



## Changing Spectrum Of Dermatological Disorders Amid COVID-19: A Retrospective Observational Study

Dr. Rishabh Sharma<sup>1</sup>, Dr. Rishabh Raj<sup>2</sup>, Dr. Devraj Dogra<sup>3</sup>, Dr. Sunakshi Sharma<sup>4\*</sup>,  
Dr. Chehek Jamwal<sup>5</sup>

<sup>1</sup>MBBS, Post-graduate Student, <sup>2</sup>MD Dermatology, ex-registrar,  
<sup>3</sup>MD Dermatology, Professor and Head, <sup>4</sup>Post-graduate Student, <sup>5</sup>MBBS Intern,  
Department of Dermatology, GMC Jammu

**\*Corresponding Author:**

**Dr. Sunakshi Sharma**

Department of Dermatology, GMC Jammu, 180001

Type of Publication: Original Research Paper

Conflicts of Interest: Nil

### Abstract

#### Introduction

Various outpatient departments including Dermatology have observed a significant decrease in the number of patients during COVID-19 pandemic. COVID-19 has been known to be associated with immunological alterations, which may affect the presentation of various other diseases including dermatological disorders.

#### Aims And Objectives

1. To study the pattern of dermatological illnesses during the peak of COVID-19.
2. To relate the effect of COVID-19 on immune system with various dermatoses.

#### Materials And Methods

This is a retrospective observational study. The records of all the patients who visited dermatology outpatient department (OPD) between the months of March 2021 and May 2021 were studied and compared with the existing data from the literature. The data was analysed using the 'IBM SPSS Statistics software, Version 22.'

#### Results

A total of 1418 patients visited Dermatology OPD between the months of March 2021 and May 2021. Fungal infections had the highest frequency (16.74%) among all the dermatoses followed by scabies (14.39%), acne (8%) and eczema (5.35%).

#### Conclusion

There was increased OPD visits of patients with infective dermatoses during the COVID-19 pandemic while the inflammatory dermatoses like eczema had a slightly decreasing trend, although hand eczema cases increased during the pandemic perhaps due to increased hand sanitiser usage. The infectious diseases were on a rising trend while eczema and other inflammatory conditions followed a decreasing trend. The complex interactions of COVID 19 with immune system may render it ineffective against various infective agents while the autoinflammatory conditions may or may not be affected.

**Keywords:** COVID-19, Dermatoses, Changing trends, Infections, Immune system

#### Introduction

India witnessed two major lockdowns in the last two years due to COVID-19. Dermatology OPDs witnessed a huge fall in the number of visiting patients. Various new patterns of dermatological

illnesses were witnessed in different regions of the world during this time.<sup>[1]</sup> COVID-19 mainly attacks the lungs, however, a large number of deaths due to COVID-19 were due to immune activation. Studies have shown that even after fall in the viral load,

patients continue to suffer from ARDS, which indicates that the immunological response may be responsible for tissue pathology in COVID-19 related injury.<sup>[2]</sup> Various immune system related molecules like interleukin-6, ferritin, d-dimer, procalcitonin, etc., have been used as markers for COVID-19 severity. It is possible that these cytokines and molecules also affect the presentation of various other diseases including dermatological disorders by altering the immune system. COVID-19 has shown to have effects on both innate and acquired immune systems in several ways.<sup>[3]</sup>

The present study aims to study the pattern of dermatological illnesses encountered during the peak of COVID-19 illness.

**Materials And Methods**

The present study is a retrospective observational study. The records of all the patients who visited Dermatological outpatient department (OPD) between the months of March 2021 and May 2021 (3 months), which was the period of COVID-19 peak in India, were sorted out and the details of all the patients with their diagnoses were noted down. The diagnoses of all the patients were sorted in three groups: infectious, primarily inflammatory and others

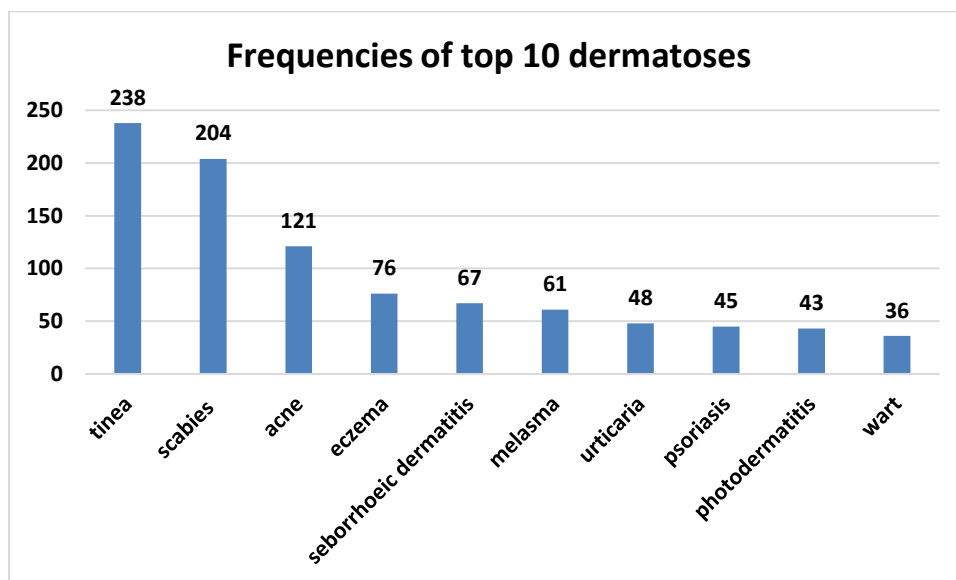
(included disorders like benign and malignant skin tumors, premature ejaculation and erectile dysfunction, metabolic disorders, nutrition related diseases, melasma etc.).

The data was then entered on Microsoft Excel and sorted according to the frequency of dermatoses encountered in the OPD. The data was then analysed, interpreted and compared with the literature available in the pre-COVID era.

**Results**

A total of 1418 patients visited Dermatological OPD between the months of March 2021 and May 2021. Fungal infections had the highest frequency among all the dermatoses with 238 (16.74%) patients, followed closely by scabies with 204 (14.39%) patients. Acne was the third most common disorder with 8% patients followed by eczema (5.35%) that included endogenous eczema (excluding atopic eczema), hand eczema, stasis eczema, palmoplantar eczema and seborrheic dermatitis (4.72%). Other major dermatoses that were encountered were melasma, urticaria, psoriasis, photodermatitis, warts, vitiligo, lichen planus, pityriasis versicolor, herpes zoster, keloid etc. (Figure1).

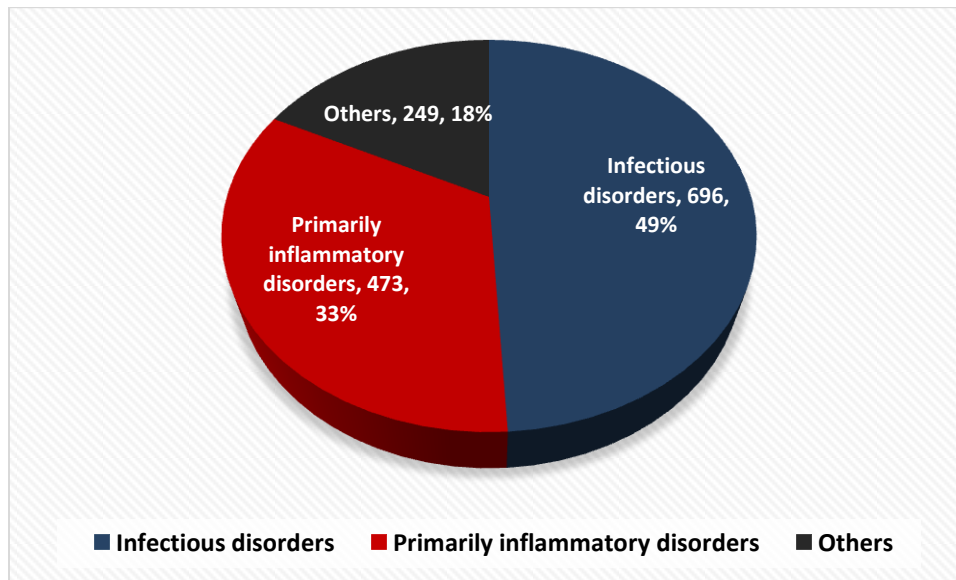
**Figure1: Frequencies of top 10 dermatoses in the study. Fungal infections had the highest frequency followed by scabies and acne**



Overall, infectious diseases made the largest proportion of disorders with 696 (49%) patients. The major constituents of the ‘infections’ category were tinea, scabies, acne, warts (2.5%), folliculitis (1.4%), pityriasis versicolor (0.91%), herpes zoster (0.56%) etc. 473 (33.35%) patients presented with primarily inflammatory

disorders. Rest of the patients were included in the ‘others’ category with a frequency of 249 (17.55%) patients which included patients with keloids, androgenetic alopecia, tuberous sclerosis, ephelides, milia, premature canities, hyperhidrosis etc. (Figure 2).

**Figure 2: Proportion of disorders on the basis of primary pathology**



## Discussion

The present study showed increased OPD visits of patients with infective dermatoses during the COVID-19 pandemic while the inflammatory dermatoses like eczema showed a slightly decreasing trend, although the number of cases with hand eczema increased during the pandemic which may be attributed to increased hand sanitiser usage.

A previous one-year study done in the same hospital from January 2019 to Jan 2020 (just before the COVID-19 pandemic) showed the infectious diseases (44.36%) to be the highest contributors to the total patient load with fungal infections being the most common (20.1%) followed by arthropod infections (16%). The total number of cases with eczema were 16.3% in this study. The comparison between the present study and this study shows that there is huge fall in the number of cases with eczemas and related disorders in comparison to infectious disorders which show an increasing trend i.e., 44.36% in the 2019 study vs 49% in the present study.<sup>[4]</sup>

In a 2018 Indian study, it was found that eczemas contributed to the highest number of OPD visits with 21.8% of the cases, followed by fungal infections (19.37%), scabies (17.51%) and pyodermas (7.62%).<sup>[5]</sup>

In a study from Bangladesh, published in 2010, the eczemas constituted the highest proportion of dermatoses (19.2%) followed by fungal infections (17.26%), scabies (15.16%) and pyodermas (7.59%).<sup>[6]</sup> However, another study done in Bangladesh in 2020 reported the infectious dermatoses as the leading ailments among patients attending dermatology OPDs as compared to non-infectious dermatoses.<sup>[7]</sup> Thus, a changing trend of dermatoses was noticed.

In another study published in 2021, it was reported that eczemas (18.47%) were the most common dermatoses among patients visiting a tertiary care hospital followed by dermatophytoses (15.29%).<sup>[8]</sup>

## Conclusion

1. The infectious diseases showed a rising trend while eczema and other inflammatory conditions showed a decreasing trend among the patients visiting dermatology OPD.
2. The complex interactions of COVID 19 with immune system may render it ineffective against various infective agents while the autoinflammatory conditions may or may not be affected.

3. The overall decrease in the frequency of inflammatory conditions may have resulted from absolute increase in the frequency of infective diseases or due to decrease in absolute number of inflammatory conditions, however, hand eczema increased, maybe due to increased hand sanitiser use.
4. There is still not enough evidence to say whether COVID-19 is causing the change in the pattern of dermatoses or if the pandemic was just a coincidence amid the already changing pattern of dermatoses.
5. More studies are required to study this pattern and to understand the underlying pathomechanisms.

#### Protection Of Patients' Rights To Privacy

Informed consent was obtained from the patients involved in the study.

#### References

1. Kutlu Ö, Metin A. Relative changes in the pattern of diseases presenting in dermatology outpatient clinic in the era of the COVID-19 pandemic. *Dermatol Ther* 2020;33(6):e14096.
2. Rokni M, Hamblin MR, Rezaei N. Cytokines and COVID-19: friends or foes? *Hum Vaccin Immunother* 2020;16(10):2363-5.
3. Wang C, Zhou X, Wang M, Chen X. The Impact of SARS-CoV-2 on the Human Immune System and Microbiome. *Infect Microbes Dis* 2021;3(1):14-21.
4. Kaur G, Dass Y, Dogra N, Dogra D, Thakur A. Epidemiological Profile of Various Skin Disorders in Tertiary Care Hospital. *Int J Med Sci Curr Res* 2022;5(1):740-50.
5. Sharma H, Chawla RK, Pruthi S. The pattern of dermatological disorders among patients attending OPD of dermatology department At a Tertiary Care Hospital, Mathura. *IP Indian J Clin Exp Dermatology* 2019;5(2):154-7.
6. Sarkar S, Islam A, Sen K, Ahmed A. Pattern Of Skin Diseases In Patients Attending OPD Of Dermatology Department At Faridpur Medical College Hospital, Bangladesh. *Faridpur Med Coll J* 2010;5(1):14-6.
7. Kamruzzaman M, Das B, Kaiser MR. Study of Pattern of Skin Disease in Patients Attending OPD of Dermatology and Venereology Department in Sher-e-Bangla Medical College Hospital, Barisal, Bangladesh. *IOSR J Dent Med Sci* 2020;19(3):60-5.
8. Paudel S, Sharma R, Dahal S, Paudel IA. Epidemiological Profile of Skin Diseases in a Tertiary Hospital of Kathmandu: An Annual Census. *Nepal J Dermatology, Venereol Leprol* 2021;19(1):14-9.