

Skin-care Routine During The COVID-19 Pandemic: An Online Survey

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Abstract — The COVID-19 pandemic, by causing millions of people to stay locked indoors in quarantine, with more time to focus on lifestyle, has shifted people's health trajectories—changes in daily habits, hygiene and self-care being among the more prominent ones. For many, issues like mask acne flare-ups, made them implement changes in their skin-care routine to control issues related to wearing facemasks. The purpose of this study is to look for connections between the imposition of lockdown measure, changes in skin-care routines of individuals, and the effects of those, respectively. Utilizing an unfunded cross-sectional study conducted online, participants were asked a series of questions about their individual skin-care routines before and during the pandemic. 34.1% (n=85) of participants stated that they did make changes in their skin-care routine. Additionally, the study found that among the individuals that did make changes (p=0.002) to their routines, 28.9 % (n=72) claimed that the changes were beneficial. The most common skin-care products discontinued from the routine were found to be moisturizers, cleansers and sunscreen, and the skin-care products most commonly added were toners, exfoliants, actives like retinols and azelaic acids. Some participants also felt (p=0.007) that their skin felt different from before the pandemic, and 23.3% (n=58) found their skin to be better overall. The study, therefore, establishes grounds for a strong correlation between the pandemic, changes in skin-care, and their effects on the skin.

Keywords — Skin-Care Routine; COVID-19; Pandemic; Masks; Social Distancing; Self-Care.

I. INTRODUCTION

In March 2020, the World Health Organization declared the Coronavirus outbreak as a pandemic. Since then, strict measures have been brought into action to reduce the transmission of the virus [6], [2]. These measures include wearing a mask, and the practice of social distancing in a public area. These sudden changes drastically affected the daily lives of individuals around the world, in several ways [3]. One such change in lifestyle is in skin-care routines. The role of skin-care is protection, prevention, cleansing, and moisturizing the skin [8].

Countries all over the world going into lockdown had the big disadvantage of depriving people of their social lives. However, the lockdown benefited individuals that were focused on working on themselves—especially those that wanted to address skin concerns like acne, as well as those looking to have healthier skin. Factors such as genetics, diet, temperature, as well as stress influence the microbiome of the skin. Staying indoors may also contribute, the temperature indoors being different from the temperature outdoors. This might trigger a change in the skin texture, a condition of the surface of the skin, which might lead to individuals changing their skin-care routine.

Wearing a mask for prolonged hours has modified the microbiome of the lower half of the face [9]. Many individuals that wear masks for long hours have reported experiencing acne in the lower halves of their faces. Due to high ambient humidity in this region, acne can flare up [11].

The purpose of this survey is to study if individuals worldwide have made any changes in their skin-care routine to address concerns such as pre-existing acne, to prevent skin issues such as ‘maskne’, or generally made any changes to accommodate with their changed due to the pandemic.

II. METHODS

This is a cross – sectional study, designed by a team of 7 international medical students of Tbilisi State Medical University, conducted as an online questionnaire, through Google Docs. The goal of the study was to look at changes in skin-care routines and its effects before and after the pandemic. The survey consisted of 16 questions, and was circulated on multiple electronic platforms. Authenticity was ensured by asking participants to log in through their email IDs. Responses received were sufficient to proceed with the study. Participants were given the choice to not consent to participate, as well.

The Following questions mentioned below were part of the 16 questionnaires:

- 1) Do you consent to participate in this survey by filling the form?
- 2) Please select your age.
- 3) Please select your gender.
- 4) Please select your ethnicity.
- 5) Please select your current country of residence.
- 6) For how long have you been in isolation, since the lockdown began (From March 2020)?
- 7) Have you travelled to a place with a different climate after the pandemic started? If so, how was the climate there?
- 8) Please select your skin type.
- 9) Did you follow a skin care routine before the pandemic started?
- 10) Please select the products that were part of your skin care routine before the pandemic started.
- 11) Did you make changes in your skin care routine after pandemic started?
- 12) Please select the products that you added to your skin care routine after pandemic started.
- 13) Please select the products that you removed from your skin care routine (stopped using) after the pandemic started.
- 14) Did you find the changes that you made in your skin care routine to be beneficial?
- 15) Have you noticed any of the below mentioned changes recently or after pandemic started?
- 16) Does your skin feel the same as it did before the pandemic started?

III. RESULTS

From the 253 respondents, 98.4% (n=249) gave informed consent to participate in the survey, a majority of whom, at 69.1% (n=172), were females. 83.1% (n=207) of participants were of South Asian origin, India being the predominant country of residence at 67.1% (n=167). The second largest percentage of participants, at 22.9% (n=57), were from Georgia (tables 1a,1b,1c,1d).

Table 1a. Age of participants.

Age	Percentage	Number of responses
Below 15	0.4%	1
16	0.8%	2
18	0.8%	2
19	3.6%	9
20	12%	30

21	32.9%	82
22	15.7%	39
23	9.2%	23
24	4.4%	11
25	2%	5
26	1.6%	4
27	0.4%	1
28	0.8%	2
29	0.4%	1
30	0.8%	2
Above 30	14.1%	35

Table 1b .Gender

Gender	Number of responses	Percentage
Male	75	30.1%
Female	172	69.1%
Other	0	0%
Prefer not to say	2	0.8%

Table 1c .Ethnicity

Ethnicity	Percentage	Number of responses
Asian	13.7%	34
South-Asian	83.5%	208

American	0.4%	1
European	1.2%	3
Mixed-Ethnicity	0.4%	1
Jewish	0.4%	1
Middle-East	0.4%	1

Table 1 d. country of residence .

Country of Residence	Percentage	Number of responses
India	67.1%	167
Kuwait	0.4%	1
Nigeria	0.4%	1
Oman	0.4%	1
Pakistan	1.2%	3
Philippines	1.2%	3
Russia	0.8%	2
Texas	0.8%	2
UAE	3.6%	9

UK	0.4%	1
Australia	0.4%	1
Bulgaria	0.4%	1
Georgia	22.9%	57

3.1) Social isolation

28.5% (n=71) of respondents were in isolation for a period greater than 8 months, since the beginning of the lockdown in March 2020. The next major subgroup 23.7% (n=59) were in lockdown for a period less than 1 month (table 2).

Table 2. Time spent in isolation.

Time spent in isolation	Percentage	Number of responses
Less than 1 month	23.7%	59
1 month	5.2%	13
2 months	4.8%	12
3 months	3.2%	8
4 months	4%	10
5 months	4.4%	11
6 months	8.4%	21
7 months	6.8%	17

8 months	10.8%	27
More than 8 months	28.5%	71

3.2) Travel

Participants were asked if they had travelled to a place with a different climate after the pandemic started since change of climate may have a significant impact on skin condition.

More than half the participants, 55% (n=137), did not travel/experience climate change. 29.7% (n=74) travelled to a colder region. 10% (n=25) travelled to a hotter region. 4% (n=10) travelled to a more humid region. 1.2% (n=3) travelled to a drier region (table 3).

Table 3 .Travelled to a place with a different climate after the pandemic.

Travelled to a place with different climate after the pandemic started	Percentage	Number of responses
Travelled to a hotter region	10%	25
Travelled to a colder region	29.7%	74
Travelled to more humid region	4%	10
Travelled to a drier region	1.2%	3
Did not travel / experience climatic changes	55%	137

3.3) Skin type

Respondents had to select from the 5 major skin types: normal, dry, oily, sensitive and combination.

30.1% (n=75) stated that their skin was of the normal type. 22.9% had oily skin, 21.3% (n=53) had dry skin, 18.9% (n=47) had combination skin type, and 6.8% (n=17) had sensitive skin (figure 1).

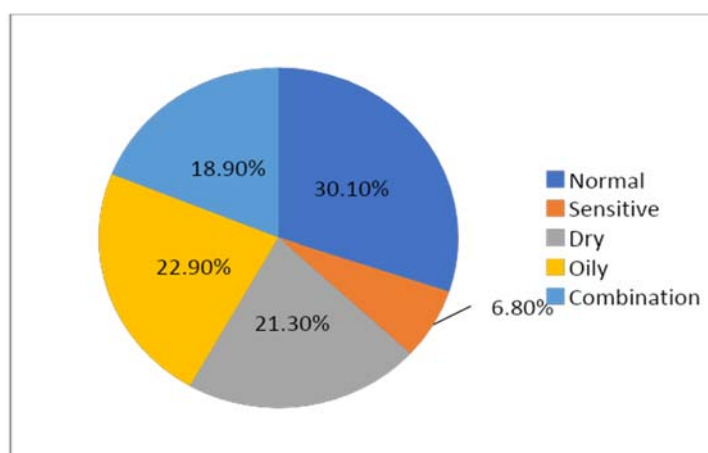


Figure 1: Skin type

3.4) skin-care routine

Participants were asked whether they followed a skin care routine before the pandemic started. Out of 249 responses, 62.2% (n = 155) stated that they did not follow a skin care routine before the pandemic, and 37.8% (n= 94) stated that they did (figure 2).

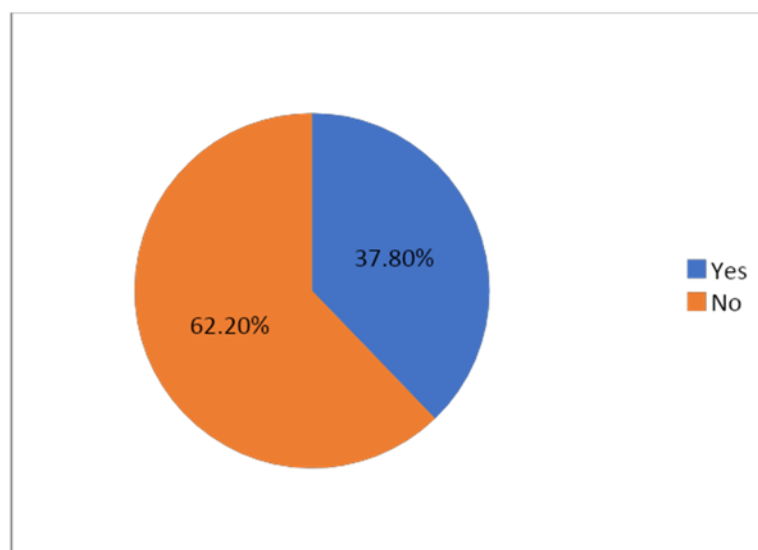


Figure 2: Existence of skin care routine before the start of pandemic

When given a choice of 14 products to choose from, which were part of their skin-care routines before the pandemic started, a majority of participants chose cleansers and moisturizers. 51.8% (n=129) chose cleansers (face wash) and 52.2% (n=130) chose moisturizers. 26.5% (n=66) stated that they didn't use any products as part of their skin care routine. Sunscreen was used by 20.9% (n= 52), and facemasks (sheet masks) were used by 17.3% (n=43). 14.5% (n=36) used DIY skin care as well. 10.8% (n=27) used serums, and 7.2% (n=18) used toners/essence part of their skin care routine. Face oils and spot treatment were used by 5.6% (n=14). Exfoliants (AHA, BHA etc.) were used by about 4.8% (n=12) of participants. Less popular products used by relatively fewer participants were eye creams 4.4% (n=11), salicylic acid 2.4% (n=6), and azelaic acid 0.4% (n=1) (figure 3).

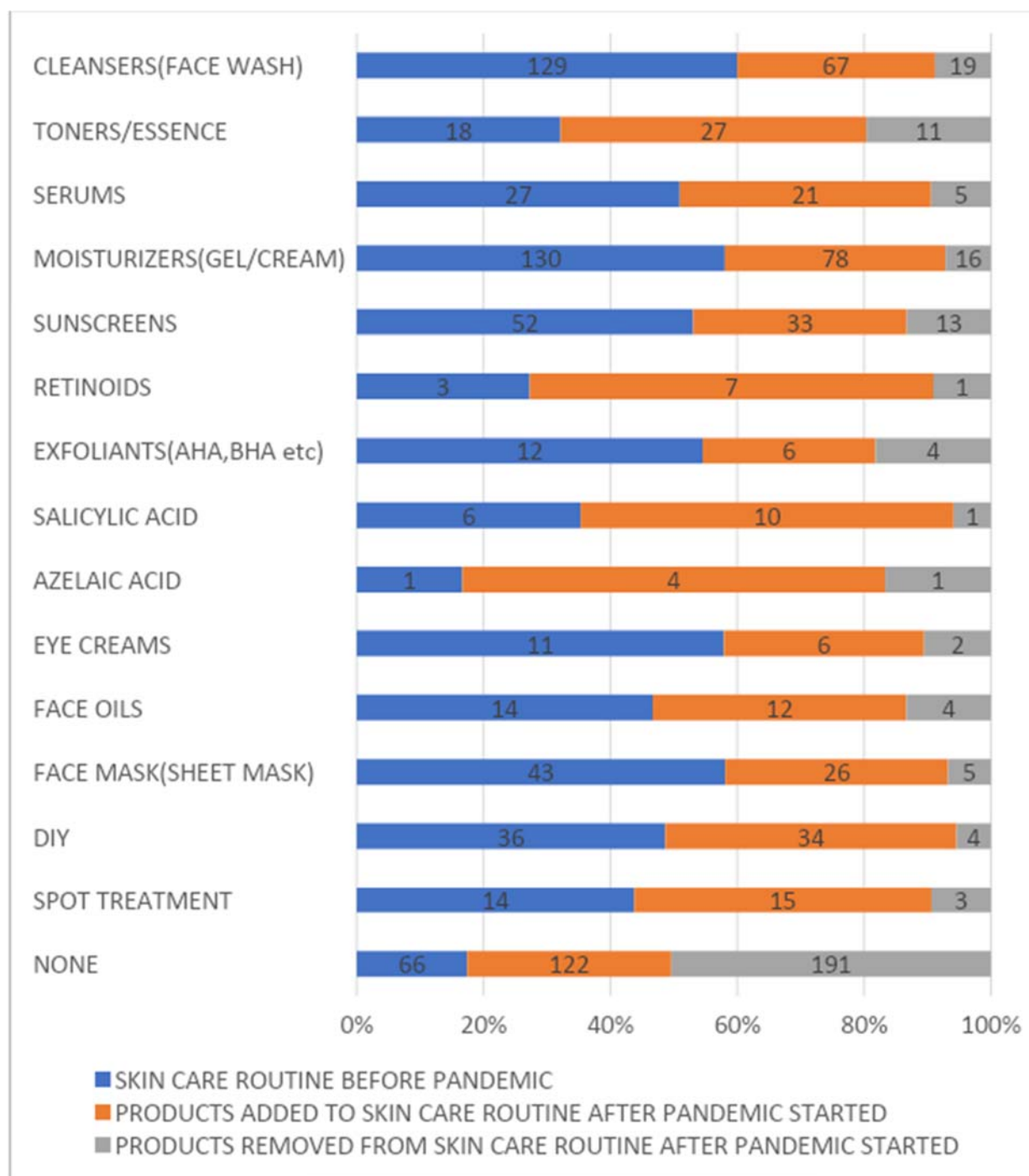


Figure 3: Skin care products added and removed after pandemic

After the pandemic started, 65.9% (n=164) participants didn't make any changes to their skin care routine, and 34.1% (n=85) did make changes (figure 4).

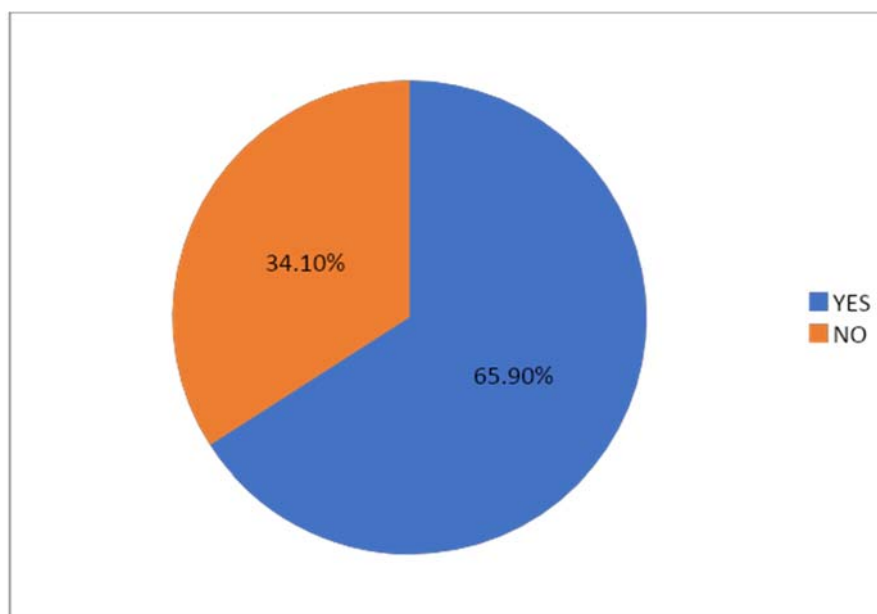


Figure 4: Changes in skin care routine after pandemic started

When asked to select the products that were added to their skin care routine after pandemic started, 49% (n=122) stated no products were added to their routines. 31.3% (n=78) added moisturizers. 26.9% (n=67) said that they were using cleansers. 13.7% (n=34) started DIY. 13.3% (n=33) added sunscreen to their skin care routine. A minority of participants added toners/essence 10.8% (n= 27), face masks 10.4% (n=26), serums 8.4% (n= 21) , face oil 4.8% (n=12) , salicylic acid 4% (n=10), retinoids 2.8% (n=7), exfoliants 2.4% (n=6) , eye creams 2.4% (n=6) and azelaic acid 1.6% (n= 4).(figure 3).

When asked about the products that have been removed from their skin care routines after the pandemic started, 76.7% (n =191) stated none were omitted, while 7.6% (n=19) removed cleansers (face wash), 6.4% (n=16) removed moisturizers (gel or creams), and 4.4% (n=11) removed toners (figure 3).

3.5) Respondents' observations

Participants were asked if they found the changes made in their skin care routines beneficial (figure 5). A majority 48.2% (n=120) responded with 'not sure', while 28.9% (n=72) said 'yes', and 22.9% said 'no'.

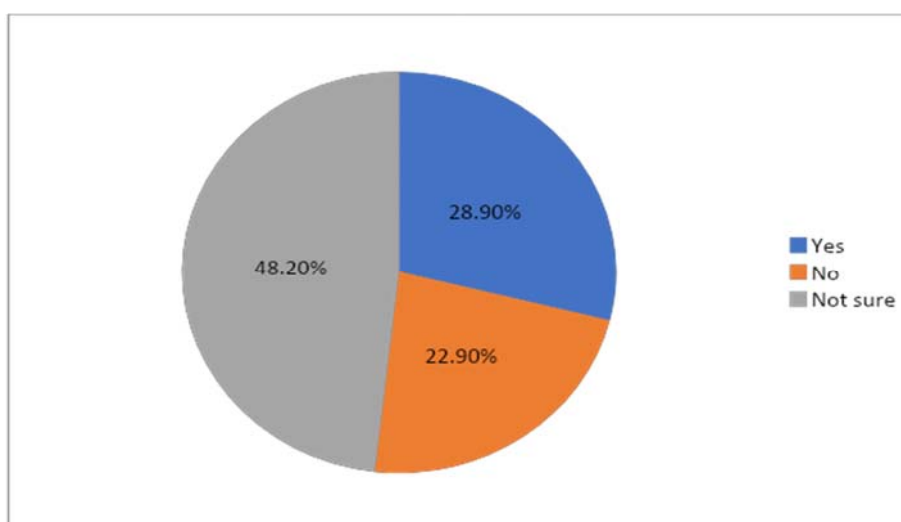


Figure 5: whether or not the changes made in skin care were beneficial

Participants were given a choice between 7 different statements, and were asked to pick the most appropriate one, based on changes they might have been experiencing since March 2020.

The options are stated below.

My skin feels the same as it did before.

My skin feels oilier than before.

My skin feels drier than before.

My skin feels much better than it was before.

My skin feels itchy sometimes.

My skin feels tighter than before.

All options other than the first one were counted as skin changes. 47.8% (n=119) had stated that their skin felt the same as it did before, while 23.3% (n= 58) stated that their skin feels much better than it was before. 8.4% (n= 21) found that their skin felt drier than before. On another hand 7.6% (n= 19) found that it felt worse than before. 6% (n= 15) said their skin felt oilier than before. 5.6% (n= 14) found that their skin felt itchy sometimes and 1.2% (n= 3) found that their skin felt tighter than before.

When participants were asked whether or not their skin felt the same as it did before the pandemic started, 47.4%(n=118) responded with 'yes', 34.9% (n= 87) with 'no', and the remaining 17.7% (n= 44) were not sure about the change in their skin.

IV. DISCUSSION

The purpose of this survey is to study whether individuals made changes in their skin-care routine since the pandemic was declared in March 2020. Studies conducted earlier have shown that certain individuals noticed changes in their skin, hair, and nails[5] but whether changes in skin-care routines were the reason for these changes, was not clear. This survey focuses on whether changes in skin-care routines have caused these changes. Very few studies have been published regarding the later [1].

A response rate of 98.4% (n= 249) was accepted, and among those 34.1% (n=85) said that they had made changes after the pandemic had started. The reason for these changes are many, but primarily, going into lockdown and avoiding direct social contact has to lead to individuals spending more time alone as well as having more spare time than before [1]. This spare time has led individuals to focus on self-care, and for many, self-care involves a skin-care routine. The role of skin-care is to cleanse, moisturize, and protect the skin, and prevent skin damage [8]. Most of the time many individuals do not have time to focus on their skin concerns due to busy lives. The lockdown has made it possible to focus on these concerns.

Skin is heavily influenced by its surrounding environment-it changes its texture according to changes in the environment; that is, skin changes according to the temperature [11]. As seasons change skin-care routines change too. For example: during summer, sunscreen is a must-have for many, as it protects the skin from sun damage; and during winter, due to dry weather, many use occlusive creams to moisturize the skin and prevent dryness. After the pandemic was declared, many people, especially migrants and students, travelled back to their hometowns and home countries, where temperature tends to be different. This change in location and temperature can lead to changes in the skin-care routine. Additionally, the outdoor temperature is different from indoor temperature. As many individuals spent more time indoors, it might have affected the skin texture, and hence changes in skin-care routines might have been made.

When COVID-19 was declared a pandemic in March of 2020, our lifestyles have changed, owing to the practice of social distancing. Wearing a facemask was made mandatory by governments around the world to protect their citizens from the novel Coronavirus. Wearing a facemask for prolonged hours caused acne to flare up, which, based on social media trends, many called mask acne. The reason behind this happens to be changes in the microenvironment between the mask and the skin, while wearing masks for prolonged hours [10]. To prevent worsening of acne or skin issues, changes in skin-care routines were made by many individuals, and many dermatologists also recommended that their patients make changes accordingly. Moisturizers, zinc oxide ointment, topical glucocorticoids are some recommendations to manage issues concerning PPE use [4].

There is no single universal routine for everybody. The steps followed in skin-care routines are the same for everyone, but the same product can't be used by everybody. In the cosmetic field, the skin is classified as dry, normal, oily, and combination [7]. Therefore, products used usually vary. The basic steps in any skin-care routine are cleansing, exfoliating, moisturizing, and sun protection. Participants were asked what the steps involved in their skin-care routines were before the pandemic. They were also

asked about the steps they eliminated and added to their current skin-care routines. The following figure shows the details. We can see that many participants claim to have skipped using sunscreen and moisturizers. This can be due to individuals staying indoors, where UV rays exposure is far less, along with the temperature being different indoors. It is interesting to note that more participants are using actives and exfoliants in their skin-care routine after the pandemic started.

Overall, it can be studied that participants did make changes in their skin-care routines ($p=0.002$) (table 5) after the pandemic started, and among them, 28.9% stated that the changes made were beneficial ($n=72$). Participants also noted several changes in their skin texture ($p=0.0009$) (table 6). These can be due to several participants using products like retinoids, azelaic acid, and salicylic acid, which address concerns such as hyperpigmentation and acne, leading to several participants 23.3% ($n=58$) stating that their skin felt better than before the pandemic. Participants also felt that their skin feels different than before the pandemic started ($p=0.007$) (table 7), which is primarily due to wearing face masks, diet changes, changes in temperature, changes in personal hygiene, and most importantly, changes in skin-care routines.

Table5.Changes made in skin care

SKIN TYPE	YES	NO	P-VALUE
NORMAL(75)	17	58	0.002
DRY(53)	18	35	
OILY(57)	19	38	
SENSITIVE(17)	04	13	
COMBINATION (47)	27	20	

Table 6. Current skin texture

Skin type	Same	Oily	Dry	Better	Worse	Itchy	Tight	P-value
Normal (75)	51	03	03	08	06	04	00	0.00000917
Dry (53)	24	01	09	14	03	02	00	
Oily (57)	23	09	02	16	04	02	01	
Sensitive (17)	06	00	02	04	03	00	02	
Combination (47)	15	02	05	16	03	06	00	

Table 7. Skin feeling different after pandemic started

Skin type	Yes	No	Not sure	p- value
Normal	50	17	8	0.00731396
Sensitive	07	06	4	
Dry	24	22	7	

Oily	23	20	14	
Combination	14	22	11	

Limitations of this study include insufficient knowledge on the occupation of the participants, pre-existing skin conditions of the participants, participants' history with COVID-19 infection, and poor participation from men.

V. CONCLUSION

Owing to the imposed social distancing measures and changes in people's lifestyles, there were definitive changes observed in skin-care routines. 28.5% (n=71) of participants stayed indoors for the entire period of the pandemic. 34.1% (n=85) of participants stated to have made changes in their skin-care since the declaration of the pandemic. Skin-care products were both added to and removed from people's routines. Sunscreen and moisturizers were found to be the products that were eliminated from use the most, while toners, cleansers, exfoliants like AHA's, BHA's, and retinols were the products most found to be added to individuals' routines. Only 23.3% (n=58) of participants stated that their skin felt better compared to before the pandemic. In order to manage mask acne and pre-existing skin issues from before the pandemic, and also as a way of giving rest to the usual skin-care routine, it can be said that individuals did make certain changes in their skin-care routine since March 2020.

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