

# *Assessing the Impact of Social Distance on Skin Condition during COVID-19 Pandemic Based on an Online Survey*

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**Abstract** – After the declaration of the pandemic in March 2020, Governments around the world made social distancing a mandatory rule to practice to prevent the spread of coronavirus infection (covid-19). This action has impacted our lives in several ways, it can be stated that it might also have an impact on skin conditions or lead to skin conditions. The purpose of this survey was to assess if individuals practicing social distancing have experienced any dermatological changes. An online survey consisting of 16 questions was conducted to find out if the prolonged practice of social distancing has led to any skin conditions. 39.7 % (n=93) of individuals who took the survey stated that they have observed changes in their skin, hair, and nails, they stated that these skin changes were observed post-pandemic (p=0.00037). 33.8% (n=79) of participants stated that they are experiencing hair loss and 4.7% (n=11) of individuals noted to have observed vertical lines in their nails. Along with several factors like changes in skincare routine, diet changes, mood changes, wearing masks, and excessive sanitization, the practice of social distancing has shown to impact changes in dermatological conditions in the pandemic. These conditions can be prevented with the right precautionary measures and can be treated under the care of a dermatologist while still practicing social distancing.

**Keywords** – Social distancing; Skin changes; Skin types; Pandemic; Hair changes; Nail changes; Coronavirus.

## I. INTRODUCTION

The World Health Organisation announced the covid-19 outbreak as a pandemic on 11th March 2020.

With the increase in the number of cases, many countries have made social distancing and wearing masks a mandatory rule in public places and at public gatherings.

Social distancing is also known as “physical distancing” means keeping a distance of 6 feet or more between 2 or more people who are not from the same household [1]. It is done so to prevent the spread of infectious diseases namely covid-19 in the current situation.

Human beings are also known as social beings. Various isolation measures made such as lockdown because of the pandemic can create more stress and illness.

Sudden changes in one's lifestyle like the practice of social distancing have shown to cause a significant impact on the mental well-being of people. Skin is heavily influenced by hormones and emotions. The current stressful situation along with the practice of social distancing can lead to changes in our mental well-being which can lead to significant changes in the skin.

Factors like societal stress, changes in mental wellbeing, practicing social distancing, wearing a mask for long hours, staying indoors for long hours, changes in eating habits, changes in the skincare routine, weather changes, and changes in the sleeping pattern can all lead to noticeable changes in the skin.

Skin changes can range from skin becoming more drier, oily, itchy, increase in facial hair, increase in acne, or even betterment of skin than it was before the pandemic started. These same factors can also influence changes in those suffering from skin-related issues like acne, hives, rosacea, eczema, and psoriasis, etc. Hand dermatitis resulting from excessive hand washing as a preventive measure in the COVID-19 transmission [2]. These people can notice changes in their skin conditions either getting better or worse or even be controlled.

This survey aims to study if people who are practicing social distancing have noticed any changes in skin, hair and nails after the pandemic started and also to find which skin type is more prone to changes among skin types - normal, dry, sensitive, oily, and combination.

## **II. METHODS**

This study utilized a cross-sectional survey. The survey was administered online through google docs to gather various information. Such as skin type, time spent on social distancing, mood changes, and other changes noticed on the skin with domicile details. A team of 4 medical students studying at Tbilisi State Medical University designed the survey questions. The survey consisted of a 16-items questionnaire divided into 4 sections. It was also designed to finish the survey by the respondent within. The link to the survey was shared on various social media platforms. This survey required an email log-in for participation. The questionnaire was self-administered using google docs online. Electronic consent for participation was required at the initial page of the survey with the reassurance of maintaining the anonymity of the responses.

The following questions mentioned below were part of the 16 items questionnaire:

- 1) Would you be interested to give your consent in filling this form?
- 2) Mention your gender
- 3) Please select your age below
- 4) Please select the country that you are currently residing in
- 5) Please select your field of occupation
- 6) Have you been following/practising social distancing?
- 7) Who announced covid-19 outbreak as a pandemic on 11 March 2020 since then the world has been practising social distancing as a mandatory rule all around? We would like to know for how long you have been practising social distancing from the march of 2020.
- 8) We would like to know if you have been experiencing any mood changes lately.
- 9) Please select your skin type?
- 10) We would like you to know if you were suffering from any below skin-related issues before the pandemic started. (Select all options that apply)
- 11) Do you feel that the condition /conditions that you have mentioned above have gotten worse or better or remained the same after you started practising social distancing? (Optional)
- 12) Have you been or are you suffering from any of the below-mentioned conditions? (Select all that applies)
- 13) Have you noticed or have you been observing any skin changes lately?
- 14) Does your skin feel the same as it did before you started practising social distancing?
- 15) Have you observed any below mentioned changes in the skin since March 2020? Please select an option below
- 16) We would finally like to know if you have noticed any of the below-mentioned changes as well from the march of 2020. Please select all options that apply to you

## **III. RESULTS**

The statistical analysis was performed using the Microsoft excel 2013, socscistatistics.com and quantpsy.org. Percentages were calculated for all the questions. Five groups were created based on skin type i.e. normal, combination, dry, oily and sensitive.

A chi-square test was performed to examine the relation of noticeable skin changes, skin feeling the same and observations noticed in the skin since March 2020.

A two-tailed p-values <0.05 were significant.

After an informed consent a total of 97.9 %( n=234) responses were received from 15 countries. Respondents were predominantly female 66.2 %( n=155).

Tables 1a, 1b, 1c and 1d represent descriptive data of participants.

Table 1a. Description of participants' gender.

| Gender            | Number(N) | Percentage (%) |
|-------------------|-----------|----------------|
| Female            | 155       | 66.2           |
| Male              | 78        | 33.3           |
| Prefer not to say | 1         | 0.4            |

Table 1b. Description of participants' age.

| Age   | Number (N) | Percentage (%) |
|-------|------------|----------------|
| 10-15 | 1          | 0.4            |
| 16-20 | 27         | 11.5           |
| 21-25 | 160        | 68.4           |
| 26-30 | 11         | 4.7            |
| 31-35 | 2          | 0.9            |
| >35   | 33         | 14.1           |

Table 1c. . Description of participants' country of residence.

| Country              | Number (N) | Percentage % |
|----------------------|------------|--------------|
| INDIA                | 120        | 51.3         |
| UNITED ARAB EMIRATES | 37         | 15.8         |
| GEORGIA              | 34         | 14.5         |
| SRI LANKA            | 13         | 5.6          |
| UNITED STATES        | 10         | 4.3          |
| BANGLADESH           | 8          | 3.4          |
| QATAR                | 3          | 1.3          |
| PAKISTAN             | 2          | 0.9          |
| POLAND               | 1          | 0.4          |
| PERU                 | 1          | 0.4          |
| EYGPT                | 1          | 0.4          |
| OMAN                 | 1          | 0.4          |
| KUWAIT               | 1          | 0.4          |
| JORDAN               | 1          | 0.4          |
| ISREAL               | 1          | 0.4          |

Table 1d. Description of participants' current occupation.

| Occupation             | Number (N) | Percentage (%) |
|------------------------|------------|----------------|
| STUDENTS               | 139        | 59.4           |
| HEALTH SCIENCE         | 17         | 7.3            |
| INFORMATION TECHNOLOGY | 12         | 5.1            |
| FINANCE                | 11         | 4.7            |
| SCIENCE                | 10         | 4.3            |
| BUSSINESS              | 6          | 2.6            |
| EDUCATION              | 6          | 2.6            |
| GOVERNMENT             | 4          | 1.7            |
| LAW                    | 3          | 1.3            |
| TRANSPORTATION         | 3          | 1.3            |
| HUMAN SERVICE          | 2          | 0.9            |
| AGRICULTURE            | 2          | 0.9            |
| MARKETING              | 2          | 0.9            |
| MANUFACTURING          | 2          | 0.9            |
| PREFER NOT TO SAY      | 15         | 6.4            |

### 3.1) Social distancing :

When asked if participants were practicing social distancing 85.9 % (n=201) responded to be still practicing social distancing. 51.7 % (n=121) have spent more than 5 months of social distancing since the pandemic started.

Table 2 and figure 1a, 1b represents data regarding social distancing. The data was also separated based on the skin type.

Table 2. Time spent in social distancing.

| Number of months | Number (N) | Percentage (%) |
|------------------|------------|----------------|
| < 1              | 1          | 0.4            |
| 1                | 2          | 0.9            |
| 2                | 9          | 3.8            |
| 3                | 16         | 6.8            |
| 4                | 27         | 11.5           |
| 5                | 58         | 24.8           |
| >5               | 121        | 51.7           |

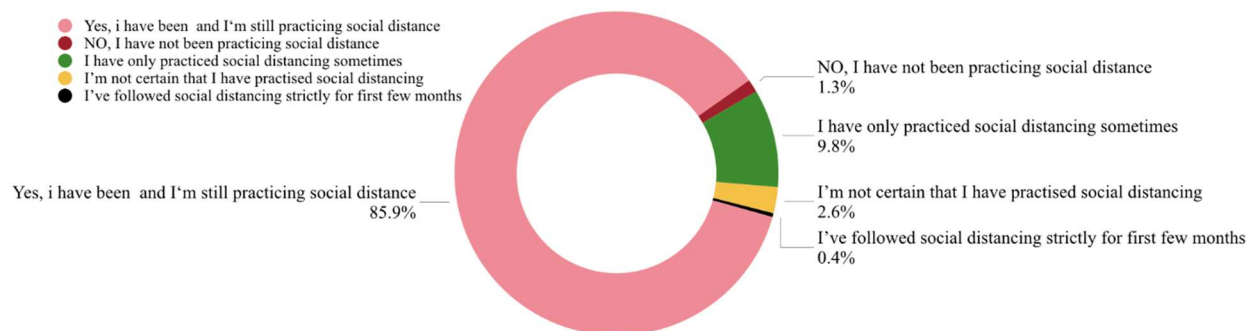


Figure 1a. Participants' responses on following/practising social distance.

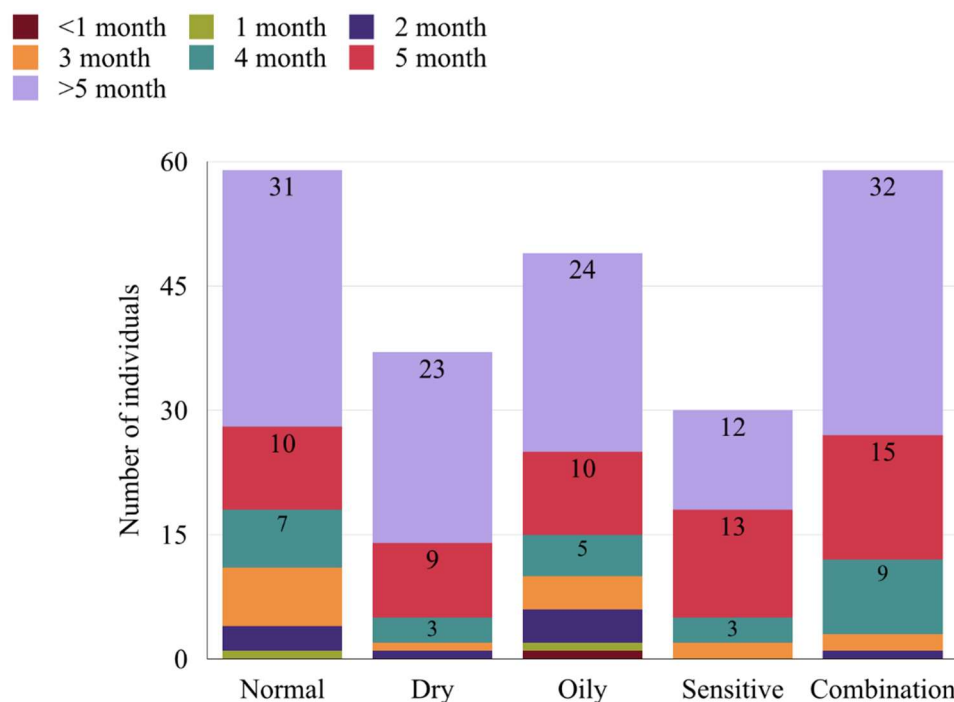


Figure 1b. Time period of practicing social distancing according to skin types.

### 3.2) Mood changes :

When asked if participants have been experiencing any mood changes as mental status is strongly associated with skin manifestations and social distancing is leading to heightened feelings of anxiety and depression amongst the general public [3]. 35

%( n=82) responded to have experienced changes in mood, 31.5% (n=73) reported no, 26.9 %( n=63) reported may be and 6.8 %( n=16) reported not sure. Figure 2 represent data on mood changes.

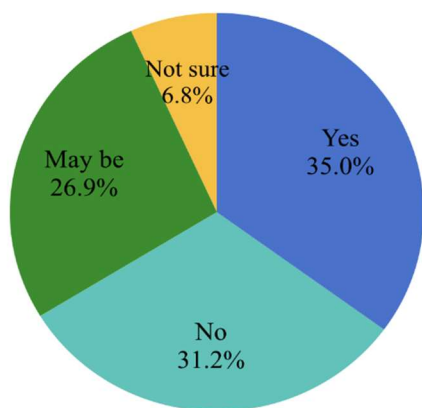


Figure 2. Experiencing mood changes during social distancing.

### 3.3) Skin type , pre-existing conditions , internal diseases:

Many participants belonged to normal 25.2 %( n=59) and combination 25.2 %( n=59) type, 15.5 %( n=37) have dry skin, 20.9 %( n=49) have oily skin and 12.8 %( n=30) have sensitive skin.

39.3 %( n=92) responded to have been suffering from acne before the pandemic started.

45.07 %( n=50) stated that their pre-existing skin conditions before the pandemic started have remained the same.

Participants were also asked if they have been suffering from any skin related diseases and internal diseases before the beginning of pandemic 8.1 %( n=9) stated that they have been suffering from vitamin deficiency and 6 %( n=14) stated to be suffering from PCOS/PCOD. The skin can be an indicator of our physical wellbeing also [4]. The following figures 3, 4, 5 and 6 present above mentioned data.

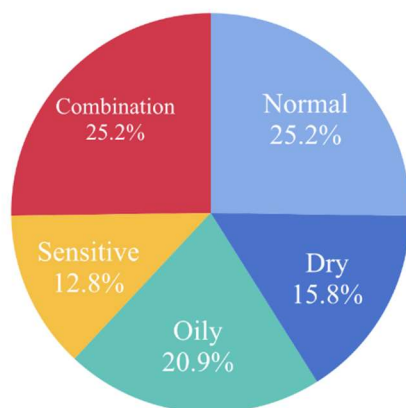


Figure 3. Skin types.

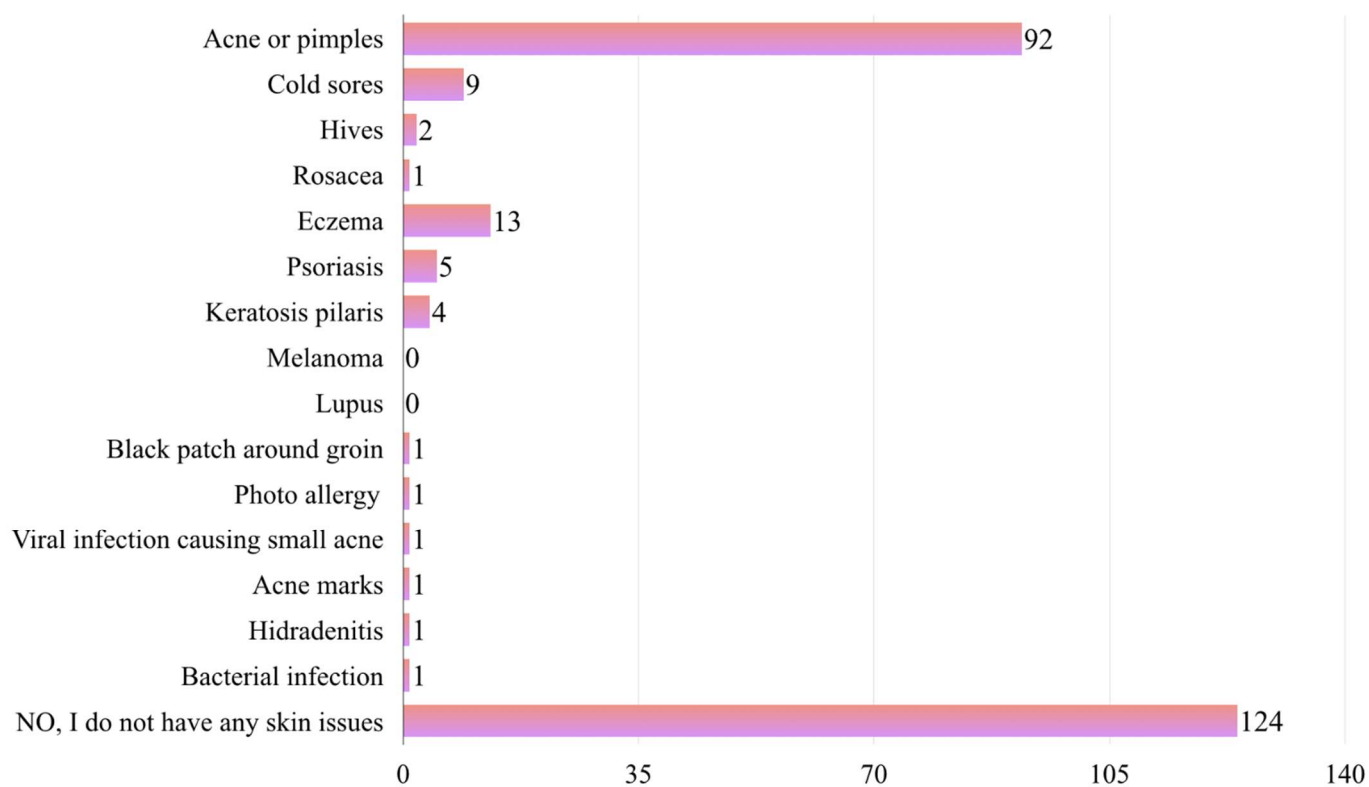


Figure 4. Pre-existing skin conditions before pandemic.

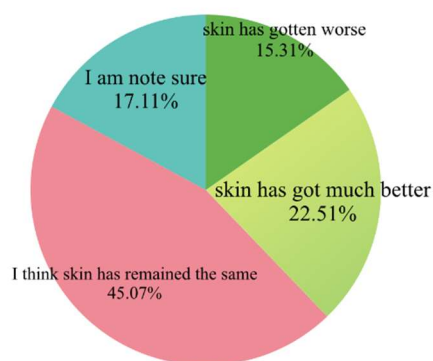


Figure 5. Skin conditions amid social distancing.

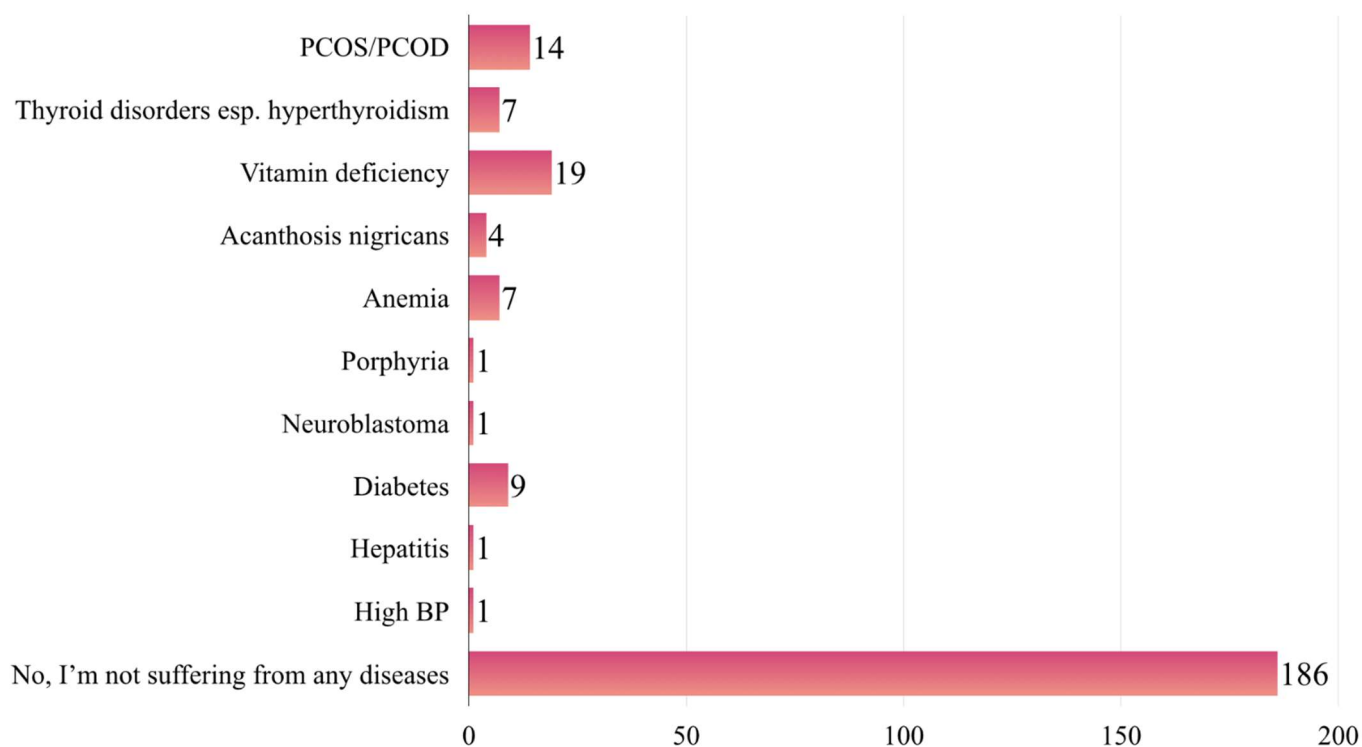


Figure 6. Diseases participants suffering from.

#### 3.4) Post-pandemic changes:

Participants were asked if they noticed any skin changes and were also asked if their skin felt the same as before they started practising social distancing.

The dire need to ask two similar questions was that some participants might notice changes and still not feel any difference on their skin whereas others might not notice any changes and still feel that their skin has changed over time. This is to exclude any subjective bias among participants



58.9 % (n=138) didn't notice any skin changes, 21.4 % (n=50) stated yes, 13.7 % (n=32) stated that maybe, 6 % (n=14) were not sure. Figure 7 present the following data.

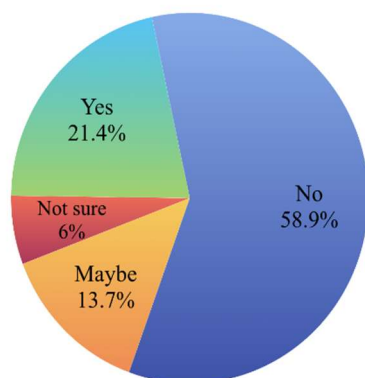


Figure 7. Noticed or observed skin changes lately.

And 58.6 % (n=137) felt that their skin felt the same as it did before the pandemic started. 23.5 % (n=55) said no, 10.2 % (n=25) said maybe, 7.7 % (n=18) were not sure. Figure 8 present the following data.

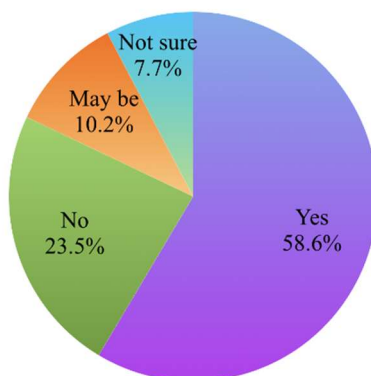


Figure 8. Skin feels same as before practicing social distancing.

Considering the correlation between responses for both the questions, it again emphasises on the similarities between both results.

Table 3 and 4 represents the above-mentioned data.

Table 3. Noticed skin changes.

| Response | Normal | Combination | Dry | Oily | Sensitive |            |
|----------|--------|-------------|-----|------|-----------|------------|
| Yes      | 5      | 17          | 8   | 14   | 6         |            |
| No       | 51     | 25          | 23  | 20   | 19        | p=0.000569 |
| Maybe    | 2      | 11          | 4   | 12   | 3         |            |

|          |   |   |   |   |   |  |
|----------|---|---|---|---|---|--|
| Not sure | 1 | 6 | 2 | 3 | 2 |  |
|----------|---|---|---|---|---|--|

Table 4. Participants' expression of their skin feeling the same after pandemic.

| Response | Normal | Combination | Dry | Oily | Sensitive |          |
|----------|--------|-------------|-----|------|-----------|----------|
| Yes      | 43     | 28          | 28  | 22   | 17        |          |
| No       | 9      | 19          | 4   | 18   | 5         | p=0.0219 |
| Maybe    | 3      | 5           | 3   | 7    | 5         |          |
| Not sure | 4      | 7           | 2   | 2    | 3         |          |

## 3.5) Noticeable changes:

The participants were given 7 different statements to select an option based on the changes they might be experiencing since March 2020. These statements were then used as conclusive statements to conclude that a participant indeed has seen changes on their skin post starting social distancing.

The statements asked are stated below:

My skin feels just normal as before

My skin feels oily than before

My skin feels drier than ever

My skin feels better than it was before

My skin feels like it's getting worse than before

My skin feels itchy at times

My skin feels tight than before.

All statements other than skin remaining the same since March 2020 were taken in count as skin changes.

77.9 % (n=46) of normal skin types stated that their skin has remained since March 2020.

21.88 % (n=13) of normal skin stated changes.

55.91 % (n=33) of combination skin type stated to have changed since March 2020 and 44.06 % (n=26) of combination skin type stated their skin to be normal.

70.2 % (n=26) of dry skin stated their skin remained the same since March 2020 and 29.7 % (n=11) stated skin changes.

55.1 % (n=27) of oily skin reported their skin to be normal skin march 2020 and 44.8 % (n=22) of oily skin reported changes since March 2020.

53.3 % (n=16) of sensitive skin stated their skin to have no problems and 46.6 % (n=14) of sensitive skin stated to have changes skin march 2020.

The following responses were also segregated based on skin type, to observe which skin types experience more changes, see. Table 5 and 6.

Table 5 Represent the data of noticeable changes.

| Expressions                         | Normal | Combination | Dry | Oily | Sensitive |  |
|-------------------------------------|--------|-------------|-----|------|-----------|--|
| My skin feels just normal as before | 46     | 26          | 26  | 27   | 16        |  |

|                                                   |   |    |   |   |   |           |
|---------------------------------------------------|---|----|---|---|---|-----------|
| My skin feels oily than before                    | 4 | 5  | 0 | 7 | 2 | p=0.00037 |
| My skin feels drier than ever                     | 0 | 3  | 1 | 1 | 6 |           |
| My skin feels better than it was before           | 6 | 7  | 4 | 9 | 3 |           |
| My skin feels like it's getting worse than before | 0 | 7  | 2 | 2 | 1 |           |
| My skin feels itchy at times                      | 3 | 11 | 3 | 3 | 2 |           |
| My skin feels tight than before                   | 0 | 0  | 1 | 0 | 0 |           |

Table 6: Noticeable skin changes since March 2020 according to skin types.

| Skin types  | Noticed changes           | Number (N) | Percentage (%) |
|-------------|---------------------------|------------|----------------|
| Normal      |                           |            |                |
|             | Just normal as before     | 46         | 77.9           |
|             | Oily than before          | 4          | 6.7            |
|             | Better than it was before | 6          | 10.1           |
|             | Itchy at times            | 3          | 5.08           |
| Combination |                           |            |                |
|             | Just normal as before     | 26         | 44.06          |
|             | Oily than before          | 5          | 8.47           |

|           |                           |    |       |
|-----------|---------------------------|----|-------|
|           | More dry than before      | 3  | 5.08  |
|           | Better than it was before | 7  | 11.86 |
|           | Getting worse than before | 7  | 11.86 |
|           | Itchy at times            | 11 | 18.64 |
| Dry       |                           |    |       |
|           | Just normal as before     | 26 | 70.2  |
|           | More dry than before      | 1  | 2.7   |
|           | Better than it was before | 4  | 10.8  |
|           | Getting worse than before | 2  | 5.4   |
|           | Itchy at times            | 3  | 8.1   |
|           | Tighter than before       | 1  | 2.7   |
| Oily      |                           |    |       |
|           | Just normal as before     | 27 | 55.1  |
|           | Oily than before          | 7  | 14.2  |
|           | More dry than before      | 1  | 2.04  |
|           | Better than it was before | 9  | 18.3  |
|           | Getting worse than before | 2  | 4.08  |
|           | Itchy at times            | 3  | 6.12  |
| Sensitive |                           |    |       |
|           | Just normal as before     | 16 | 53.3  |
|           | Oily than before          | 2  | 6.6   |

|  |                           |   |     |
|--|---------------------------|---|-----|
|  | More dry than before      | 6 | 20  |
|  | Better than it was before | 3 | 10  |
|  | Getting worse than before | 1 | 3.3 |
|  | Itchy at times            | 2 | 6.6 |

### 3.6) Nail and hair changes:

Finally the participants were also asked if they have seen any changes in regards to their nails and hair.

4.7 % (n=11) noticed vertical lines on their nails and 33.8% (n=79) experienced hair loss. The following figure 9 presents data of all the nail and hair changes participants have mentioned.

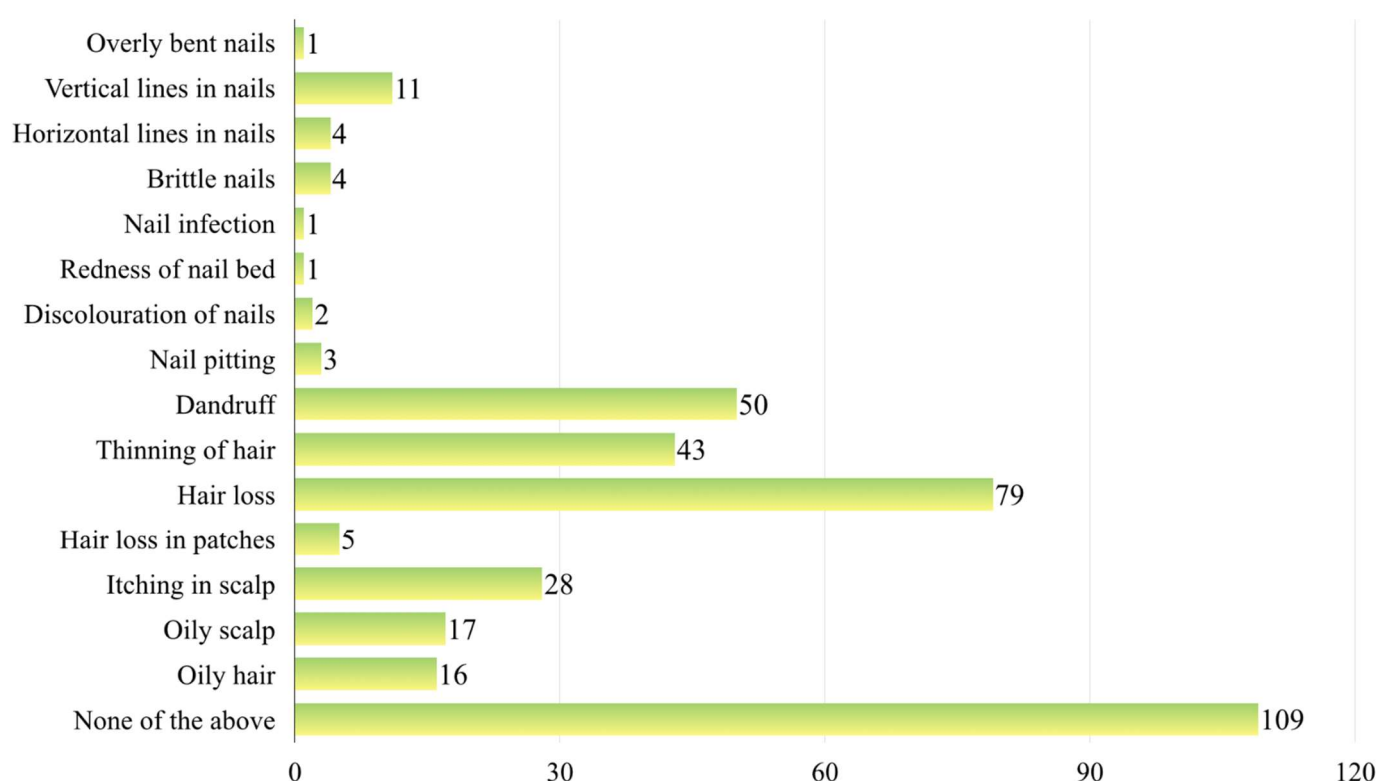


Figure 9. Hair and nail changes amid social distancing.

## IV. DISCUSSION

This study explored the impact of social distancing on dermatological changes since the start of the pandemic in March of 2020 by WHO. Since the declaration of a pandemic, the mandatory practice of social distancing and wearing masks took place throughout the world. This study was conducted to find if the prolonged practice of social distancing can contribute to any changes in skin, hair, and nails.

Due to no prior existence of valid questionnaires in regard to social distancing and dermatological aspects, this self-designed questionnaire survey can be a torchbearer for many others. The response rate is 97.9 % (n=239) and was accepted. As anticipated there was indeed a fraction of participants practicing social distancing have noticed various dermatological changes. A total of

39.7 % (n=93) of the respondents have observed changes since March 2020 as shown in figure 10. Some noted changes in a short period and some observed changes after a few months into isolation and social distancing.

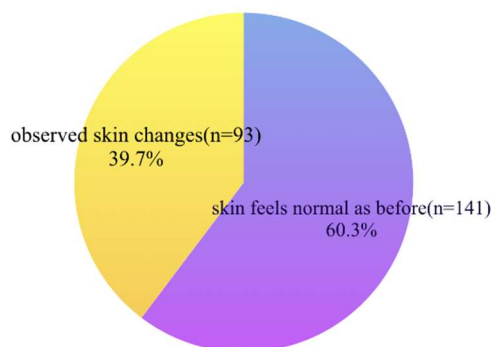


Figure 10. Skin changes amid social distancing.

Before gathering results it was expected that many people would be experiencing some of the other changes related to skin, hair, or nails. As foreseen, amongst those who saw changes mostly stated that their skin has gotten better 12.4 % (n=29), felt itchy 9.4 % (n=22), or has become more oily 7.7 % (n=18).

Surprisingly changes were seen most in combination skin 55.91 % (n=33). It is interesting to note that 44.35 % (n=106) reported more problems regarded to hair. Combination and oily skin entrants reported more problems regarding hair. Figure 11 represents skin, hair, and nail changes observed in each skin type.

- hair changes(dandruff,thinning,hair loss,hair loss in patches,itchyand oily scalp,oily hair)
- nail changes(vertiical lines,horizontal lines,brittle,infection,discolouration,pitting,overly bent)
- skin changes(oily,drier,better,worser,itchy,tighter)

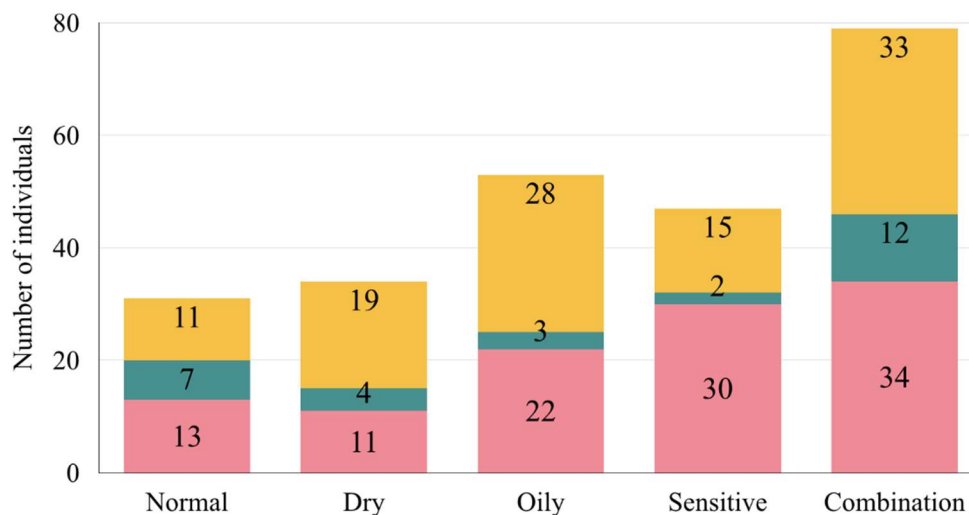


Figure 11. Skin, hair and nail changes observed during practising social distancing in each skin type.

Since March 2020 participants of all skin types reported symptoms related to hair loss, dandruff, and thinning of hair. This might be due to the stressful circumstances that the pandemic has caused. Skin problems can be affected by stress or other emotional states [5]. We also noted that amongst those who had pre-existing skin conditions mostly reported having acne 39.2 % (n=92).

When correlated social distancing, mood, pre-existing skin conditions, internal diseases, and mood changes with skin changes, it was noted that participants of combination skin experienced the most changes.

It can be stated skin changes were also noted in those with no relation to the above-mentioned factors apart from social distancing.

Study shows that as the time spent in social distancing increased people noticing skin changes also increased, and this can also be due to multiple factors. Figure 12 shows the correlation between times spend on social distancing and changes noticed.

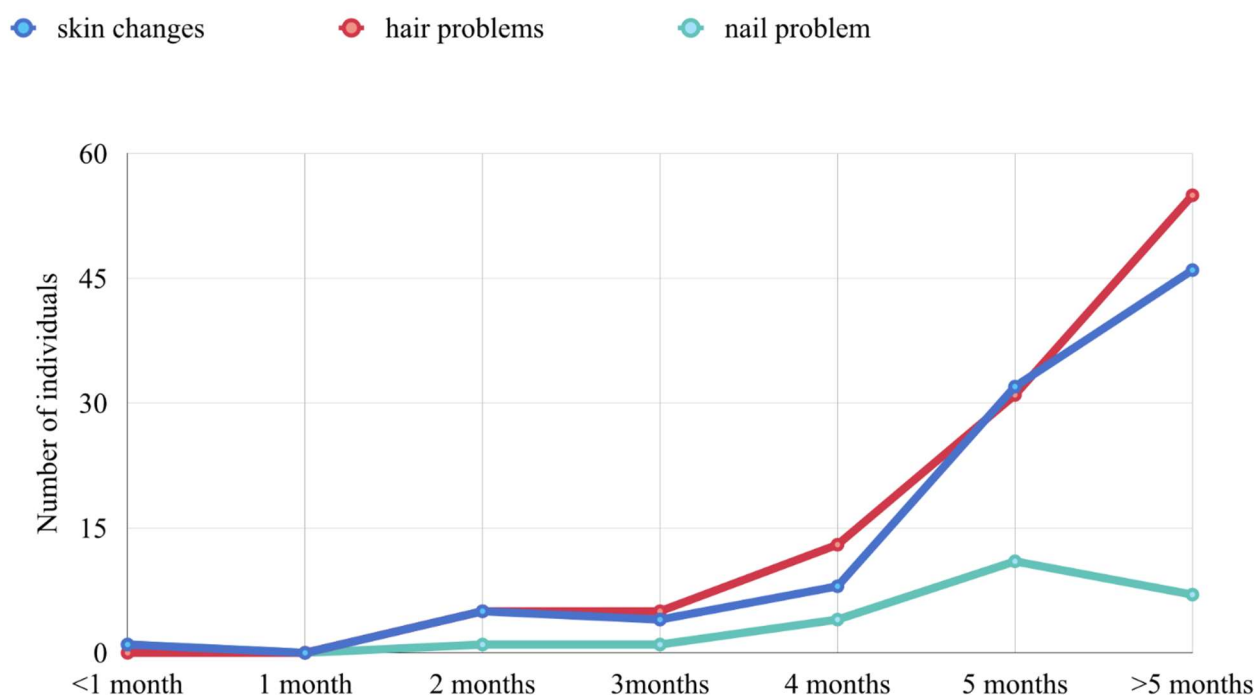


Figure 12. Noticeable skin, hair and nail changes during span of social distancing.

A total of 30.5%(n=18) of those who spent more than 5 months practicing social distancing in combination skin type observed changes.

Some changes were positive and some changes were negative.

This same pattern of increase in skin changes is seen in all skin types as well. But due to participants mostly belonging to normal and combination skin types, it is difficult to state that the same changes will be reported in all skin types.

The combination skin is more prone to changes due to its unique skin texture.

Apart from social distancing, stress, changes in food habits, skincare routine, wearing a mask, changes in personal hygiene, staying indoors, mood changes, seasonal changes, over sanitization, dehydration, and genetics can lead to significant changes in the skin.

The data also shows an increase in problems in hair and nails as time spent in social distancing prolonged.

Many participants reported an increase in hair problems such as hair loss, see. Fig 9.

As long as covid-19 persists and practicing social distancing prolongs, more changes in skin and hair may be noticeable. Based on this survey there might be an increase in skin problems in those practicing social distancing.

This survey brings an assumption based on data gathered through this survey that those practicing social distancing can be prone to experiencing dermatological problems.

Apart from those seeing skin changes as complications after covid-19 treatment.

The web-based survey offered advantages such as no need for material, self-administration, rapid responses, and a high degree of participation.

The limitations of this study include sequelae from covid-19 of the participants was unknown at the time of conducting the survey and participants predominately belonging to the female population of age group 21-25 years.

## **V. CONCLUSION**

When deprived of social connections, human beings also known as social beings are known to experience stress and illnesses, social distancing resulted in this deprivation during covid-19 pandemic. lifestyle changes, eating habits, sleeping patterns, personal hygiene, skincare, mood, overall health, and practice of social distancing have all impacted changes in the skin, hair, and nails.

The data from this study shows that participants have been noticing skin changes ( $p=0.00056$ ), felt their skin changed ( $p=0.021$ ) and experienced skin changes ( $p=0.00037$ ) since March 2020, and also participants belonging to combination skin type encountered profuse changes in their skin. As the practice of social distancing prolonged participants observed changes in conditions of their skin, hair, and nails. If this practice of social distancing along with certain trigger factors that aggravate skin conditions prolongs there can be more incidence of individuals experiencing dermatological conditions. With the right precautionary measures and consultations with dermatologists, dermatological conditions can be avoidable in the future while still practicing socially distancing and abiding by the government rules to prevent the spread of coronavirus infection (covid-19).

## **AUTHOR CONTRIBUTION**

Concept: Korrapati

Design: Korrapati, Balakrishnan, Bhowmik and Shah

Acquisition, analysis, or interpretation of data: Korrapati and Bhowmik

Drafting of the manuscript: Korrapati, Balakrishnan, Bhowmik and Shah

Statistical analysis: Korrapati and Balakrishnan

Administrative, technical, or material support: Korrapati, Bhowmik, Balakrishnan and Shah

Supervision: Luiza Gabunia

CONSENT: Electronic consent for participation was acquired at the initial page of the online survey.

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