Julie & Schupp, Clayton & Lebwohl, Mark. (2013). *Under treatment, Treatment Trends, and Treatment Dissatisfaction Among Patients With Psoriasis and Psoriatic Arthritis in the United States Findings From the National Psoriasis Foundation Surveys, 2003-2011*. JAMA dermatology (Chicago, Ill.). 149. 10.1001/jamadermatol.2013.5264.

8. Kalsi, Shaina & Rehman, Shakil & Altaf Dar, Mohd. (2022). *Drug Utilization Review: An Overview. World Journal Of Pharmacy And Pharmaceutical Sciences.* 11. 851-866. 10.20959/wjpps20228-22903.

9. Finlay AY, Salek MS, Abeni D, Tomás-Aragonés L, van Cranenburgh OD, Evers AW, Jemec GB, Linder D, Manolache L, Marrón SE, Prinsen CA, Susitaival P, Chernyshov PV; *EADV Task Force on Quality of Life. Why quality of life measurement is important in dermatology clinical practice: An expert-based opinion statement by the EADV Task Force on Quality of Life.* J Eur Acad Dermatol Venereol. 2017 Mar;31(3):424-431. doi: 10.1111/jdv.13985. Epub 2016 Oct 24. PMID: 27684717.
10. Dalia, Akranavičiūtė & Ruzevicius, Juozas. (2007). *Quality of Life and its Components' Measurement. Engineering Economics.*
11. AlOtaibi HM, AlFurayh NA, AlNooh BM, Aljomah NA, Alqahtani SM. *Quality of life assessment among patients suffering from different dermatological diseases*. Saud Med J. 2021 Nov; 42(11):1195-1200. DOI: 10.15537/smj.2021.42.11.20210560. PMID: 34732551; PMCID: PMC9149728.
12. Costa, Daniel & Mercieca-Bebber, Rebecca & Rutherford, Claudia & Tait, Margaret-Ann & King, Madeleine. (2021). *How is quality of life defined and assessed in published research? Quality of Life Research*. 30. 10.1007/s11136-021-02826-0.
13. Fabbro, Stephanie & Mostow, Eliot & Helms, Stephen & Kasmer, Richard & Brodell, Robert. (2013). *The pharmacist role in dermatologic care. Currents in Pharmacy Teaching and Learning*. 6. 10.1016/j.cptl.2013.09.008.
14. Gohel, Dimple & Bhatt, Sandip Kumar & Malhotra, Supriya. (2014). *Evaluation of Dermatological Adverse Drug Reaction in the Outpatient Department of Dermatology at a Tertiary Care Hospital. Indian Journal of Pharmacy Practice*. 7. 42-49. 10.5530/ijopp.7.3.9.
15. Kettis, Åsa & Kjellgren, Karin & Ring, Lena & Maroti, Marianne & Serup, Jørgen. (2006). *The Role of Dermatologists, Nurses and Pharmacists in Chronic Dermatological Treatment: Patient and Provider Views and Experiences.* Acta dermato-venereological. 86. 202-8. 10.2340/00015555-0065.
16. https://www.cardiff.ac.uk/medicine/resources/quality-of-life-questionnaires/dermatology-life-quality-index
17. Kroenke K, Spitzer RL, Williams JB. *The PHQ-9: validity of a brief depression severity measure*. J Gen Intern Med. 2001 Sep;16(9):606-13. doi: 10.1046/j.1525-1497.2001.016009606.x. PMID: 11556941; PMCID: PMC1495268.
18. Uddin, Md & Sarwar, Bulbul & Akhter, Farjana & Baker, Abu. (2012). *Pattern of Dermatological Cases Attending Skin-VD Outpatient Department in a Medical College Hospital of Bangladesh.* Journal of Enam Medical College. 1. 10.3329/jemc.v1i2.11465.
19. Kassab YW, Muhamad SA, Aldahoul HK, Mohammed IK, Paneerselvam GS, et al. *The*

impact of skin disorders on patients' quality of life in Malaysia. J Clin Intensive Care Med. 2019; 4: 001-009

20. Kavita, Thakur JS, Narang T. *The burden of skin diseases in India: Global burden of disease study 2017.* Indian J Dermatol Venereol Leprol 2023;89:421-5.
21. Patil, Arun & Dighe, Darshana & Kolte, Shrikrishna & Jadhav, Pradeep & Deshmukh, Y. (2017). *Drug utilization pattern in dermatology outpatient department at a tertiary care hospital in Navi Mumbai. International Journal of Basic & Clinical Pharmacology.* 6. 559. 10.18203/2319-2003.ijbcp20170812.

22. Wootton, Catriona & Bell, S. & Philavanh, A. & Phommachack, K. & Soukavong, Mick & Kidoikhammouan, Sonexai & Walker, S. & Mayxay, Mayfong. (2018). *Assessing skin disease and associated health-related quality of life in a rural Lao community.* BMC Dermatology. 18. 10.1186/s12895-018-0079-8.
23. Aswin Leethiyal. A, Gayathri. M, Dr. Mahesh Kumar. V. P, Dr. Kannambal. K. *Prospective Study on Utilization Pattern of Corticosteroids on DVL Patients at a Tertiary Care Teaching Hospital. IOSR Journal of Pharmacy And Biological Sciences* (IOSR-JPBS) e-ISSN:2278- 3008, p-ISSN:2319-7676. Volume 16, Issue 6 Ser. I (Nov. –Dec. 2021), PP 45-49
24. Ganeva M et al., (2007) *A prospective study of adverse drug reactions in a dermatology department.* Methods and findings in experimental and clinical pharmacology. Mar 1;29(2):107-12.