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# A clinical spectrum of dermatoses in dermatology outpatient department of paramilitary tertiary care center

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## Abstract

**Introduction:** Dermatoses constitute a significant share of dermatology outpatient visits. However, data on their spectrum in tertiary care settings in Nepal are limited. This study examined the prevalence, patterns, and demographic distribution of dermatoses in a paramilitary tertiary care center.

**Method:** This retrospective hospital-based study reviewed medical records of dermatology outpatients from January 2021 to December 2023. Data on age, gender, and clinical diagnoses were analyzed using SPSS version 17.00.

**Result:** A total of 6,617 patients with dermatoses were analyzed. The age group 31–45 years was the most affected, comprising 2,417(37.34%) individuals of the total cases. Infective dermatoses were present in 3,437 (51.94%) patients. Among these, bacterial infections were the most common, affecting 1,143 (33.26%) patients. Within bacterial infections, the most frequent condition was folliculitis 501 (43.83%), followed by furunculosis 310 (27.12%). Viral dermatoses accounted for 571 (16.61%) cases, predominantly warts 301 (52.71%). Parasitic dermatoses were noted in 454 (13.21%) cases, primarily due to scabies 439 (96.70%). Non-infective dermatoses were seen in 3,180 (48.06%) patients, more common in females (1,637, 51.48%). The most prevalent non-infective condition was eczema (839, 26.38%). Among males, the most common infective dermatosis was fungal infections 587 (25.69%), and the predominant non-infective condition was eczema 482 (31.24%). In females, fungal infections 250 (21.70%) were the leading infective dermatoses, while hyperpigmentation 413 (25.23%) was the most common non-infective condition.

**Conclusion:** Dermatoses in this paramilitary tertiary care center showed a diverse spectrum. Males were primarily affected by infective conditions like folliculitis, while females had more non-infective conditions, notably eczema and hyperpigmentation.

**Keywords:** Clinico-Demographics, Dermatoses, Infective, Nepal, Non-Infective

## INTRODUCTION

Dermatoses encompass a wide spectrum of skin conditions, including infections, inflammatory disorders, autoimmune diseases, and neoplastic conditions, significantly affecting global health and quality of life.[1,2] These disorders account for the majority of outpatient visits worldwide, with an even higher burden in developing countries where dermatological services are limited.[3,4] In Nepal, the epidemiology of dermatoses is shaped by unique factors such as climate, hygiene practices, and access to care, yet systematic data remain sparse.[3]

Hospital-based studies, particularly in tertiary care centers, are invaluable for understanding the clinical and epidemiological patterns of dermatoses. They provide critical insights into disease prevalence, demographic trends, and seasonal variations, informing resource allocation and public health strategies.[2-4]

This study investigates the clinical spectrum of dermatoses in patients attending a paramilitary tertiary care center in Nepal, aiming to identify common conditions and their demographic associations.

## METHOD

This hospital-based retrospective study was conducted to analyze the clinical spectrum of dermatoses among patients attending the outpatient department (OPD) of dermatology at Nepal Armed Police Force Hospital (NAPFH), Balambu, Kathmandu, Nepal. The study design aimed to comprehensively evaluate the prevalence, demographic distribution, and clinical patterns of various dermatoses over three years (January 2021 and December 2023).

The study population included all patients diagnosed with dermatoses who attended the dermatology OPD at NAPFH between January 2021 and December 2023. Inclusion criteria encompassed patients of all age groups and genders, provided their medical records contained complete documentation of the clinical diagnosis. Patients with incomplete medical records or those referred from other healthcare facilities without proper documentation were excluded to ensure data accuracy and consistency.

Data were extracted retrospectively from patient medical records maintained at the dermatology department. The dataset included demographic information (age, sex, and residence), clinical data (specific diagnosis of dermatoses and relevant medical history), and classification of dermatoses (categorized into infective diseases, inflammatory conditions, autoimmune disorders, neoplastic conditions, and miscellaneous dermatoses). Data of the study has not been published in any public domain; however, it can be provided to the readers upon request to the corresponding author.

Ethical approval was obtained from the Institutional Review Committee (IRC) of NAPFH (NAPFH-016/2024) prior to conducting the study. Patient confidentiality and privacy were rigorously maintained by anonymizing all data during collection and analysis. The database was secured with restricted access, ensuring only authorized personnel could view or manage the information. All procedures conformed to the ethical guidelines outlined by the IRC. Since, the study was performed retrospectively on the available data, IRC waived the necessity of written informed consent.

Data were meticulously entered into Microsoft Excel and subsequently analyzed using Statistical Package for the Social Sciences (SPSS) software, version 17.0. Descriptive statistics were utilized to present frequencies, percentages, and means, summarizing the distribution of dermatoses across various demographic and clinical groups. Comparative analysis was performed to identify patterns and variations in the occurrence of dermatoses based on age, sex, and other demographic factors (age, sex, and residence).

## RESULT

This study analyzed 6,617 patients with suspected dermatoses at a paramilitary tertiary care center, including 3,778 (57.10%) males and 2,839 (42.90%) females. Most patients with dermatoses were in the 16–30 years (31.63%, n=2,093) age groups. Among males, the highest proportion of cases was observed in the 31–45 years (33.99%, n=1,284) age group. Similarly, in females, the 31–45 years age group accounted for the largest proportion of cases (41.81%, n=1,187) (Table 1).

**Table 1. Age and sex-wise distribution of patients with various dermatoses**

| Age group (years) | Male n (%) | Female n (%) |
|---|---|---|
| ≤15 (n=810) | 486 (12.86) | 324 (11.41) |
| 16-30 (n=2093) | 1275 (33.75) | 818 (28.81) |
| 31-45 (n=2471) | 1284 (33.99) | 1187 (41.81) |
| 46-60 (n=602) | 331 (8.76) | 271 (9.55) |
| 61-75 (n=430) | 288 (7.62) | 142 (5.00) |
| ≥76 (n=211) | 114 (3.02) | 97 (3.42) |

Among the dermatoses observed in our study, infective dermatoses were more prevalent, accounting for 3,438 (51.95%) cases, compared to 3,179 (48.05%) cases of non-infective dermatoses. Infective dermatoses were more commonly seen in males, with 2,286 (66.49%) cases, whereas non-infective dermatoses were more frequent in females, comprising 1,637 (51.49%) cases (Figure 1).

Among infective dermatoses, fungal infections were the most prevalent, accounting for 837 cases (25.69% in males and 21.70% in females). Bacterial infections were also common, with folliculitis being the most frequent subtype, observed in 334 (14.62%) males and 167 (14.50%) females. Viral infections were documented in 571 cases, predominantly presenting as warts (9.02% in males and 8.25% in females). Parasitic infections accounted for 454 cases, with scabies being the most common, observed in

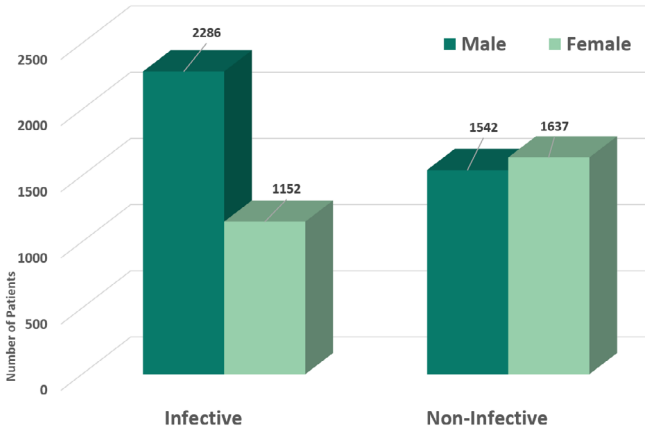


**Figure 1. Type and sex-wise distribution of dermatoses**

**Table 2. Infective dermatoses and their sex wise distribution in patients**

| Infective Dermatoses | | Male n (%) | Female n (%) |
|---|---|---|---|
| Fungal (n=837) | - | 587 (25.69%) | 250 (21.70%) |
| Bacterial (n=1,143) | Cellulitis | 101 (4.42%) | 53 (4.60%) |
| | Impetigo | 10 (0.44%) | 20 (1.74%) |
| | Folliculitis | 334 (14.62%) | 167 (14.50%) |
| | Furunculosis | 204 (8.93%) | 106 (9.20%) |
| | Abscess | 91 (3.98%) | 57 (4.95%) |
| Viral (n=571) | Warts | 206 (9.02%) | 95 (8.25%) |
| | Herpes simplex | 114 4.99%) | 57 (4.95%) |
| | Herpes Zoster | 42 (1.84%) | 19 (1.65%) |
| | Chicken pox | 24 (1.05%) | 14 (1.22%) |
| Parasites (n=454) | Scabies | 269 (11.77%) | 170 (14.76%) |
| | Pediculosis | 10 (0.44%) | 5 (0.43%) |
| STI (n=430) | - | 291 (12.73%) | 139 (12.07%) |
| Leprosy (n=3) | - | 3 (0.13%) | - |

STI: Sexually Transmitted Infections

269 (11.77%) males and 170 (14.76%) females. STIs were noted in 430 cases, with a higher prevalence in males (12.74%) (Table 2).

Eczema was the most frequently observed non-infective dermatosis, accounting for 482 (31.26%) cases in males and 357 (23.15%) cases in females. Acne was notably more common in females (267 cases, 17.32%) compared to males (119 cases, 7.72%). Hyperpigmentation was more prevalent in females, with 413 (26.78%) cases, compared to 109 (7.07%) cases in males. Conversely, vitiligo was more common in males, with 47 (3.05%) cases, compared to 27 (1.75%) cases in females (Table 3).

## DISCUSSION

This study examined the clinical spectrum of dermatoses among 6,617 patients attending a paramilitary tertiary care center. The results indicate a diverse range of dermatoses, with a higher prevalence of infective conditions (51.94%) compared to non-infective conditions (48.06%). The findings reveal sex-specific trends, age group variations, and notable differences in the distribution of specific dermatoses.

The observed predominance of dermatoses among the 16–45 years age group (68.97%) aligns with a study that reported a higher prevalence of skin conditions in economically active age groups due to increased exposure to environmental factors and occupational hazards.[5] However, a study from Turkey reported a higher prevalence of dermatoses among the pediatric population.[6] The male predominance in infective dermatoses (66.49%) and female predominance in non-infective dermatoses (51.49%) mirrors findings from Kavthekar, et al.,[7] suggesting sex-related differences in exposure and hormonal influences on skin conditions. On the other hand, Andersen et al. reported an equal incidence of skin and skin-related diseases in gender, while Chen, et al.[9] reported a higher incidence of skin diseases in females. The higher rates of fungal and bacterial infections in males in this study are likely due to greater outdoor exposure, and an increased prevalence of pigmentary disorders in females due to hormonal factors. The high prevalence of fungal and bacterial infections among males likely reflects environmental exposures such as sweating, physical activity, and occupational hazards typical in paramilitary populations. This finding underscores the need for targeted preventive measures in high-risk groups.

Fungal infections were the most common infective dermatoses, consistent with global dermatology

**Table 3. Various non-infective dermatoses and their sex wise distribution**

| Non- Infective Dermatoses | | Male n (%) | Female n (%) |
|---|---|---|---|
| Acne (n=386) | - | 119 (7.72%) | 267 (17.32%) |
| Pigmentary Disorders (n=596) | Hyperpigmentation (n=522) | 109 (7.07%) | 413 (26.78%) |
| | Vitiligo (n=74) | 47 (3.05%) | 27 (1.75%) |
| Urticaria (n=456) | - | 255 (16.54%) | 201 (13.04%) |
| Eczema (n=839) | - | 482 (31.26%) | 357 (23.15%) |
| Alopecia (n=475) | - | 229 (14.85%) | 246 (15.95%) |
| Drug Rash (n=14) | - | 10 (0.65%) | 4 (0.26%) |
| Papulosquamous disorders (n=388) | Psoriasis (n=287) | 198 (12.84%) | 89 (5.77%) |
| | Lichen Planus (n=68) | 55 (3.57%) | 13 (0.84%) |
| | Pityriasis rosea (n=33) | 23 (1.49%) | 10 (0.65%) |
| Others (n=25) | - | 15 (0.97%) | 10 (0.65%) |

Others included vascular disorders, nutritional deficiencies, immunobullous disorders, and malignancies

studies.[3,4,10,11] The prevalence of fungal infections, particularly among males in this study, emphasizes the role of tropical climates in fungal proliferation. Folliculitis was the leading bacterial infection in this study, paralleling findings in Stulberg, et al.,[12] which identified folliculitis as a common bacterial dermatosis in urban populations. The low incidence of leprosy (0.13%) in this study reflects national efforts in leprosy control programs, as highlighted in the WHO's annual report on neglected tropical diseases.[13] This burden of scabies and fungal infections highlights the need for enhanced hygiene practices and regular skin health education.[14] The predominance of warts and herpes simplex among viral infections is inconsistent with the findings of Laxmisha, et al.,[16] which highlighted warts as the most common. Scabies was the most prevalent parasitic infection in this study, aligning with Hay, et al.,[17] who reported similar trends in low-income and crowded settings. Pediculosis, on the other hand, was rare, possibly due to increased hygiene awareness among paramilitary personnel.[14]

Eczema was the most common non-infective dermatosis, particularly among males, echoing findings in Hansen et al.,[18] which could be attributed to environmental allergens and occupational irritants. Hyperpigmentation was predominantly observed in females, consistent with studies linking it to hormonal factors like melasma.[19,20] In contrast, psoriasis showed a higher prevalence in males, corroborating findings by Armstrong et al. that highlight genetic and immune-mediated factors.[21]

Acne was significantly more prevalent in females, particularly in younger age groups, consistent with literature suggesting a hormonal basis for its development.[22,23] On the other hand, alopecia in this study showed nearly equal distribution across sexes. The higher rates of hyperpigmentation and acne in females and psoriasis in males suggest hormonal and genetic predispositions.[19,20] The rare occurrence of malignancies and drug reactions (<1%) may indicate limited exposure to carcinogens and a controlled prescription environment in the study population.

While this study provides valuable insights into the dermatological profile of a paramilitary population, the findings may not generalize to the broader population due to the unique occupational and environmental conditions of the study cohort. Future studies should incorporate molecular diagnostic tools to identify specific pathogens in infective dermatoses and compare findings across diverse geographical and occupational settings to enhance generalizability.

## CONCLUSION

Dermatoses predominantly affected individuals in the 16–45 age group, with males showing a higher prevalence of infective conditions and females exhibiting a higher prevalence of non-infective ones. Fungal infections were the most common overall, particularly among males, while scabies emerged as the leading parasitic condition. Eczema was most frequently observed in males, whereas hyperpigmentation and acne were more common in females. Psoriasis showed a male predominance. This study underscores the diverse spectrum of dermatoses in paramilitary personnel, highlighting age- and sex-specific patterns and the predominance of infective conditions. The findings align with existing literature and offer insights to guide targeted interventions for enhancing skin health in similar occupational groups.

## DECLARATIONS

### Acknowledgement
None

### Conflict of Interest
None.

### Funding
None

### Ethical Consideration
Ethical approval was obtained from the Institutional Review Committee (IRC) of NAPFH (NAPFH-016/2024) prior to conducting the study.

### Consent for Study
Since, the study was performed retrospectively on the available data, IRC waived the necessity of informed consent.

### Consent for Publication
All authors gave consent for publication.

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