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Dermatological manifestations in COVID-19: Awareness based survey in Chennai population

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Abstract

Background: COVID-19, an ongoing global pandemic affecting people all over the world, is associated with viruses that cause severe acute respiratory syndrome (SARS). Initially there were no skin related disorders during COVID-19, but recently some cases have been reported.Extrapulmonary manifestations, dermatological signs and associated cutaneous manifestations related to COVID-19 slowly started to show up. The aim of this study is to assess the knowledge and awareness of dermatological manifestations in COVID-19 among the general population in Chennai.

Method: Cross-sectional study involving one online survey was conducted among the general population in Chennai. 101 responses were collected to 13 survey questions. Then the data was entered and analysed using the statistical package for social sciences software(SPSS) version 23.

Results: From the survey conducted among the general population in Chennai it was found that out of 101 participants 93.4% of them are aware of COVID-19 and 6.6% of them are not aware of COVID-19. And 21% of the study population is aware of the skin related complications associated with COVID-19, 21.9% is not aware and the rest 57.1% of them are not sure regarding that. The statistical significance was set at 0.05. Pearson chi square test showed p value as 0.127 (p value > 0.05).

Conclusion: This study highlights the extent of awareness regarding skin manifestations in COVID-19 is high among the general population in Chennai.

Keywords: COVID-19, skin manifestations, innovative technique, awareness, knowledge, general population, Chennai.

Introduction-

COVID-19, an ongoing global pandemic affecting people all over the world, is associated with viruses that cause severe acute respiratory syndrome (SARS). The first case of COVID-19 was reported in December 2019 in Wuhan, a city in China. COVID-19 was then declared as a global pandemic by WHO. The most common symptoms of COVID-19 are fever, dry cough, fatigue and some other symptoms including headache, nasal congestion, sore throat etc. (1)

Initially there were no skin related disorders during COVID-19, but recently some cases have been reported (12) (13). Extrapulmonary manifestations, dermatological signs and associated cutaneous manifestations related to COVID-19 slowly started to show up. Including skin problems related to personal protective equipment (14),(15),(16). Reports from around the world show a range of potential dermatologic manifestations of COVID-19.The frequency of these skin manifestations are difficult to ascertain.(2). Dermatologic conditions related to COVID-19 like skin injury, mechanical or friction dermatitis and irritant contact dermatitis due to personal protective equipment(PPE), masks, gloves and hand hygiene related dermatitis have been reported in the majority of the health care workers. (3)(5)(6)

Among the laboratory confirmed COVID-19 patients with dermatological manifestations the most common among them were- urticaria, morbilliform rash, pernio- like acral lesions, macular erythema, vesicular eruption, papulosquamous eruption, retiform purpura (17),(18),(19),(20). Hand hygiene related dermatitis was mainly caused due to frequent washing of hands, prolonged use of gloves and over use of sanitizers(21),(22),(23). Hand eczema was already an issue among health care workers and is likely to be an even greater problem with higher rates of hand washing and glove use during the pandemic(4). Our team has extensive knowledge and research experience that has translated into high quality publications(12),(13),(14),(15),(16),(17),(18),(19),(20),(21),(22),(23),(24),(25),(26),(27),(28),(29),(30),(31). Hence this study was conducted to assess the awareness of skin manifestations of COVID-19 among the general population.

Materials and methods-

A Cross-sectional study involving one online survey was conducted among the general population in Chennai for data collection. We first created a questionnaire regarding the skin related manifestations in COVID-19 (awareness based survey) which included 13 questions out of which 2 were demographic based questions(age and gender). The remaining questions were formed on the basis of review of various existing questionnaires related to skin manifestations. Most of the response options were 'yes' , 'no', 'maybe' . Then the 13 item questionnaire was developed in order to assess the study population and find out the awareness of the general population regarding skin manifestations in COVID-19. This study included those who agreed to the terms of free and informed consent. Ethical approval was granted for the study by the institutional Research Ethics Committee. Criteria for inclusion are a selected batch of people who gave their consent to participate in the study. Criteria for exclusion are people who are unaware of the English language (not being able to read or understand the language).

The questionnaire was then circulated among the general population in Chennai using Google forms and 101 responses were collected. The data from the collected responses were transferred to Microsoft Excel, the data was then entered and analysed using the statistical package for social sciences software (SPSS) version 23 which provided the descriptive analysis with pie charts and correlation with bar graphs (Chi-square test). The questionnaire included-

- Demography- Age
  Gender
- How worried are you about getting covid-19?
- Is covid-19 a contagious life threatening disease?
- What do you think are the symptoms of covid-19?
- Do you think hand hygiene is important in preventing the spread of the virus?
- Do you think there are any skin related complications associated with covid-19?
- Did you find any change in your hands due to frequent washing during covid-19?
- Did you get any allergies due to the continuous use of gloves/ masks/ PPE?
- Is there any change in the skin conditions due to the continuous use of sanitizers?
- Have you observed any rash or itchiness due to Covid-19?
- Has any of your skin manifestations increased during covid-19 due to psychological stress?
- Have you observed any redness or itchiness during covid-19?

Statistical analysis: All the responses were collected and exported in SPSS version 2.3 software. Descriptive status was used for data summarisation and presentation. Degree association was measured using Chi-square test to assess the significance level and statistical significance was set at 5%. p value less than 0.05 was considered statistically significant. Independent variables: age and gender, Dependent variables: awareness of skin manifestations

Results-

In this study we assessed the awareness of skin related complications associated with COVID-19 among the general population in Chennai with a total of 101 participants out of which 56.6% of them being females and 43.4% of them are males. It was recorded that out of 101 participants 93.4% of them think COVID-19 is a contagious life threatening disease, 6.6% of them do not think it is contagious, as shown in (Fig. 1) . It was noted that 85.8% of the participants think that hand hygiene is important in preventing the spread of the virus whereas 14.2% of them are not sure of it, as shown in (Fig. 2). It was also found that 21% of the study population was aware of skin manifestations in COVID-19, 21.9% of them were not aware of it and the rest 57.1% was not sure regarding it, as shown in (Fig. 3).

We observed that 65.7% of the study population observed a change in their hands due to frequent washing during covid-19 and 34.3% of them did not observe any change, as shown in (Fig. 4). It was found that 51.9% of the participants got some allergies due to the continuous use of gloves/masks/PPE and the rest 48.1% did not, as shown in (Fig. 5). 64.2% of them found some change in their skin condition due to the continuous use of sanitizers and the rest 35.8% did not find any change, as shown

in (Fig. 6). Only 33% of the study population observed any rash or itchiness due to covid-19 and the rest 67% did not, as shown in (Fig. 7).

It was also recorded that 29.2% of the study population's skin diseases increased during Covid-19 due to psychological stress and the rest 70.8% of the population did not observe anything , as shown in (Fig. 8). According to (Fig . 9), 13.33% of the females said yes, whereas only 7.62% of the males said yes. Showing that females were more aware of the skin related complications associated with COVID-19 compared to the males. 35.85% of the females found some change in skin conditions due to the continuous use of sanitizers , whereas 12.2% of the males found changes, as shown in (Fig. 10). According to (Fig. 11), majority of the females said yes (blue) 39.6%, whereas 24.5% of the males said yes (blue). Showing that females had more rash or itchiness due to COVID-19 when compared to the males.

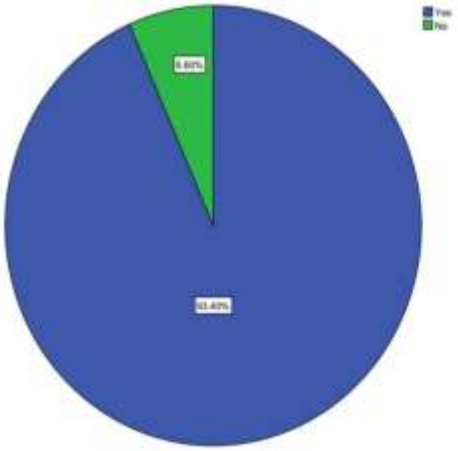

Fig. 1 : The above pie chart shows the amount of participants who think covid-19 is a contagious life threatening disease. 93.4% think it's contagious by saying yes (blue) , 6.6% thinks its not contagious by saying no (green).

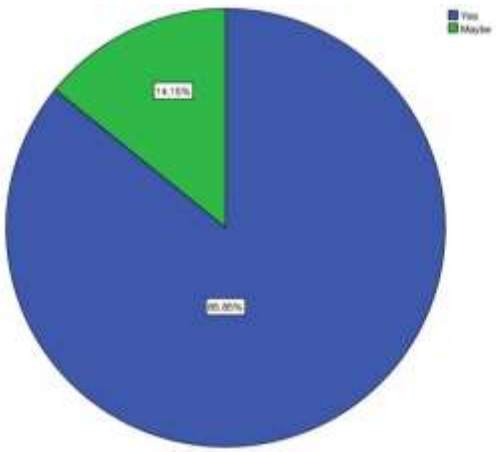

Fig 2: The above pie chart shows the amount of participants who think hand hygiene is important in preventing the spread of the virus. 85.8% think it is important by saying yes (blue) , 14.2% are not sure by saying maybe (green).

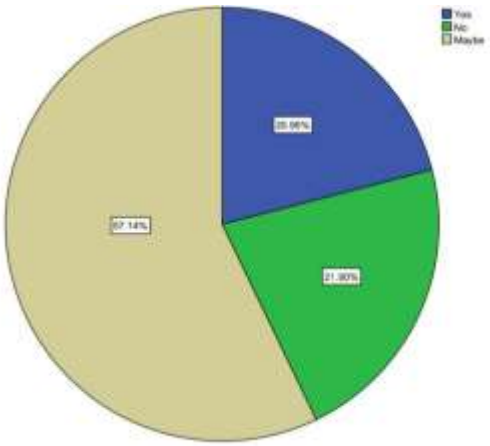

Fig 3: The above pie chart shows the amount of participants who know if there are any skin related complications associated with COVID-19. 21% were aware of it by saying yes(blue) , 21.9% were not aware by saying no (green) ,57.1% were not sure by saying maybe (beige).

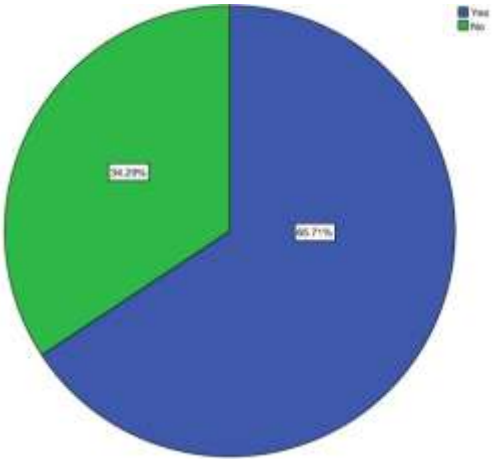

Fig 4: The above pie chart shows the amount of the participants who found any change in their hands due to frequent washing during covid-19. 65.7% found some change by saying yes (blue), 34.3% did not find any change by saying no (green).

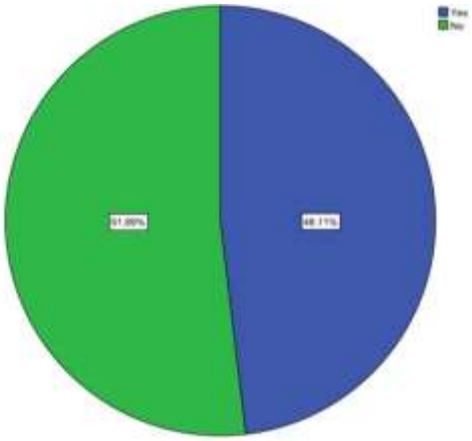

Fig 5: The above pie chart shows the amount of participants who got allergies due to the continuous use of gloves. 48.1% got allergies by saying yes (blue), 51.9% did not get any allergies by saying no (green).

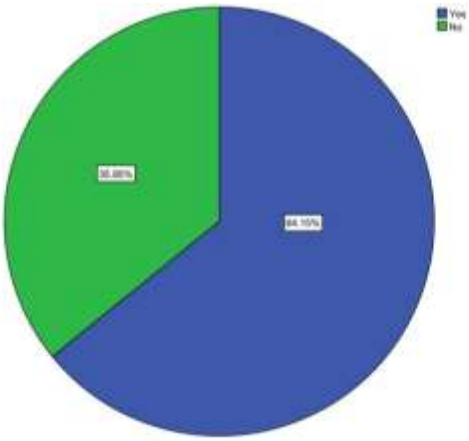

Fig 6: The above pie chart shows the amount of participants who found some change in the skin conditions due to the continuous use of sanitizers. 64.2% found some change by saying yes (blue), 35.8% didn't find any change by saying no (green).

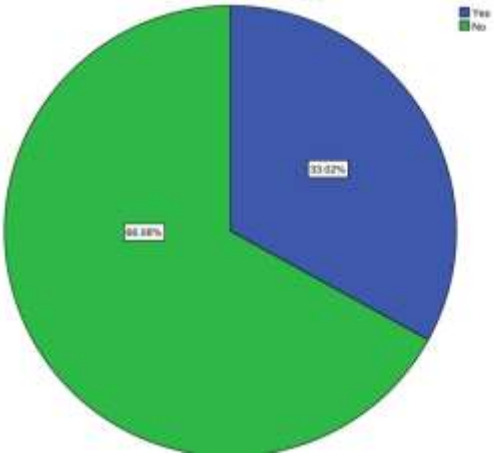

Fig 7: The above pie chart shows the amount of participants who observed any rash or itchiness due to covid-19. 33% said yes (blue), 67% told no (green).

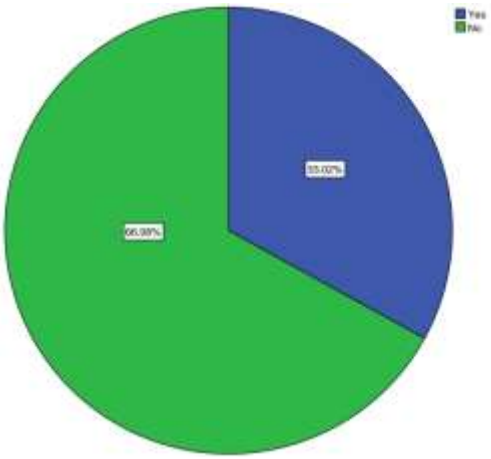

Fig 8: The above pie chart shows the amount of participants whose skin disease increased during covid-19 due to psychological stress. 29.2% replied with yes (blue), 70.8% said no (green).

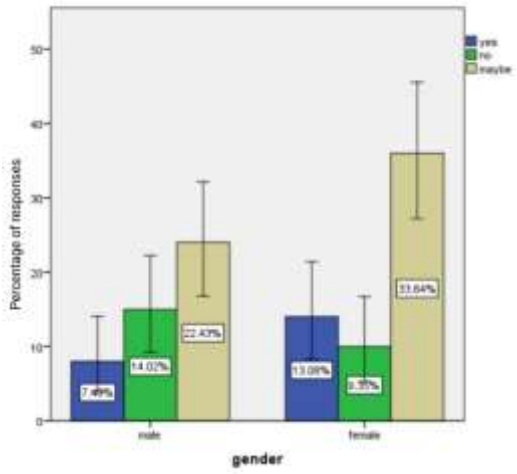

Fig 9: The bar Graph represents the association between gender and the number of people who think there are skin related complications associated with COVID-19. X axis represents the gender and Y axis represents the percentage of responses for that particular question. Blue denotes yes, green denotes no and brown denotes maybe. 13.33% of the females said yes (blue), whereas only 7.62% of the males said yes (blue). Showing that females were more aware of the skin related complications associated with COVID-19 compared to the males. Pearson chi square test shows p value as 0.127 (p value > 0.05).

Hence it is statistically not significant.

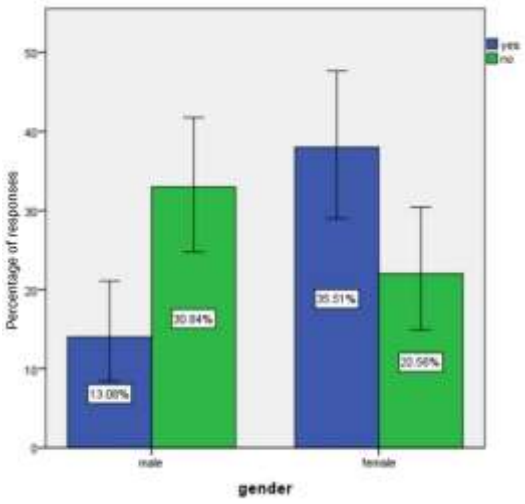

Fig 10: The bar Graph represents the association between gender and the amount of people who found some change in skin conditions due to the continuous use of sanitizers. X axis represents the gender and Y axis represents the number of responses for that particular question. Blue denotes yes, green denotes no. Majority of the females said yes 36.85% (blue), whereas only 12.2 % of the male participants said yes (blue). Showing that females found more changes in their skin conditions due to the continuous use of sanitizers compared to the males. Pearson chi square test shows p value as 0.176 (p value > 0.05)

Hence it is statistically not significant.

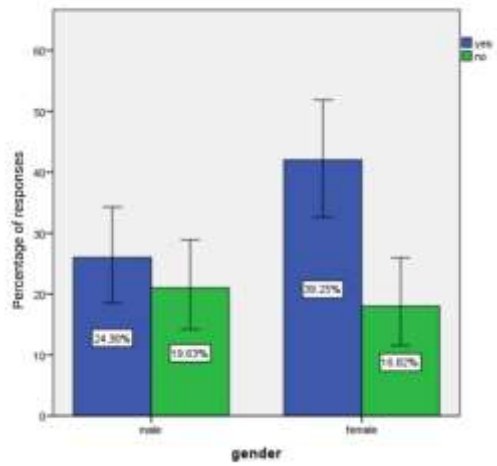

Fig 11: The bar Graph represents the association between gender and the amount of people who found any rash or itchiness due to covid-19. X axis represents the gender and Y axis represents the number of responses for that particular question. Blue denotes yes, green denotes no . Majority of the females said yes (blue) 39.6%, whereas 24.5% of the males said yes (blue). Showing that females had more rash or itchiness due to COVID-19 when compared to the males. Pearson chi square test shows p value as 0.106(p value > 0.05)
Hence it is statistically not significant.

Discussion-

COVID-19 has affected many people worldwide and is also the cause of many deaths. Recently COVID-19 associated cutaneous manifestations have been increasingly reported in the last few months.
In this study we observed that 93.4% of the population is aware of COVID-19 and 6.6% of them are not aware. In previous articles it was reported that 78.1% of the study population is aware of COVID-19 and the rest of the study population is not aware (1).

In this study we observed that out of 101 participants only 21% of them are aware of skin manifestations in COVID-19, 21.9% of them are not aware and the rest 57.1% were not sure of it. We also observed that 65.7% of the study population observed a change in their hands due to frequent washing during covid-19 and 34.3% did not observe any change. In previous articles it was found that 73.5% of the study population reported PPE related dermatoses (3).

According to a previous study conducted by Marraha et al. (4), lesions can be classified as acral areas of erythema with vesicles 19%, urticarial lesions 19%, maculopapular eruptions 47% and livedo/necrosis 6%. The severity of covid-19 shows a gradient from less severe acral lesions to more severe in the latter group (24),(25),(26),(27).

An article by Kersh AE et al states that, In the context of the COVID-19 pandemic, frequent hand hygiene has become a global recommendation for all individuals, and new workplace guidelines for

hand sanitization and surface sterilization are affecting occupations not only the ones that were previously considered at risk of excessive wet work but also, grocery or retail workers, postal workers, sanitization workers, and others(28),(29). It has been recorded that occupational contact dermatitis accounts for 95% of all cases of occupational skin disease with irritant contact dermatitis (ICD) constituting 80% to 90% of these cases (8), (9),(10), (11).
Another article by Alves PB et al states that, during the COVID-19 pandemic, a high prevalence of occupational dermatoses among the health care workers (HCWs) has been noted. In China, 74% of HCWs reported adverse skin reactions due to PPE use and hand hygiene practices. Irritant and allergic contact dermatitis are frequent, but other conditions may occur. A patient was diagnosed with a rare Aquagenic urticaria that flared while she worked wearing PPE due to intense sweating (30). In addition, Allergic contact dermatitis (ACD) was diagnosed in response to mercaptobenzothiazole (MBT) , as symptoms were elicited only upon contact with rubber products, both during occupational use of latex gloves as part of the PPE and domestic exposure to protective gloves (7),(31).

The limitation of our study is that the questionnaire was filled only by the people who can read and understand English, so the results drawn from the rest of the population can be different from our findings. On the other hand this study can help create awareness among the people about the skin manifestations in COVID-19 and help in early treatment. So this article will help common men to understand the intensity and the skin manifestations of COVID-19, which will help them adopt the necessary precautions and avoid serious infections.

Conclusion-

This study highlights the extent of awareness regarding skin manifestations in COVID-19 among the general population in Chennai and also highlights the emergence of hygiene related hand dermatitis and PPE related dermatitis. 47.62% of the female population is aware of the skin manifestations in COVID-19 and 30. 48% of the males are aware of it. Thus concluding that the females were more aware of the skin manifestations in COVID-19 when compared to the male population.

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Conflict of Interest-
The author declares that there was no conflict of interest in the present study

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