





## ORIGINAL ARTICLE

# Has the COVID-19 pandemic changed attitudes and behaviors concerning cosmetic care and procedures among patients presenting to the dermatology outpatient clinic? A multicenter study with 1437 participants

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## Abstract

**Background:** The rate of cosmetic procedures and use of skincare products is considered to be affected during the pandemic period; however, this has not been investigated yet.

**Objective:** To determine whether the ongoing pandemic has changed people's habits related to skincare products and cosmetic procedures.

**Methods:** We conducted a multicenter survey study covering both private and public hospitals. Sociodemographic characteristics and clinical diagnoses of the patients were noted by dermatologists. A survey was used to determine the type and application areas of skincare products and cosmetic procedures before and during the pandemic, whether the patients were concerned about being infected, and any change in the make-up habits of female patients.

**Results:** Of the 1437 patients, 86.7% presented to the hospital due to dermatological complaints and 13.3% for cosmetic procedures. The rate of those that did not use skincare products was 0.05% before and 0.06% during the pandemic. Of the participants, 43.2% had undergone cosmetic procedures before and 38.1% during the pandemic. For both periods, the most frequent cosmetic procedure applied was laser epilation, followed by skincare treatment and chemical peeling. While undergoing these procedures, 34.9% of the patients were concerned about contracting coronavirus.

**Conclusion:** There was no significant difference in the use of skincare products and cosmetic procedures before and during the pandemic. The majority of the patients continued to undergo these procedures despite their fear of being infected. This

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shows that during the pandemic period, patients are concerned with their appearance and continue to undergo cosmetic procedures and pay attention to their skincare.

#### KEYWORDS

cosmetic procedures, COVID-19, pandemic, skincare products

## 1 | INTRODUCTION

Cosmetic procedures are considered to be affected by the pandemic caused by the Coronavirus 19 (COVID-19) infection. The same is true for the use of skincare products.

Especially at the beginning of the pandemic, patients were advised to refrain from almost all types of interventional procedures, except for those of emergency nature, since it was not known exactly how the virus spread.<sup>1</sup> However, with the negative effects of the pandemic on the economy, lockdown measures have been gradually reduced in many countries, and elective procedures have been started to be performed with the achievement of a better understanding of the spread of the virus.<sup>1</sup>

There is no study in the literature investigating whether the pandemic has changed the attitudes and behaviors of patients

concerning cosmetic procedures and skincare product use as far as we know. Therefore, we aimed to reveal whether there was any change in people's habits related to skincare product use and cosmetic procedures during the ongoing pandemic.

## 2 | MATERIAL AND METHOD

### 2.1 | Patients

The sample included a total of 1437 patients (1162 female and 275 male) aged over 18 years presenting to the dermatology outpatient clinics of both public and private hospitals for any reason between February 1 and March 31, 2021, who were literate and agreed

to participate in the study. The patients provided written consent stating that they agreed to participate in the study.

## 2.2 | Procedure

Before starting the study, necessary approval was obtained from the ethics committee of the Istanbul Medeniyet University (27.01.2021/0072). The attitudes and behaviors of the patients before and during the pandemic were compared using a survey. The survey questions were prepared by the researchers by reviewing and discussing the literature on the subject. The survey was completed by the participants without any time limit, and the participants were free to direct any question to their physicians if needed. The sociodemographic characteristics and clinical diagnoses of the patients were noted by the physicians. The items included in the survey aimed to determine whether there was a change in the patients' working schedule and income during the pandemic period, which skincare products they used and in which areas before and during the pandemic, cosmetic procedures they had undergone and who had performed these procedures, whether a polymerase chain reaction (PCR) test had been required before these procedures, fears of contracting COVID-19 infection when undergoing such procedure, and whether there was a change in make-up habits among female participants.

## 2.3 | Statistical analysis

The data of the study were analyzed using SPSS IBM software package. Testing was performed at the 95% confidence level, that is, at a 5% margin of error. As descriptive statistics, the calculation of frequencies, mean-standard deviation, and percentages was undertaken using sociodemographic data and other measurements to be performed in the study. The chi-square and correlation analyses were used to examine the relationships between the responses of the patients before and during the pandemic.

## 3 | RESULTS

### 3.1 | Sociodemographic characteristics, employment and income status of the patients during the pandemic period

Of the 1437 patients, 86.7% presented to the outpatient dermatology clinics due to dermatological complaints and 13.3% for cosmetic procedures. Among those with dermatological complaints, the reason for presentation was acne/rosacea in 45.2%, eczema in 10.8%, telogen effluvium or other causes of hair loss in 9.2%, fungal and other skin infections in 4.4%, urticaria in 4%, nevus and skin cancer follow-up in 2.8%, and other diseases in the remaining patients. While 52.7% of the patients did not conduct business or social

meetings over the Internet, 21.9% did this occasionally and 24.5% regularly. The sociodemographic characteristics of the patients are summarized in Table 1.

### 3.2 | Changes in type, application area, and number of skincare products used

While there were only 73 participants who did not use any skincare products before the pandemic, 80 participants stated that they did not use them during the pandemic. No significant difference was found in relation to using skincare products. There was no change in the skincare products used or application areas before and during the pandemic period (Table 2).

### 3.3 | Data on cosmetic procedures and changes in related habits

While 43.2% of the participants stated that they had previously undergone cosmetic procedures, 56.8% had never undergone these procedures. During the pandemic period, 38.1% of the patients underwent cosmetic procedures. No significant difference was found in relation to the type or application area of the cosmetic procedures. The most frequently performed cosmetic procedures both before and during the pandemic were laser hair removal, skincare treatment, and chemical peeling (Table 3). For cosmetic procedures, 51.7% of the patients supervised by a physician and 55.7% by a dermatologists before the pandemic. During the pandemic, these rates were 61.6% and 64%, respectively (both  $p = 0.000$ ). Before and during the pandemic, cosmetic procedures were performed in private polyclinics for 36.7% and 21.8% of the patients, private hospitals (24.6%; 25.4%), doctor's office (15.5%; 16%), state hospital (12.1%; 12.7%), and beauty salons (39.7%; 31.6%), respectively ( $p = 0.000$ ). A PCR test was performed before these procedures in 7.9% of the patients. Of all the patients, 65.1% reported that they did not feel concerned about contracting COVID-19 while undergoing cosmetic procedures.

### 3.4 | Make-up habits of female patients when wearing a mask

The make-up habits of the female patients before and during the pandemic are summarized in Table 4. While women mostly wore make-up a few times a week (38.6%) before the pandemic, they mostly did not wear any make-up (29.2%) during the pandemic period. Of the women, 43.9% stated they never wore make-up while wearing a mask, 32.4% said they did it sometimes, and 21.6% said it all the time. Fifty-five percent of the women who stated that they wore make-up when wearing a mask noted that they only applied it to the areas visible through the mask while 45% applied make-up to the whole face.

TABLE 1 Sociodemographic characteristics of the participants

		Overall	
		n	%
Age	Mean ± SD	29.4 ± 10.1	
	Min–Max	18–78	
Gender	Female	1162	80.70
	Male	275	19.10
Marital status	Married	502	34.90
	Single	927	64.40
Smoking status	Active smoker	323	22.40
	Non-smoker	1020	70.80
	Ex-smoker	87	6.00
Alcohol use	Yes	89	6.20
	No	1073	74.50
	Social drinker	269	18.70
Monthly family income <sup>a</sup>	300\$ and below	191	13.30
	300–650\$	549	38.10
	650–1300\$	441	30.60
	above 1300\$	249	17.30
Decrease in family income during pandemic	Yes	679	47.20
	No	738	51.30
Percentage of decrease in family income	<10%	178	12.40
	10–25%	265	18.40
	26–50%	164	11.40
	51–74%	63	4.40
	>75%	19	1.30
Working status during the pandemic	Working from home	223	15.50
	Working outside home	578	40.10
	Not working	595	41.30
Importance of presentability at work	Important	663	46.00
	Not important	313	21.70
	Sometimes important	364	25.30
Education level	Literate	7	0.50
	Primary school	35	2.40
	Middle school	61	4.20
	High school	371	25.80
	College	123	8.50
	University	703	48.80
	Master's degree	91	6.30
	PhD degree	38	2.60

<sup>a</sup>Income level was calculated based on the exchange rate at the time of the study.

## 4 | DISCUSSION

The results of this study did not reveal a statically significant change in subjects undergoing cosmetic procedures during the pandemic.

Moreover, there was also no statistically significant change in the use of cosmetic products during this time. The patients most frequently underwent laser epilation, skincare treatment, and chemical peeling both before and during the pandemic.

It was found that the minority of participants (34.9%) were concerned about the risk of contracting COVID-19 during their cosmetic procedures.

The cosmetic procedures have a positive effect on the psychological state of patients.<sup>2,3</sup> It has been observed that the psychological state of people who regularly receive botulinum toxin injections has been affected by the disruption of routine life during the pandemic period. This state has been defined as acute botulinum toxin deficiency syndrome.<sup>4</sup>

A study conducted with dermatologists in the United States showed that consultations on cosmetic procedures increased by more than 50% during the pandemic.<sup>5</sup> In fact, 86% of the dermatologists stated that their patients' videoconferencing was related to these new cosmetic concerns.<sup>5</sup> Another study showed that 57% of the patients had an increased interest in cosmetic procedures on the face area because they were not satisfied with their images on the screen, which has been called the "Zoom Boom" phenomenon.<sup>6</sup> In an online survey with 379 respondents, over one-third saw some differences in their appearance during videoconferencing on webcams and had a dysmorphic concern.<sup>7</sup> It is known that webcams make the face look different from what it is due to their shorter focal length. When using webcams, the face looks more rounded, the eye gap is elongated, the nose and forehead are wider, and the ears are hidden by the cheeks.<sup>8</sup> In addition, since webcams display three-dimensional views in two dimensions, they can change the normal perception of the face, producing a darker shade in some areas and a rounder or flatter appearance. This can increase people's desire for cosmetic procedures by causing deterioration in body perception.<sup>9</sup> It can also motivate people to undergo cosmetic procedures during the pandemic period.

It has been reported that botulinum toxin and dermal filler applications, which had a 75% share of the cosmetic market before the pandemic, continued to be of interest during the pandemic period.<sup>10,11</sup> In a survey study done with plastic surgeons during the lockdown, more than half of the surgeons said they would prefer botulinum toxin and dermal filler injections as soon as they reopened their clinics.<sup>12</sup> In our study, it was observed that the patients' interest in botulinum toxin and filler injections did not change during the pandemic, and those who had already undergone these procedures continued to do so during the pandemic.

Wearing a mask has become mandatory worldwide to prevent the spread of COVID-19 infection and protect people. Wearing a mask has been shown to result in some skin changes, such as erythema, dryness, increased sweating on the face, worsening of existing diseases, and findings such as itching, stinging, burning, and tingling.<sup>13,14</sup> With wearing gloves, frequent hand washing and disinfectant use, symptoms such as dryness, burning, and itching and diseases such as irritant contact dermatitis, candida infection in interdigital areas, transient aquagenic palmar hyperwrinkling have

**TABLE 2** Type and application areas of skincare products<sup>a</sup> used by the participants

		Before pandemic	During pandemic	<i>p</i>
		%	%	
Face	Cleansers <sup>a</sup>	69.2	69.7	0.000
	Anti-aging product	9.3	7.3	0.000
	Moisturizer	61.9	61.3	0.000
	Anti-spot product	17.7	13.6	0.000
	Sunscreen	38.1	28.9	0.000
Around eyes	Cleanser <sup>a</sup>	28.5	28.0	0.000
	Anti-aging product	9.1	7.2	0.000
	Moisturizer	33.7	33.5	0.000
	Sunscreen	8.1	6.7	0.000
Hands	Cleanser <sup>a</sup>	39.8	44.9	0.000
	Moisturizer	66.6	65.6	0.000
	Sunscreen	5.2	5.2	0.000
Body	Cleanser <sup>a</sup>	35.0	37.4	0.000
	Moisturizer	43.3	40.5	0.000
	Sunscreen	5.3	2.9	0.000

<sup>a</sup>Cleansers refer to only special washing products used for the specified regions and do not include soaps and shower gels

**TABLE 3** Cosmetic procedures applied and areas of application

Cosmetic procedure	Application area	<i>n</i>	%	<i>n</i>	%	<i>p</i> value
Botulinum toxin	Face	129	23.2	122	25.4	0.000
	Around eyes	118	21.2	121	25.2	0.000
	Neck	14	2.5	16	3.3	0.000
	Treatment for sweating	17	3.1	8	1.7	0.000
	Other	12	2.2	7	1.5	0.000
Dermal filler	Face	24	4.3	9	1.9	0.000
	Around eyes	24	4.3	12	2.5	0.000
	Lips	38	6.8	27	5.6	0.000
	Other	16	2.9	12	2.5	0.000
Chemical peeling	Face	202	36.3	118	24.5	0.000
Skincare treatment	Face	297	53.4	149	31.0	0.000
Laser	Epilation	307	55.2	152	31.6	0.000
	Vessels	31	5.6	25	5.2	0.000
	Spots	22	4.0	13	2.7	0.000
	Skin	23	4.1	10	2.1	0.000
Thread lifting		33	5.9	18	3.7	0.000
PRP	Face	42	7.6	24	5.0	0.000
	Hair	41	7.4	33	6.9	0.000
Mesotherapy	Face	40	7.2	29	6.0	0.000
	Hair	36	6.5	31	6.4	0.000

Abbreviation: PRP, platelet-rich plasma injection.

been described due to the deterioration of the barrier function of the skin.<sup>15</sup> In addition, existing skin diseases, such as acne vulgaris, rosacea, and seborrheic dermatitis, can be exacerbated by mask use.<sup>16</sup> It has been recommended to use moisturizers in the cases of

dryness and burning, oil-free moisturizers in acne, and cleansers and zinc oxide creams in the presence of maceration.<sup>17</sup> People were more interested in proper home skincare during the pandemic when compared before the pandemic.<sup>18</sup> In a study done with Polish women,

TABLE 4 Changes in women's make-up habits

Make-up frequency	Before pandemic %	During pandemic %	p value
Every day	29.7	9.9	0.003
A few times a week	38.6	27.8	0.003
A few times a month	13.6	25.9	0.003
A few times a year	5.9	6.0	0.003
None	10.7	29.2	0.003
Not answered/recalled	14.7	0.2	

the frequency of hand and face washing slightly increased. In addition, there is a significant increase in using handwashing creams.<sup>19</sup> In our study, we observed that our patients most frequently used hand and face cleansers and moisturizers both before and during the pandemic, and there was no significant change in their use of skincare products.

In a study examining patient presentations to dermatology outpatient clinics over the same periods in 2019 and 2020, it was determined that presentations for cosmetic reasons increased by 84.7%.<sup>17</sup> Of these cosmetic procedures, 55.9% were laser and light treatments, 22.6% were botulinum toxin and dermal filler injections, 14.6% were chemical peeling, and 6.9% were other procedures.<sup>17</sup> In a study conducted in Saudi Arabia, 25.75% of the respondents mentioned that they had undergone a cosmetic procedure before, but only 11.90% had undergone these procedures during the pandemic.<sup>20</sup> In our study, the rates are higher. Of the participants, 43.2% stated that they had previously undergone cosmetic procedures, while 38.1% underwent procedures during the pandemic period.

It was stated that during the pandemic period, the patients most frequently experienced problems with their forehead/glabella, eye area, neck, and hair.<sup>5</sup> In particular, they complained about wrinkles on the upper part of the face, spots, dark circles around the eyes, sagging in the eyelids and neck.<sup>5</sup> According to our data, during the pandemic period, 31.6% of the patients were treated with laser and light therapy for epilation, 12.1% with laser and light therapy for other reasons (total rate 43.7%), 25.4% received botulinum toxin injections on the face, 12.5% received dermal filler injections, and 24.5% underwent chemical peeling. In a study examining cosmetic procedures performed with general anesthesia, the patients were followed up for 2 weeks, and COVID-19 infection developed in none of the patients after the surgery.<sup>21</sup> In another study conducted during the pandemic period, when the patients were asked about the reasons for not undergoing cosmetic procedures, 48.9% stated that they were afraid of being infected.<sup>22</sup> Of our participants, 34.9% stated that they were concerned about contracting COVID-19 while undergoing cosmetic procedures during this period. It is interesting that we observed no significant change in the rate of cosmetic procedures, despite the patients' fear of COVID-19 infection.

The main limitation of the study is that data were collected using a survey based on patient statements. However, there is no other study that investigated the changes in the cosmetic habits of

patients, such as their willingness to undergo cosmetic procedures and use skincare products during the pandemic period.

## 5 | CONCLUSION

There was no significant difference in the patients' use of skincare products and rate of cosmetic procedures before and during the pandemic. This shows that during the pandemic period, patients were concerned with their external appearance and continue to undergo these procedures and pay attention to their skincare. While a considerable percentage of patients were afraid of being infected with COVID-19 while undergoing cosmetic procedures, they continued to do so. However, compared to the pre-pandemic period, cosmetic procedures were performed more frequently by a group that pays attention to sterility, such as dermatologists, and in places that are relatively safe from infections, such as private polyclinics, hospitals, and doctor's office. Despite the ongoing pandemic, people's desire to look beautiful continues and they continue to undergo cosmetic procedures to achieve this by taking precautions.

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## CONFLICT OF INTEREST

The authors declare that they have no conflict of interest.

## AUTHOR CONTRIBUTIONS

Melek Aslan Kayıran conceived and planned the study, interpreted the data, analyzed the data, drafted the manuscript, and revised the manuscript. Ayşe Serap Karadağ conceived and planned the study, interpreted the data, and revised the manuscript. Asude Kara Polat, Gökçen Alyamaç, Düriye Deniz Demirseren, Betül Taş, Gökür Kalkan, Tuğba Özkök Akbulut, Hatice Kaya Özden, Mahmut Can Koska, Selma Emre, Hilal Kaya Erdoğan, Gülşen Tükenmez Demirci, Şule Güngör, Nimet Özcan Arslan, Esra Ağaoğlu, Gökçe Işıl Kurmuş, Hasan Aksoy, Aslı Tatlıparmak, Hülya Süslü, İlteriş Oğuz Topal, Filiz Topaloğlu Demir, Ersoy Acer, Hatice Duman, and Mehmet Salih Gürel have involved in the data collection, data interpretation and approved the final version of the manuscript.

## ETHICAL APPROVAL

İstanbul Medeniyet University, 27.01.2021/0072.

## CONSENT STATEMENT

The patients signed a statement of written informed consent for the study.

All authors have read and approved the manuscript.

## DATA AVAILABILITY STATEMENT

Data supporting this study are available from the corresponding author upon reasonable request.

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