

# Clinical Correlation of Facial Dermatoses with COVID-19 Pandemic

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**Abstract:** Background: Face is a reflection of a person's well-being, any imperfection or flawed appearance bears potential to become a source of misery (1). The skin lesions affecting face are termed commonly as facial dermatosis [2]. With sudden onset of COVID-19 pandemic, medical and general population were left with no other option than to cover their faces with N95 masks, face shields and goggles, which led to prolonged usage of sometimes single and mostly multiple masks to cover the face to prevent contagion (as SARS-CoV-2 transmits eyes, nose & mouth). OBJECTIVES: The PPEs of the face usage and clinical presentation has been evaluated by us in this study to narrow down types of skin manifestations associated with PPE's usage of the face. Aim: This is a clinico-epidemiological, cross-sectional study of facial dermatosis of 100 patients attending the OPD of department of DVL, at Shadan Institute of Medical Sciences, Research Center & Teaching Hospital in the COVID-19 phase from 1<sup>st</sup> February 2021 – May 31<sup>st</sup> 2021 prevalent in the surrounding geographical district of Peeramcheru, Hyderabad, Telangana. Results: Among 100 study participants Mask acne [28/100], was the most common followed by Pigmentary conditions [26/100], next was Contact dermatitis [12/100], and Infection [5/100]. Mostly Females are predominant [64/100], common Age group is 20-30 years [38/100], Semi-urban areas [76/100], in Students group [36/100]. Sleep deprivation [22/100] as common triggering factor followed by emotional stress [13/100] Anxiety [11/100]. Itching [47/100] is the common symptom which is followed by Skin lesions [16/100], Pain [13/100], Burning sensation [10/100] and Flushing [8/100]. Systemic involvement as Thyroid [12/100] and Anemias [10/100] more prevailing. Conclusions: Wearing PPEs of Face [Mask, goggles, face shields] during the COVID-19 Pandemic increase the Incidence of Dermatological Conditions, though PPE's of face usage [Face Masks /goggles, face shields] have provided the main form of essential protection to the respiratory system against COVID-19. The rapid global threat COVID-19 is causing skin damage and the risk of infection may be increased through disruptions in the skin barrier as well as self-contamination through mask adjustments. The highly contagious nature of SARS-CoV-2 increases the likelihood that protective measures may stay in place from this day forward; innovation and advancements in PPE need to be sought to protect the skin and to reduce the currently increasing incidence of dermatological conditions among people. Preventive and therapeutic measures should be established in order to avoid "face dermatoses", especially for people with underlying risk factors.

**Keywords:** COVID-19, pandemic, Facial dermatosis, Face masks, N95, cloth masks, SARS-CoV-2, PPE of face, goggles, face shields

## 1. Introduction

World Health Organization declared Covid-19 as a pandemic on March 11, 2020 [1]. During the COVID-19 pandemic, wearing face masks is mandatory not only for health care workers (HCWs) but also for the general population in many countries around the globe. [1]. Human-to-human transmission of the virus occurs at higher rates, and the virus can be spread through direct contact and respiratory particles [2]. Respiratory particles may be transmitted through breathing, talking, coughing, and sneezing [2]. Preventative strategies, such as face mask-wearing, helps to reduce respiratory transmission of COVID-19. [3] The consequences of prolonged mask-wearing include the following: pressure-related injuries, [frictional] facial dermatoses, skin dryness, skin erythema, acne, eczema, urticaria, rosacea, secondary infections and exacerbation of known skin disorders [4]. PPEs of face leads to high humidity, heat, breathing difficulty, and discomfort. Erythema, as a result of increased warmth, may cause person to alter the position of their mask by using contaminated hands, which may increase the risk of self-infection with COVID-19 [5]. Skin papules of acne, along with comedones, nodules, and cysts [6] develops on the face with disruption of the epidermal

skin barrier may increase in the COVID positive patients [7]

### Aim

Cross sectional study of 100 patients with facial dermatosis seen with the use of face masks/ PPE's of face after taking clinical history and random selection was done based on covid positive patients coming during the pandemic with the complaints involving their face from 1<sup>st</sup> February 2021 to May 31<sup>st</sup> 2021.

## 2. Materials & Method

We have conducted a cross sectional clinico-epidemiological observational study, and report the cutaneous manifestations over the face in the area of PPE of face with daily usage in medical and general population. A questionnaire was distributed to 100 patients. Participants were surveyed regarding onset of the lesions, mask type, duration of usage and adverse facial skin reactions. Information on symptoms and the use of skin care products, topical drugs was documented,

### Inclusion Criteria

All patients (15-40yrs) who actively using PPE's of face

Volume 10 Issue 12, December 2021

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and have come with one or the other facial complaints in the area of the PPE's of face [face mask, goggles, face shields].

Associated co-morbid factors.[DM, Thyroid, Anemia]

Consent given patients

**Exclusion Criteria**

Pediatric age group

Pregnant and Lactating

Non-compliant patients

Patients who were on treatment for facial dermatoses

Applied any drugs/cosmetic products before the appearance of these lesions,

Have a history suggestive of previous photo sensitivity [SLE]

Any procedures done on the face during COVID 19

**3. Observations**

Complaints	No of Cases
Flushing	8
Itching	47
Pain	13
Burning	10
Disfigurement	6
Skin lesions	16

Bio data – male /female – 36/64 [NUMBER OF PATIENTS]

Age – 10- 20 years - 42 (no of cases)

20- 30 years - 38 (no of cases)

30-40years - 20 (no of cases)

Occupation

Medical professionals – Doctors 13 (no of cases) / nurses 17 (no of cases)

General population – Students 36; receptionist 22; housewives 12

Semi-Urban 76; Rural 24.areas

Clinical Features	No of Patients
1) ACNE VULGARIS Grade II	7
Grade III	3
Mask acne N95	13
Cloth	15
Seborrhea	7
Dryness	7
Rosacea	3
2) PIGMENTORY	
Melasma Centrofacial	6
Malar	2
Seborrhic melanosis	5
Post inflammatory Hyperpigmentation	3
Ashy dermatosis	2
Acanthosis Nigricans	3
PDL	1
Vitiligo	4
3) Conact Dermatitis	
Seborrhic	3
Allergic	6
Atopic	2
Urticaria	1
4) INFECTIONS	
Impetigo	2
Herpes labialis	1
Tinea Facei	2
5) Miscellaneous – DPN'S (seaborhic keratosis)	2

Triggering Factors	No of Patients
1. Anxiety	11
2. Emotional stress	13
3. Cosmetics	8
4. Diabetes	5
5. Thyroid	12
6. Anemia	10
7. Atopy	6
8. Sleep depravation	22
9. PCOS	6
10. Obesity	7





(Left to Right ) 1)Comedones at the mask site, 2) Maskacne, 3) Seborrheic melanosis (with DPN's) 4) Ashy dermatosis, 5) Acanthosis nigricans, 6) allergic contact dermatitis, 7) Allergic contact dermatitis to goggles, 8) Seborrheic dermatitis with mask Tinea, 9) Vitiligo vulgaris

#### 4. Result

Our study has predominantly female predilection with age group 20 -30years, mostly from semiurban areas, and primarily students as most affected group. Acne vulgaris and its variants followed by pigmentary (melasma) conditions are seen as the commonest manifestation along with the allergic contact dermatitis(ACD) & Infections seen in a lessor group. Triggering factors are seen to be more in sleep deprivation followed by anxiety /emotional stress with systemic diseases like anemia and thyroid seen commonly associations. Pruritus has increased among those with an atopic predisposition, the sensation of pruritus caused patients to itch and touch their mask, reducing its protectiveness against COVID-19 [8]

#### 5. Discussion

Li et al [8] reported that high mental stress include high-intensity work, irregular eating habits, and poor rest [9] may precipitate endocrine disorders such as acne through excessive secretion of androgens, which in turn stimulate excess sebum secretion from the sebaceous glands. Mask-wearing, causes occlusion of the sebaceous ducts in hair follicles [9]. Increased sweating inside mask, causes acute obstruction of the pilosebaceous follicle and aggravates acne. The skin barrier disruption due to change in skin surface sebum composition and increased skin hydration leads to imbalance in bacterial microflora which aggravates acne. Sebum excretion increases by 10% for 1 degree Celsius. Hyperpigmentation in Skin of from Iatrogenic COVID-19 Dermatoses[10] Pei et al [11] Balato et al [11] Singh et al [12] have categorized two forms of erythema: whole face erythema (linked to prolonged hours) and lip lick erythema (linked to constant licking of lips from excessive thirst and fluid restriction). Cutaneous manifestation in diabetes, obese patients is Acanthosis Nigricans, DPN's(skin tags) as associated with dysglycaemia[15], Insulin resistance. Frictional dermatitis from the surgical masks, with subsequent koebnerization leading to vitiligo. Iatrogenic skin damage resulting from allergic contact dermatitis, is associated with occupational mask-wearing & goggles. Mask tinea faciei possibly potentiated by prolonged mask usage during the COVID-19 pandemic [14]

#### 6. Limitations

Limitations of our study include the available literature which was restricted owing to the emerging nature of COVID-19 and lack of concurrent archives during the research period. Limited applicability of the results to the broader population of a small group, which may or may not fit into a larger sample size, geographic location and SE status.

#### 7. Conclusions

PPE of face has been invaluable throughout the COVID-19 pandemic; innovation and advancements in PPE (Face) need to be promoted and propagated to protect the skin and to reduce the currently increasing incidence of dermatological conditions, during COVID19 and as a model, if ever, such pandemics were to manifest. To prevent the skin damage Hydro-colloid dressings [13], advise on protective self-care emollients, moisturizing lotion as regular skin care measures and triaged all skin disorders to dermatologists [13]

**Conflict of interest:** none

Declaration of patients with consent taken

**Financial status and sponsorship:** nil

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