

Pattern of skin disorder among patients attending skin outpatient department in tertiary care teaching hospital of district Almora: a retrospective study

Padrão de distúrbios de pele entre pacientes atendidos no ambulatório de dermatologia em hospital escola de cuidados terciários do distrito de Almora: um estudo retrospectivo

Vikram S. Dhapola¹, Shashank Tyagi², Akbar A. Ahmed³, and Preeti Kumari^{3*} 

¹Department of Pharmacology; ²Department of Dermatology; ³Department of Community Medicine. Soban Singh Jeena Government Institute of Medical Sciences and Research, Almora, Uttarakhand, India

Abstract

Objectives: The aim of this study was to assess the morbidity profile of patients attending dermatology outpatient department in a tertiary care center of Kumaun region, North India. **Methods:** The present study was a retrospective, record-based cross-sectional study in which OP registers of the Department of Dermatology from July 2023 to July 2024 were analyzed. Skin diseases were grouped into different groups and the frequency of cases in each group was studied. Data analysis was performed using Microsoft Excel and Statistical Package for the Social Sciences software version 16. **Results:** A total of 5118 patients were recorded in this study. About 44.7% were male while 55.2 % were females. All disorders were broadly classified into non-infectious and infectious dermatoses, out of them acne was most common in non-infectious group while tinea was most common in infectious group. **Conclusion:** Infections and eczemas which could be managed in primary health-care set-up contributed to the majority of the OP attendance of our tertiary care center. The peripheral institutions should be strengthened in manpower and the level of knowledge and skills.

Keywords: Acne. Eczema. Fungal infection. Drug reaction. Almora.

Resumo

Objetivos: O objetivo deste estudo foi avaliar o perfil de morbidade dos doentes seguidos no ambulatório de dermatologia de um centro terciário da região de Kumaun, norte da Índia. **Métodos:** O presente estudo foi retrospectivo, baseado em registros e com delineamento transversal, no qual os registros ambulatoriais do Departamento de Dermatologia, de julho de 2023 a julho de 2024, foram analisados. As doenças de pele foram agrupadas em diferentes categorias, e a frequência dos casos em cada grupo foi estudada. A análise dos dados foi realizada usando o Microsoft Excel e o software SPSS versão 16. **Resultados:** Um total de 5118 pacientes foi registrado neste estudo. 44,7% eram homens, enquanto 55,2% eram mulheres. Todos os distúrbios foram amplamente classificados em dermatoses infecciosas e não infecciosas; entre eles, a acne foi a mais comum no grupo não infeccioso, enquanto a tinea foi a mais comum no grupo infeccioso. **Conclusão:** As infecções e eczemas, que poderiam ser gerenciados em unidades de atenção primária, contribuíram para a maioria dos atendimentos

*Correspondence:

Preeti Kumari
E-mail: kpreeti775@gmail.com
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no ambulatório do nosso centro de cuidados terciários. As instituições periféricas devem ser fortalecidas em termos de recursos humanos, conhecimento e habilidades.

Palavras-chave: Acne. Eczema. Infecção fúngica. Reação a medicamentos. Almora.

Introduction

Skin is the largest organ of the body and acts as the first barrier to exogenous insults such as injury and microbes thereby reflecting the health status of an individual^{1,2}. Diseases of the skin are becoming an important concern at all levels of society and affect all age groups: infants, teenagers, adults, and the elderly³. They show variable patterns in different countries as well as different parts of the country. These variations across the country are observed especially in developing countries such as India³.

It is more so in India, where the climate, socioeconomic status, religions, and customs are widely varied in different parts of the country⁴. Apart from environmental factors, the skin disease pattern varies depending on the occupation, socioeconomic status, age, and sex of the patients. Patterns of skin diseases from tertiary care centers in Kerala have been studied earlier^{5,6}.

Although the burden of skin diseases is significant, the majority of people affected with skin problems do not report to health centers and hospitals to seek medical advice. The prevalence of skin diseases in the general population has varied from 7.86 to 11.16% in India as reported in various studies^{7,8}.

Uttarakhand is primarily a hilly state situated in north-west region of India. It is divided into two regions, namely, Kumaun and Garhwal. Uttarakhand comprises 13 districts (7 in Garhwal region and 6 in Kumaon). The districts in Kumaon region are, namely, Almora, Bageshwar, Champawat, Nainital, Pithoragarh, and Udham Singh Nagar. They constitute over 40% of the geographical area of the state, with over 80% covered by mountains. Soban Singh Jeena Government Institute of Medical Science and Research, Almora is one of the referral centers for Kumaun division.

Although there are a significant number of studies at a national level to understand the dermatological pattern, there is a paucity of studies in Kumaun region of Uttarakhand in this regard. The aim of this study was to assess the morbidity profile of patients attending dermatology outpatient department in a tertiary care center of Kumaun region, North India.

Materials and methods

A retrospective, record-based cross-sectional study was conducted from July 2023 to July 2024. The OP registers of the department during this period were analyzed. The registers were taken after getting permission from the Superintendent, Head of the Department, and the Institutional Ethics Committee.

The study included all new patients entered on the OP register on Monday, Wednesday, and Friday. Due to the selection of week and weekend days, this OP population included patients of all ages and sexes. Diagnosis was primarily clinical, supported by relevant investigations, and as per entry in the OP register. Data collected from the register were documented and analyzed. Patients diagnosed with skin cancer, subungual, ocular, and visceral lesions, and metastases were excluded from the study. For analysis, different skin diseases were broadly grouped into different groups, and the frequency of cases in each group was studied. The groups were eczemas, psoriasis, lichen planus, pityriasis rosea, other papulosquamous diseases, pigmentation disorders, vitiligo, fungal, bacterial and viral infections, parasitic infestation, sexually transmitted infections, leprosy, connective tissue diseases, and drug reactions. Data analysis was performed using Microsoft Excel and Statistical Package for the Social Sciences software version 16.

Result and observations

A total of 5118 (only new patients) patients were included in the study conducted over a period of 1 Year. 44.7% were male while 55.2% were females. The mean age of patients was 31.7 ± 17.1 years and approximately half of them were residents of Almora district (Table 1 and Fig. 1). All disorders were broadly classified into non-infectious and infectious dermatoses, out of them acne was the most common in non-infectious group while tinea was the most common in infectious group (Tables 2 and 3). Acne vulgaris was the most common dermatoses followed by tinea among all the patients. Furthermore, acne vulgaris was the most common dermatoses among female patients (Table 4).

Table 1. Sociodemographic profile of patients (n = 5118)

Variables	Frequency (no. %)
Age	
< 18 years	808 (15.8)
18-60 years	3916 (76.4)
> 60 years	394 (7.7)
Gender	
Male	2290 (44.7)
Female	2828 (55.2)
Locality	
Almora	2069 (40.4)
Pithoragarh	1770 (34.6)
Bageshwar	750 (14.6)
Champawat	529 (10.3)

Table 2. Pattern of non-infectious dermatosis (n = 5118)

Disease	Frequency (no. %)
Acne	1091 (21.3)
Drug reaction	457 (8.9)
Psoriasis	320 (6.2)
Miliaria	350 (6.8)
Urticaria	239 (4.7)
Alopecia	190 (3.7)
Eczema	186 (3.6)
Seborrheic dermatitis	186 (3.6)
Vitiligo	167 (3.3)
Lichen planus	80 (1.6)
Milia	78 (1.5)
P. Alba	49 (1)
SLE/DLE	47 (0.9)
Keloid	40 (0.8)
Tropical steroid-damaged face	40 (0.8)
Skin tag	31 (0.6)
PMLE	22 (0.4)
Epidermal cyst	06 (0.1)
Plaque psoriasis	06 (0.1)

SLE/DLE: systemic lupus erythematosus/discoid lupus erythematosus, PMLE: polymorphous light eruption.

Table 3. Pattern of infectious dermatoses (n = 5118)

Disease	Frequency (no. %)
Tinea	577 (11.3)
Scabies	305 (6)
Warts	144 (2.8)
Herpes zoster	132 (2.6)
Pityriasis versicolor	93 (1.8)
Furuncle/carbuncle	77 (1.5)
Herpes simplex	58 (1.1)
Impetigo	47 (0.9)
Folliculitis	43 (0.8)
Hyperhidrosis	15 (0.3)
Gonorrhoea	11 (0.2)
Dengue rash	07 (0.1)
Pityriasis rosea	07 (0.1)
Chicken pox	06 (0.1)
Candida	05 (0.1)
Bullous pemphigus	03 (0.1)
Hansen’s disease	03 (0.1)

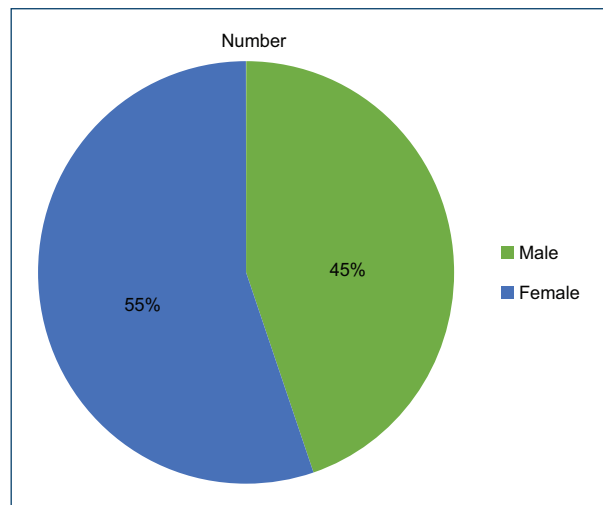


Figure 1. Gender distribution of patients (n = 5118).

Discussion

A rising trend of skin-related problems is noted in developing countries, including India. This can be correlated to multiple factors such as lower socioeconomic

strata, climatic conditions, lack of access to health care, lower educational levels, and so on⁹⁻¹¹. The impact of dermatological problems in resource-poor areas of the world is important in forming a concerted and sustainable global response toward bringing down

Table 4. Distribution of patients according to age and gender (n = 5118)

Disease	Female			Male		
	< 18 years	18-60 years	> 60 years	< 18 years	18-60 years	> 60 years
Eczema	07 (7)	70 (70)	23 (23)	13 (15.1)	55 (64)	18 (20.9)
Alopecia	05 (5.1)	93 (94.9)	0	03 (3.3)	88 (95.7)	01 (1.1)
Seborrheic dermatitis	20 (25.3)	54 (68.4)	05 (6.3)	26 (24.3)	75 (70.1)	06 (5.6)
Acne	105 (15.6)	566 (84)	03 (0.4)	104 (24.9)	313 (75.1)	0
Urticaria	25 (18.4)	101 (74.3)	10 (7.4)	28 (27.2)	66 (64.1)	09 (8.7)
Drug reaction	42 (15.7)	201 (75)	25 (9.3)	35 (18.5)	125 (66.1)	29 (15.3)
Psoriasis	05 (3)	118 (71.1)	43 (25.9)	03 (1.9)	121 (78.6)	30 (19.5)
Lichen planus	03 (8.1)	25 (67.6)	09 (24.3)	01 (2.3)	34 (79.1)	08 (18.6)
PMLE	0	08 (80)	02 (20)	01 (8.3)	09 (75)	02 (16.7)
SLE/DLE	01 (3.1)	23 (71.9)	08 (25)	01 (6.7)	12 (80)	02 (13.3)
Vitiligo	19 (22.9)	48 (57.8)	16 (19.3)	30 (35.7)	46 (54.8)	08 (9.5)
Skin tag	01 (5)	19 (95)	0	0	11 (100)	0
Keloid	02 (10)	16 (80)	02 (10)	0	19 (95)	01 (5)
Pityriasis alba	12 (46.2)	12 (46.2)	02 (7.7)	21 (91.3)	02 (8.7)	0
Miliaria	17 (31.5)	37 (68.5)	0	12 (50)	12 (50)	0
Tropical steroid damaged face	0	28 (87.5)	04 (12.5)	0	08 (100)	0
Tinea	26 (12.2)	169 (79.3)	18 (8.5)	38 (10.4)	308 (84.6)	18 (4.9)
Pityriasis versicolor	11 (26.2)	29 (69)	02 (4.8)	11 (21.6)	39 (76.5)	01 (02)
Furuncle/carbuncle	04 (7.3)	49 (89.1)	02 (3.6)	02 (9.1)	19 (86.4)	01 (4.5)
Folliculitis	02 (8)	22 (88)	01 (4)	03 (16.7)	15 (83.3)	0
Herpes simplex	03 (8.6)	31 (88.6)	01 (2.9)	01 (4.3)	19 (82.6)	03 (13)
Herpes zoster	04 (5.6)	51 (71.8)	16 (22.5)	02 (3.3)	41 (67.2)	18 (20.9)
Warts	14 (19.4)	55 (76.4)	03 (4.2)	06 (8.3)	64 (88.9)	02 (2.8)
Impetigo	21 (84)	04 (16)	0	12 (81.8)	03 (13.6)	01 (4.5)
Miliaria	03 (1)	285 (98.3)	02 (0.7)	03 (5)	57 (95)	0
Scabies	36 (26.9)	86 (64.2)	12 (9)	46 (26.9)	107 (62.6)	18 (10.5)
Miscellaneous (others)*	05 (16.1)	25 (80.6)	01 (3.2)	05 (16.1)	25 (80.6)	01 (3.2)

*Epidermal cyst, hyperhidrosis, dengue rash, gonorrhoea, pityriasis rosea, chicken pox, plaque psoriasis, candida, bullous pemphigus, leprosy included in miscellaneous (others).

PMLE: polymorphous light eruption; SLE: systemic lupus erythematosus; DLE: discoid lupus erythematosus.

the burden^{12,13}. In our study, the maximum number of patients were in the age group of 18-60 years of age group (76.4%), followed by the < 18 years of age group (15.8%). The least number of patients were found in the elderly age group, that is, > 60 years age group (7.7%). In a study conducted by Jain et al.⁷. The most common age group was different to our study, that is, 21-30 years

(54.8%). However, the elderly age group (> 60 years) formed a significant proportion of 20.4% of patients and the least number of patients were in the 11-20 years age group (3.7%). In our study, the highest number of patients were in the 18-60 years age group could be because they are the most mobile group of the population, and > 60 years being the least prevalent group

because of least mobility and ignorance toward these non-life threatening skin problems.

The prevalence of infective skin disorders noted in a few studies varied from 42.68 to 63.65%^{6,14,15}. On detailed analysis, it was found that infectious skin disorders (51.2%) outnumbered the non-infectious skin disorders (48.7%) in our study. Grover et al.³ recorded a similar pattern of diseases where infectious cases (59.1%) were more common than non-infectious cases (40.9%). In contrast to our study, many studies noted that non-infectious diseases were more common than infectious ones. Bommakanti and Pendyala¹⁶ recorded 60.15% cases of non-infectious diseases. This spectrum of dermatoses with predominant infectious diseases can be attributed to the fact that the community setting had overcrowding, ignorance toward healthcare, and poor hygiene. The differences in the distribution of infectious and non-infectious dermatoses in various studies can be attributed to different climatic and geographical diversities as well as different susceptibilities of different population groups.

Among the infectious group of disorders, fungal infections dominated the spectrum with 11.3% of all study subjects, followed by scabies (6%). A similar pattern was noted by Das and Chatterjee¹⁵ with the most common infections being tinea (12.3%).

Scabies was found in < 10% of all new cases in the present study. Likely among all cases scabies was present in 8.9% in study from Imphal¹⁷. In a study from Mangalore, Karnataka, among the infective disorders, 9.4% of scabies cases were reported⁶.

In the non-infectious group of diseases, we noted that the most common disease was acne (21.3%), followed by drug reaction (8.9%), miliaria (6.8%) closely followed by psoriasis (6.2%). Such a high percentage of acne can be attributed to the fact that we had a significant number of study subjects in the adolescent age group and early adulthood. These results were much higher than the study conducted in Kerala where the prevalence of drug reaction reported was only 0.2%¹⁸.

Among children, both males and females skin and subcutaneous infections (eg. Pityriasis alba, Vitiligo) were the most common diagnosis. Two other similar studies which were carried out among children in India and Pakistan and showed that skin infection comprised 83.3% and 60% of skin diseases, respectively^{19,20}. Higher proportion of the skin and subcutaneous infections among children is also comparable to a study conducted in Wardha district in Maharashtra on 666 children aged 0-14 which found that infective dermatoses contributed 63.5% of all dermatoses²¹.

Proportion of cases of vitiligo and urticaria was 3.3 and 4.7% which was comparable to the study done in Kerala, 4.7% and 3.5%, respectively²². The results of studies from Mali and Ethiopia are similar^{5,23}.

Significant differences between males and females were seen in some diseases. Male: female ratio in these diseases was as follows – drug reaction (189:268), acne vulgaris (417:674), leprosy (13:2), connective tissue diseases (15:32), and tinea (364:213). These results were comparable to the study conducted in northern Kerala India^{11,18,24}.

Limitations

The main limitation was that the study was only conducted for one year and patients coming on only three days in a week were selected. However, authors believe that this is worth reporting because of the rarity of such studies. These findings have to be reassessed in more long-term studies.

Conclusion

Although the present study was conducted in a tertiary center, most of the cases were common dermatological conditions such as infections and eczemas which should be ideally managed in the primary health-care set-up. To achieve this, the peripheral institutions should be strengthened with manpower and the required level of knowledge in dermatology. More focused and effective training of medical students about the management of common skin conditions at the undergraduate level, at least two week's compulsory posting in dermatology during an internship, and continuing medical education for practitioners, are important in this regard.

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Conflicts of interest

None.

Ethical disclosures

Protection of human and animal subjects. The authors declare that no experiments were performed on humans or animals for this study.

Confidentiality of data. The authors declare that they have followed the protocols of their work center on the publication of patient data.

Right to privacy and informed consent. The authors have obtained approval from the Ethics Committee for analysis and publication of routinely acquired clinical data and informed consent was not required for this retrospective observational study.

Use of artificial intelligence for generating text. The authors declare that they have not used any type of generative artificial intelligence for the writing of this manuscript nor for the creation of images, graphics, tables, or their corresponding captions.

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