

# Perception of Cosmetic Procedures among Saudis during COVID-19 Pandemic

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**Background:** A novel coronavirus disease (COVID-19) was first reported in December 2019 in Wuhan, China. The fast spread of the virus has led to a significant reduction in the numbers of elective procedures especially cosmetic interventions. Although many measures have been carried out to offload the health care system, it is unclear whether these changes had an effect on general population perception toward undergoing cosmetic procedures. The aim of this study was to assess the perception of Saudis toward undergoing a cosmetic surgery during the COVID-19 pandemic.

**Method:** An online survey consisting of two parts was used, with a series of questions about cosmetic procedures, in general, and cosmetic procedures during the COVID-19 pandemic, in particular. The survey included Saudis (age 18 to 60 years) with access to social media.

**Results:** A total of 563 respondents participated in this survey. The vast majority were women (86.9%) and were between 18 and 24 years old (38.7%). Some 27.4% considered a cosmetic procedure during the COVID-19 pandemic; however, only 11.9% underwent any. In the majority of the participants (86%), the pandemic did not change their minds about having a cosmetic procedure. About 49.7% agreed that fear of contracting the virus would be a factor for not undergoing a cosmetic procedure during the pandemic.

**Conclusions:** Clear differences in the engagement and perception of cosmetic procedures during the COVID-19 pandemic exist among Saudis. More studies are needed to explore the effects of pandemics on aesthetic practice and to find ways to perform elective procedures in a safe way. (*Plast Reconstr Surg Glob Open* 2021;9:e3710; doi: 10.1097/GOX.0000000000003710; Published online 29 June 2021.)

## INTRODUCTION

According to the American Society of Plastic Surgeons, the number of cosmetic procedures performed over the past 20 years has been increasing worldwide (a rate of 169% between 2000 and 2019), and most of these procedures were minimally invasive.<sup>1</sup> The perception of cosmetic procedures and its impact on self-satisfaction has been highly influenced by media, in which the outcomes of cosmetic procedures are shown in a glorified manner, which changes the society's attitude toward cosmetic surgery.<sup>2</sup>

One of the scales used to evaluate the public perception of cosmetic procedures is Acceptance of Cosmetic Surgery Scale (ACSS), which measures the attitude, society influence, and willingness of an individual to undergo a cosmetic surgery.<sup>3</sup> In South Korea, a study evaluated the experience and acceptance of cosmetic procedures among women in their 20s. Their ACSS score was found to be 66.52, and as their ACSS score increased by one point, their willingness of having a cosmetic procedure was 1.06 times more.<sup>4</sup> A similar study done in Saudi Arabia using the ACSS found that 47.6% were willing to undergo minimally-invasive procedures, and 60.9% of patients agreed to the positive impact of cosmetic surgery on their well-being. Overall, the acceptance of cosmetic surgery was found to be 43.9%.<sup>5</sup>

A novel coronavirus disease (COVID-19) named severe acute respiratory syndrome coronavirus was first reported in December 2019 in Wuhan, China, and was soon declared a pandemic by the World Health Organization in March 2020.<sup>6</sup> Currently, there are more than 31 million cases reported worldwide, more than 966,000 of which resulted in death.<sup>7</sup> The worldwide spread of COVID-19

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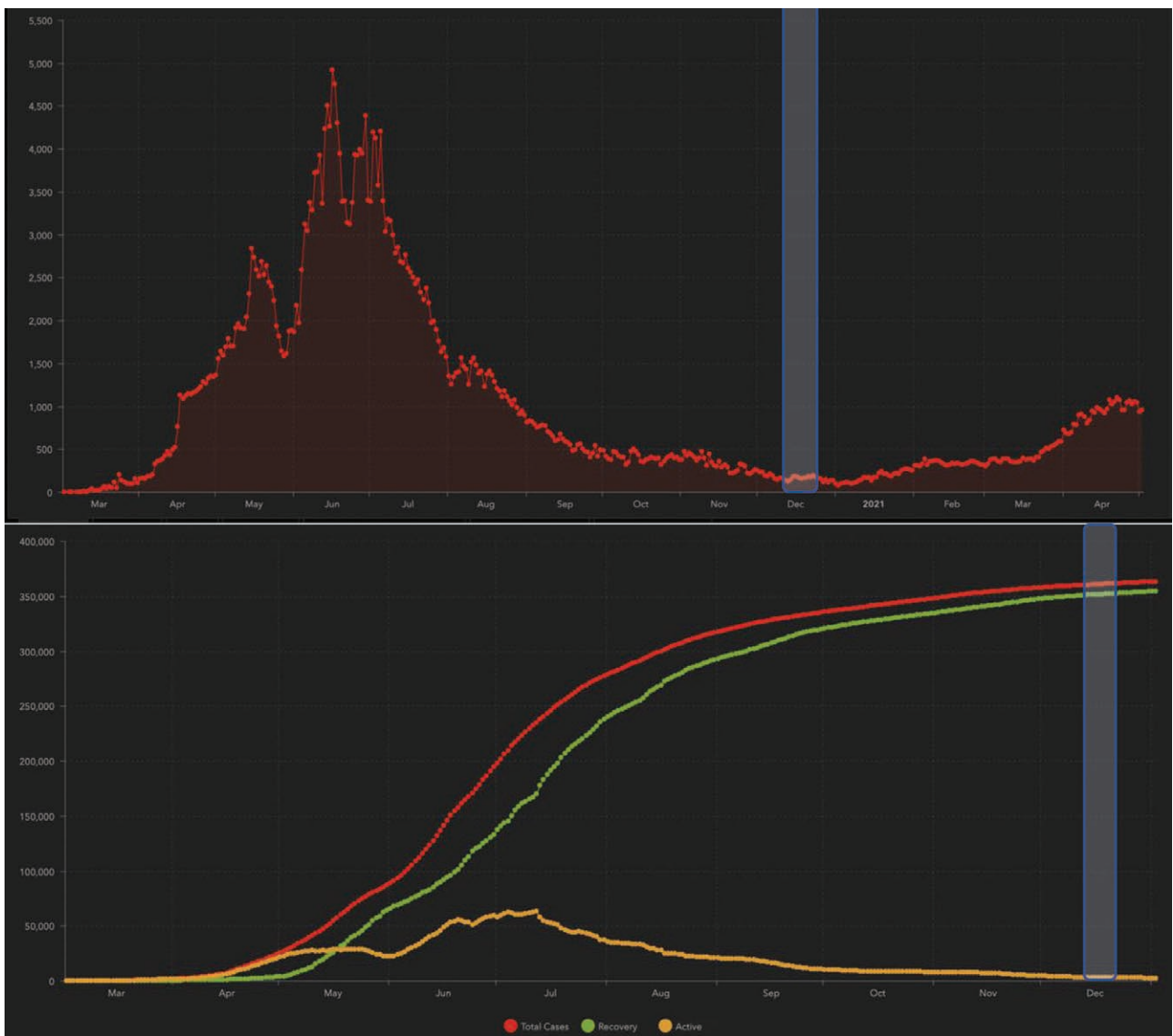
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has led to a steep decrease in the performance of elective nonessential procedures across most specialties in most affected countries and resulted in a huge socioeconomic impact for most private practices and clinics. These measures have been carried out in an attempt to offload the healthcare system, preserve resources, and minimize viral spread.<sup>8</sup>

Due to the cessation of all nonemergent surgical cases worldwide, practices of many physicians have been negatively affected by the COVID-19 pandemic, especially those of plastic surgeons, cosmetic/aesthetic plastic surgeons, as the majority of their cases are semielective and elective. In the field of plastic surgery, multiple articles have summarized the practices of plastic surgery during the COVID-19 pandemic and provided recommendations regarding preoperative care and case prioritization based on current evidence as low acuity, intermediate acuity, and

high acuity, while carefully analyzing the risk and benefit of each surgical procedure.<sup>8,9</sup> In Italy, a significant reduction of the total number of surgical procedures was seen in the COVID-19 period compared with the usual baseline in plastic surgery activity. In the pre-COVID-19 period, a total of 152 surgical procedures were performed during a 7-week period; however, this number was reduced to 98 surgical procedures during 7 weeks after the first COVID-19 case diagnosed in Italy.<sup>10</sup>

Although the world has changed after the COVID-19 pandemic and it is possible that the virus will not disappear for a long period of time, it is unclear whether these changes have been affecting the decisions and perceptions of individuals toward performing cosmetic procedures. Thus, the aim of our survey was to evaluate the perception of nonessential cosmetic procedures among Saudi adults during the COVID-19 pandemic.



**Fig. 1.** Distribution of COVID-19 cases in Saudi Arabia. The shaded area represents the period of survey distribution to public. The upper chart shows the number of active cases, and the lower chart shows the total cumulative numbers of active, recovered, and total number of the cases.

**Table 1. Demographics**

Characteristics		n (n%)
Gender	Men	74 (13.13%)
	Women	489 (86.86%)
Age (y)	18–24	218 (38.72%)
	25–30	124 (22.02%)
	31–40	122 (21.67%)
	More than 40	99 (17.58%)
Region	Central	337 (59.86%)
	Western	35 (6.22%)
	Eastern	94 (16.70%)
	Northern	50 (8.88)
	Southern	47 (8.35)
Social state	Single	334 (59.33)
	Married	205 (36.41)
	Divorced	20 (3.55)
	Widowed	4 (0.71)
Education	School or less	103 (18.29)
	Bachelor	384 (68.21)
	Master/PhD	76 (13.50)
Occupation	Housewife/unemployed	105 (18.65)
	Student	199 (35.35)
	Employee	259 (46.00)
Income	<1300\$	232 (41.21)
	1300\$–2600\$	126 (22.38)
	2600\$–4000\$	112 (19.89)
	4000\$–5300\$	41 (7.28)
	5300\$ or more	52 (9.24)

**MATERIALS AND METHODS**

A cross-sectional questionnaire was distributed online via various social media platforms (Twitter, Instagram, and Facebook) over a period of 1 week (December 14–22 2020) when the curve started to flatten and the lockdown was upheld (Fig. 1).<sup>11</sup> Saudi men and women aged 18–60 years, with access to the Internet and who agreed to participate in the survey were considered eligible. The sample size was calculated to be a minimum of 385 participants.

Ethical approval was obtained from the Institutional Review Board at King Abdullah International Medical Research Center, IRB Project No. IRBC/2136/20. The online survey was administrated to lay public, using GoogleForms. This tool enables secure, anonymous data collection and ensures confidentiality. Informed consent to participate in the survey was obtained before starting the survey and confidentiality was ensured. Respondents received no financial incentive for participation.

The questionnaire has been established and evaluated by an expert, based on the literature review. The

survey was written in Arabic and English so that the public could understand the questions. The results were then translated to English for analysis. The survey included 18 items consisting of various yes/no questions and Likert scale statements. The survey was then piloted on 10 participants, and internal consistency reliability was assessed using Cronbach alpha (0.8174). The exclusion of duplicates was completed by reviewing the IP addresses of the survey respondents. Based on that, we had a response rate of 100% of those who clicked on the survey link.

**Statistical Analysis**

Data were analyzed using the statistical program SAS (version 9.4). It was presented as frequency with a percentage for categorical variables. The Fisher exact test and Chi square test were used for association between categorical variables. All statistical tests were considered significant at a *P* value less than 0.05.

**RESULTS**

A total of 563 respondents participated in this survey. The vast majority were women, between the age of 18 and 24 years and single (34.81%; *P* < 0.0001). Demographic details are summarized in Table 1. Only 25.75% had undergone at least one cosmetic procedure in the past. When asked about the reasons that could be a motivation to undergo a cosmetic procedure, the majority of the participants strongly agreed upon birth defects or previous injuries (75.84%; Table 2). However, of those who had a cosmetic procedure in the past (25.75%), a majority had good prior knowledge of the procedure, with self-satisfaction being the main driving force to undergo these procedures (Table 3).

When asked about cosmetic procedures during the COVID-19 pandemic, 27.35% were considering undergoing a cosmetic procedure; however, only 11.90% underwent a cosmetic procedure during the pandemic (Fig. 2). By assessing the motivational factors to undergo a cosmetic procedure during the pandemic, having enough time to heal/recover from postoperative effects and less busy clinics were the most agreed influencing factors (25.93%). The most significant factor that would affect the decision of not undergoing a cosmetic procedure during the pandemic was fear of contracting

**Table 2. Factors Affecting the Decision to Perform Cosmetic Surgery (N = 563)**

Scale Items	Disagree	Neutral	Agree
I think I have a pretty good knowledge about the procedures I underwent/will undergo	214 (38.01%)	136 (24.16%)	213 (37.83%)
In your opinion, to what extent could these factors be a motivation to undergo cosmetic procedures			
TV programs and social media	130 (23.09%)	106 (18.83%)	327 (58.08)
Social circle (family/friends)	147 (26.11%)	104 (18.47%)	312 (55.42%)
Lack of appearance satisfaction	97 (17.23%)	86 (15.28%)	380 (67.50%)
Birth defects or previous injuries	86 (15.28%)	50 (8.88%)	427 (75.84%)
To what extent do you agree/disagree with the following statements:			
It makes sense to have a cosmetic procedure if it will make the person feel better about him/herself	140 (24.87%)	94 (16.70%)	329 (58.44%)
It makes sense to have a cosmetic procedure to please another person (eg, intimate partner, family member, close friends)	390 (69.27%)	97 (17.23%)	76 (13.50%)
It makes sense to undergo cosmetic procedures if the individual is facing bullying	208 (36.94%)	156 (27.71%)	199 (35.35%)
Cosmetic procedures should be reserved only for people with a medical need	301 (53.46%)	107 (19.01%)	155 (27.53%)

the virus (49.73%). Financial instability was another important factor agreed upon by 44.58% of participants. In regard to the risk of COVID-19 infection, most participants agreed on visitors and hospital visit/admission being factors leading to the infection of the COVID-19 virus (72.11% and 58.8% respectively). Nearly half of the respondents agreed on the fact that cosmetic procedures could be done if COVID-19 infection precautions were taken (54.17%; Table 4).

A subgroup analysis was performed comparing people who had cosmetic surgery during the pandemic to those who did not (Table 5). Having enough time to recover from surgery, good background knowledge about the planned procedure, and better financial status were the main factors that were considered by people who had cosmetic surgery during the pandemic. In regard to risks of contracting the virus, most people who had surgery believe such risk is low especially when adequate precautions were taken.

Surprisingly, 39.79% agreed that cosmetic nonsurgical procedures have the same risk of contracting COVID-19

infection as surgical procedures. When asked about the risk of infection being high with procedures requiring general anesthesia, the majority disagreed 42.63%. Among the individual who underwent a cosmetic procedure during the pandemic, the majority did consider it before the pandemic (77.61%), while the rest considered it during the pandemic (22.39%). In case of those who considered undergoing a cosmetic procedure before the pandemic, the majority did not report having it during the current situation so far (64.13%).

### DISCUSSION

In the light of the current events of the COVID-19 pandemic, our daily lives have been affected severely to the point of compromising unnecessary human contact and having social distancing as restricted measures to decrease the risk of contracting the virus.<sup>12</sup>

Cosmetic procedures could be perceived by many individuals as a form of luxury and not a necessity. In a Google Trends analysis of facial plastic surgery interest during the

**Table 3. Subgroup Analysis of Motivational Factors to Undergo Cosmetic Surgery in People Who Had Cosmetic Surgery versus People Who Did Not Have Cosmetic Surgery**

	Have You Undergone Cosmetic Procedure before?		P
	Yes [n = 145 (25.75%)]	No [n = 418 (74.25%)]	
I think I have pretty good knowledge about the procedures I underwent/will undergo			<0.0001*
Disagree	11 (7.95%)	203 (48.57%)	
Neutral	26 (17.93%)	110 (26.32%)	
Agree	108 (74.49%)	105 (35.12%)	
In your opinion, to what extent could these factors be a motivation to undergo cosmetic procedures			
TV programs and social media			0.0985
Disagree	27 (18.62%)	103 (24.64%)	
Neutral	38 (26.21%)	68 (16.27%)	
Agree	80 (55.17%)	247 (59.09%)	
Social circle (family/friends)			0.1112
Disagree	31 (21.38%)	116 (27.75%)	
Neutral	26 (17.93%)	78 (18.66%)	
Agree	88 (60.69%)	224(53.59%)	
Lack of appearance satisfaction			0.4891
Disagree	19 (13.11%)	78 (18.66%)	
Neutral	22 (15.17%)	64 (15.31%)	
Agree	104 (71.72%)	276 (66.03%)	
Birth defects or previous injuries			0.7673
Disagree	24 (16.55%)	62 (14.83%)	
Neutral	12 (8.28%)	38 (9.09%)	
Agree	109 (75.17%)	318 (76.08%)	
It makes sense to have a cosmetic procedure if it will make the person feel better about him/herself			<0.0001*
Disagree	9 (6.21%)	131 (31.34%)	
Neutral	11 (7.59%)	83 (19.86%)	
Agree	125 (86.21%)	204 (48.80%)	
It makes sense to have a cosmetic procedure to please another person (eg, intimate partner, family member, close friends)			<0.0001*
Disagree	89 (61.38%)	301 (72.01%)	
Neutral	28 (19.31%)	69 (16.51%)	
Agree	28 (19.31%)	48 (11.48%)	
It makes sense to undergo cosmetic procedures if the individual is facing bullying			0.0265*
Disagree	45 (31.03%)	163 (38.99%)	
Neutral	38 (26.21%)	118 (28.23%)	
Agree	62 (42.76%)	137 (32.78%)	
Cosmetic procedures should be reserved only for people with a medical need			<0.0001*
Disagree	113 (77.93%)	188 (44.97%)	
Neutral	19 (13.10%)	88 (21.05%)	
Agree	13 (8.97%)	142 (33.97%)	

\*P < 0.05 is considered statistically significant.



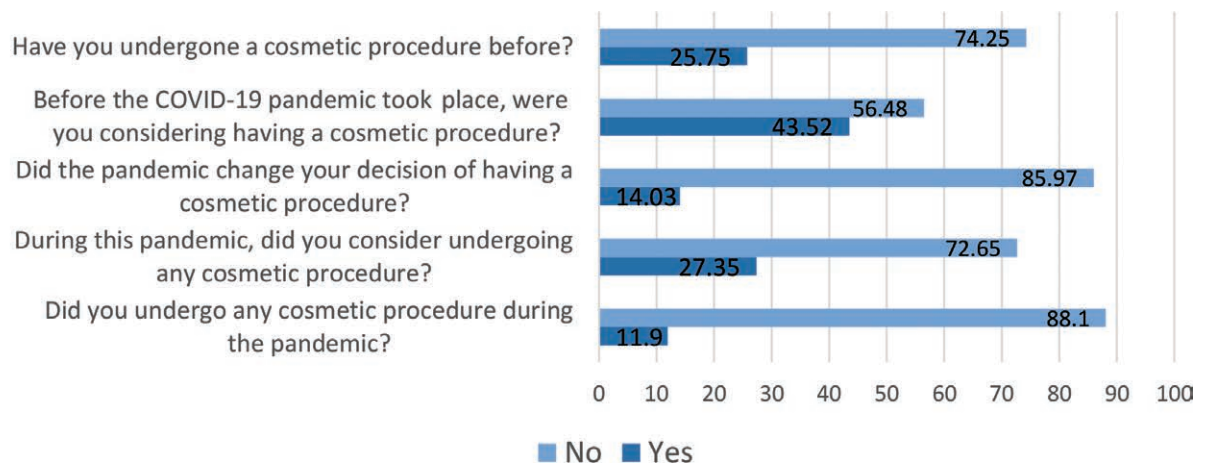


Fig. 2. Opinions about cosmetic surgery during COVID-19 pandemic (%).

COVID-19 pandemic, it was clear that there was a noticeable decline in interest during March and April of 2020 compared with the first two months of the year. However, beginning in May, the relative interest began to rise to pre-pandemic levels. Even though the pandemic still exists now, and cases are still rising, interest in elective procedures as judged by search engine popularity has been increasing.<sup>13</sup> In our survey, a minority underwent a cosmetic procedure during the ongoing situation; however, more than two-thirds of them had been already considering it before the pandemic. Among these, certain motivational factors were noticed. The most significant ones were prior knowledge about the procedures and having more time to recover from surgery during the lockdown, followed by having a better financial status. These findings were also the main differences when we compared people who had surgery during the pandemic with those who

did not. This could be attributed to the free time during the lockdown, working from home, which may be more comfortable and less embarrassing during the recovery time, as well as the possibility of saving money due to the decreased overall expenditures with the limited luxurious activities.

Unexpectedly, for those who were considering undergoing the procedure but refrained from it during the pandemic, it was more due to their financial instability rather than the fear of contracting the virus as it comes in the second place for the factors impacting their decision. This might be related to the economic crisis caused by the COVID-19 pandemic, which in turn had a significant impact on individuals' job and income stability. The COVID-19 pandemic has led to a high rate of unemployment, especially in labor and handy crafts, in addition to the fact that many aesthetic procedures are not

Table 4. Cosmetic Surgery during the COVID-19 Pandemic (N = 563)

Scale Item	Disagree	Neutral	Agree
Factors affecting the decision of undergoing a cosmetic procedure during COVID-19 pandemic (N = 67)			
Free time during the pandemic	34 (50.75%) $\chi^2 = 13.11 (P = 0.0014)$	8 (11.94%)	25 (37.31%)
Advised by someone close to have it at the time	43 (64.18%) $\chi^2 = 11.75 (P = 0.0028)$	7 (10.45%)	17 (25.37%)
Enough time to heal or recover during the lockdown	17 (25.37%) $\chi^2 = 38.55 (P \leq 0.0001)$	12 (17.91%)	38 (56.72%)
Better financial status	20 (29.85%) $\chi^2 = 16.49 (P = 0.0003)$	17 (25.37%)	30 (44.78%)
Cosmetic clinics are less busy during the pandemic	22 (32.84%) $\chi^2 = 8.13 (P = 0.0171)$	21 (31.34%)	24 (35.82%)
Impacted factors on refraining from undergoing a cosmetic procedure during COVID-19 pandemic (N = 93)			
Fear of contracting the virus	27 (29.03%) $\chi^2 = 1.2 (P = 0.5486)$	16 (17.20%)	50 (53.76%)
Financial instability	16 (17.20%) $\chi^2 = 13.58 (P = 0.0011)$	20 (21.51%)	57 (61.29%)
Plan to do it abroad	50 (53.76%) $\chi^2 = 12.35 (P = 0.0021)$	20 (21.51%)	23 (24.73%)
Change of mind	39 (41.94%) $\chi^2 = 2.49 (P = 0.2877)$	30 (32.26%)	24 (25.80%)
Convinced to not have it	56 (60.21%) $\chi^2 = 3.63 (P = 0.1628)$	26 (27.96%)	11 (11.83%)

**Table 5. Subgroup Analysis of Factors Affecting the Decision to Undergo Cosmetic Surgery during the Pandemic in People Who Underwent Cosmetic Surgery versus People Who Did Not Undergo Cosmetic Surgery during the Pandemic**

	Did You Undergo Any Cosmetic Procedure during the Pandemic?		P
	Yes [n = 67 (11.90%)]	No [n = 496 (88.10%)]	
I think I have pretty good knowledge about the procedures I underwent/will undergo			<0.0001*
Disagree	11 (16.42%)	203 (40.93%)	
Neutral	11 (16.42%)	125 (25.20%)	
Agree	45 (67.17%)	168 (33.87%)	
Hospital visit/admissions might lead to the infection of COVID-19 when undergoing a cosmetic procedure			0.0794
Disagree	13 (19.49%)	107 (21.57%)	
Neutral	21 (31.34%)	95 (19.15%)	
Agree	33 (49.25%)	294 (59.27%)	
To what degree would these factors motivate you to undergo a cosmetic procedure during the pandemic			
I got plenty of free time during the pandemic			0.0025*
Disagree	34 (50.75%)	317 (63.91%)	
Neutral	8 (11.94%)	88 (17.74%)	
Agree	25 (37.31%)	91 (18.35%)	
My partner/family/friends advised me to have a cosmetic procedure during the pandemic			<0.0001*
Disagree	43 (64.18%)	375 (75.61%)	
Neutral	7 (10.45%)	68 (13.71%)	
Agree	17 (25.38%)	53 (10.69%)	
Due to the lockdown, I had enough time for healing/recovery from the postoperative effects			<0.0001*
Disagree	17 (25.37%)	272 (54.84%)	
Neutral	12 (17.91%)	116 (23.39%)	
Agree	38 (56.72%)	143 (28.77%)	
Having a better financial status			0.0020*
Disagree	20 (29.85%)	254 (51.21%)	
Neutral	17 (25.37%)	128 (25.81%)	
Agree	30 (44.78%)	114 (22.98%)	
Fear of contracting the virus			0.0406*
Disagree	30 (43.87%)	161 (32.46%)	
Neutral	11 (16.42%)	81 (16.33%)	
Agree	26 (38.81%)	254 (51.21%)	
Performing cosmetic procedures during the pandemic will increase the risk of COVID-19 infection			0.0007*
Disagree	33 (39.26%)	157 (31.66%)	
Neutral	19 (28.36%)	115 (23.19%)	
Agree	15 (22.39%)	224 (45.16%)	
Cosmetic procedures should not be done until the pandemic ends			<.0001*
Disagree	50 (74.63%)	203 (40.93%)	
Neutral	8 (11.94%)	134 (27.02%)	
Agree	9 (13.44%)	159 (32.06%)	
It is okay to undergo cosmetic procedures if COVID-19 precautions are taken			0.0015*
Disagree	5 (7.46%)	123 (24.79%)	
Neutral	11 (16.42%)	119 (23.99%)	
Agree	51 (76.12%)	254 (51.21%)	

\* $P < 0.05$  is considered statistically significant.

covered by insurance.<sup>14</sup> These changes did not only affect the perception of cosmetic procedures among the public, but also the aesthetic practice and plastic surgeons. Arnautovic et al studied the negative impacts of the current pandemic on plastic surgeons' practice. As expected, economical changes and fearing the virus were the most influential factors.<sup>15</sup>

Many participants agreed that any form of contact whether it is direct contact like clinic visitors or indirectly through surgical instruments could account as factors for increasing the risk of infection. This is similar to what has been reported by Gelidan et al in regard to public perception of the transmission of the COVID-19 virus.<sup>16</sup>

Few articles have summarized the practices of plastic surgery and provided recommendations for preoperative

care and case prioritization.<sup>8,9</sup> Nonetheless, more studies are needed to shed the light on aesthetic practice and find ways to preform elective procedures in a safe way.

## LIMITATIONS

The study has several limitations. First, the cross-sectional nature of the survey does not show the timing effect of the pandemic on overall perception of the population. Second, the survey was distributed online through social media platforms, which have a potential selection bias excluding those who did not have access to the survey at that time. Further, the survey was published for 1 week, which may limit the number of participants. Lastly, the descriptive nature of the survey would lower its evidence impact, when compared with prospective studies.

## CONCLUSIONS

Despite the limitations of the survey, clear differences in the engagement and perception of cosmetic procedures during the COVID-19 pandemic exist among the Saudi population. The fear of the virus did not prevent many from having the surgery during the pandemic mostly related to availability of free time for recovery and better financial status. More studies are needed to explore the effects of pandemics on aesthetic practice and find ways to perform elective procedures in a safe way.

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