

The Potential Impact of COVID-19 on Aesthetic Fellowship Programs

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Background: The COVID-19 pandemic has brought about immense change in health care. Surgical specialties in particular have had to make major adjustments because of the cancellation of nonemergent surgeries. Aesthetic surgery fellowships are uniquely affected because of the high number of elective cases and the length of the fellowship. The impact of the COVID-19 pandemic on current and upcoming aesthetic surgery fellows has not been studied.

Objective: The aim of this article was to study the potential impact of the COVID-19 pandemic on both American Society for Aesthetic Plastic Surgeons-endorsed and nonendorsed aesthetic fellowship programs.

Methods: A 23-question anonymous web-based survey was sent to aesthetic surgery fellowship directors with an active program in the United States. Surveys were collected from April 18, 2020, through May 14, 2020, with Qualtrics and then analyzed with Microsoft Excel. A 7-question follow-up survey was sent to directors, and a 23-question survey was sent to aesthetic surgery fellows. Data for these surveys were collected from June 6, 2020, through August 18, 2020. The surveys asked questions pertaining to adjustments and impact on current fellow training, as well as possible impact on fellows starting in 2020 and 2021.

Results: There was a 65.5% (19 of 29) response rate for the initial director survey, a 31% (9 of 29) rate for the director follow up survey, and a 28% (9 of 32) rate for the fellow-specific survey. All directors and fellows reported that the pandemic had some impact on aesthetic fellow training. A total of 5.3% of directors reported that they believe COVID-19 would have a “significant impact” on their fellows becoming well-trained aesthetic surgeons, whereas 66.7% of fellows reported that it will have a “mild impact.” Predicted impact on future fellows was not as significant.

Conclusion: Telemedicine, educational efforts, and standardization of guidelines can be increased to minimize loss of training due to COVID-19. Ongoing evaluation and shared experiences can assist fellowships in customizing programs to provide well-rounded education during the pandemic.

Key Words: aesthetic surgery, aesthetic surgery fellowship, COVID-19, coronavirus, telehealth

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The coronavirus disease 2019 (COVID-19) pandemic has led to rapid and profound changes globally, with health care as no exception. Because of the high transmission rates, COVID-19 has called for social distancing, mask wearing, stay-at-home orders, and various measures to reduce the spread.¹ COVID-19 has caused a significant impact on the US health care field because of the high intensity of cases and shortages of personal protective equipment, hospital beds, and ventilators.² The Centers for Disease Control called for all elective and nonemergent cases

to be postponed until the COVID-19 curve of cases has flattened.^{3,4} This particularly affects surgical fields, as they must reevaluate and shift current practices to minimize the spread and allocate proper personal protective equipment and resources for COVID-19–positive patients and frontline workers.⁵ This further affects surgical residencies and fellowships, aesthetic fellowship surgery included, where most of the training depends on surgical experience.⁶ These changes have caused programs to shift focus and establish rapid solutions so that residents and fellows can still receive training without delay.⁷

The aesthetic surgery fellowship is a highly competitive subset in plastic surgery.⁸ The programs typically start in July each year and range from 6 to 12 months. All 29 active programs that were included in this study were found on the ASAPS website. Because of the unprecedented nature of the novel COVID-19 pandemic, its effects on fellowship programs and training are unknown. A web-based survey was created to gain a better understanding of the current and future implications of the COVID-19 pandemic on aesthetic surgery fellowship training, including the application process for the upcoming cycle. The survey was distributed to all ASAPS aesthetic surgery fellowship directors to gain their insight and perspective on the impact of the COVID-19 pandemic on their program. Follow-up surveys were then sent to fellows in training and those about to start their training.

METHODS

A web-based survey was developed consisting of 23 questions and was distributed to all 29 aesthetic surgery fellowship directors with active programs identified through the Aesthetic Society website. Fellowship directors received emails requesting their participation in the survey, as well as follow-up and reminder letters sent periodically after the initial request. The survey was distributed, and responses were collected from April 18, 2020, through May 30, 2020. All of the data were gathered through Qualtrics and then were analyzed using Microsoft Excel. Many questions aimed to gauge the perceived negative impact of the pandemic, with answers ranging from “significant impact” to “no impact.”

The survey was designed to gauge the current climate of aesthetic surgery fellowship programs and how they are adjusting to the COVID-19 pandemic. The survey included questions pertaining to the impact on the fellow's surgical and clinical experiences and whether there were any adjustments in their training. In addition, questions were included to determine any impact on the interview process and training for fellows starting in July 2020. Demographic questions regarding location were included in the survey, and fellowship directors were given the opportunity to share any additional comments on the topic.

Two additional surveys were sent out on June 6, 2020, to gain a better understanding of the aesthetic fellowship situation. Seven additional questions were sent to fellowship directors to assess which procedures have been affected the most, insight on the potential impact of 2021 fellows, and financial questions. These questions were not asked in the initial survey, and we found that they were important to gauge a deeper understanding. In addition, the 2-month time difference did not impact overall director perceptions because the pandemic had essentially persisted for all of 2020. A 23-question survey was sent to fellows directly to gain their firsthand perspective of the impacts of the COVID-19

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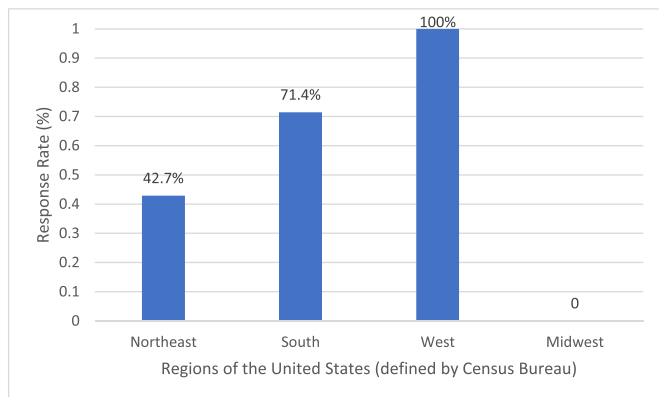


FIGURE 1. Fellowship director response rate by geographical region.

panemic. The ASAPS sent out the initial email and follow-up emails to the fellows to complete the survey. The nature of the questions echoed the same questions as the director survey, but in a first-person format. Data were collected through August 18, 2020.

RESULTS

Overall, 19 of 29 directors responded to the initial survey, giving a 65.5% response rate. After breaking down demographic questions according to the US Census Bureau, it was found that the West had the greatest response rate (100%), followed by the South (71.4%), the Northeast (42.9%), and, lastly, the Midwest (0%) (Fig. 1). The Midwest's response rate can, in part, be explained by there being only 2 aesthetic surgery fellowship programs in the Midwest. More than half of the fellowship directors said that the COVID-19 pandemic had a significant negative impact on the overall experience of all aesthetic surgery fellows (57.9%), and none of the fellowship directors reported that the COVID-19 pandemic had no impact on the fellows (Table 1). The impact did show differences depending on region in the United States. One hundred percent of the directors in the Northeast reported that the COVID-19 had a significant impact on their fellows, followed by the West (66.7%), South (40%), and the Midwest (0%) (Table 2).

In addition, fellowship directors reported impact on the educational and clinical aspects of their fellowships. A total of 94.7% of directors reported that the COVID-19 pandemic has had at least a "mild impact" on the education experiences of their fellows. In addition, all fellowship directors reported that there has at least been a mild impact on the surgical experience of their fellows, with more than half reporting a significant impact. In light of these findings, a little over a quarter of directors reported that the COVID-19 pandemic will have no impact on their fellows becoming well-trained aesthetic surgeons (Table 1).

TABLE 1. Fellowship Director Responses to Questions Regarding COVID-19 Impact on Current and Future Fellows With Responses Recoded From "No Impact" to "Significant Impact"

Characteristic	Significant Impact	Moderate Impact	Mild Impact	No Impact
Overall impact of COVID-19 experience	57.9%	21.1%	21.1%	0%
Impact on educational experience	47.4%	26.3%	21.1%	5.3%
Impact on surgical experience	57.9%	15.8%	26.3%	0%
Impact on becoming a well-trained aesthetic surgeon	5.3%	15.8%	47.4%	31.6%
Impact on new fellows starting July 2020	5.3%	36.8%	31.6%	26.3%

TABLE 2. Regional Impact of COVID-19 on Overall Fellow Experience by Region of United States With Responses From "Significant Impact" to "No Impact"

Overall COVID-19 Impact by Region	Significant Impact	Moderate Impact	Mild Impact	No Impact
Northeast	100%	0%	0%	0%
South	40%	20%	40%	0%
West	66.7%	33.3%	0%	0%
Midwest	0%	0%	0%	0%

Questions pertaining to workload and education were also queried. A total of 68.4% of fellowship directors reported a "75–100% reduction" in the normal day-to-day workload of their fellows. More than half of the fellows in the Northeast, West, and South reported a 75% to 100% reduction in workload. Six fellowship directors reported having a focused interest in their program (body contouring, breast, oculoplastic, and other), and of these 6 programs, 83.3% of these directors reported 75% to 100% reduction in the day-to-day activities of their fellows. In addition, more than half of all fellowship directors reported a 75% to 100% reduction in the amount of clinical education their fellows were receiving (Table 3). More than a quarter of directors reported that they are still performing surgical cases during the period of the survey, which included facial aesthetic surgery, aesthetic breast surgery, body aesthetic surgery, and facial trauma surgery (Table 4).

New fellows for aesthetic surgery fellowship programs were planned to start in July 2020. A total of 42.1% of program directors reported at least a "moderate impact" on the new fellows (Table 1). Fellowship directors who reported an impact answered that Zoom conferences, Skype sessions, and phone interviews would be used. A total of 15.8% of directors anticipated delays with the start date of the new fellows, and 10.5% of directors reported that the COVID-19 pandemic affected the interview process of their new fellows (Table 4).

In addition, just under half of the directors reported that their current fellows do not participate in telehealth clinics, and 5.3% of directors reported that they had a fellow pulled from fellowship duties to participate as part of care teams for patients with COVID-19, with that one program being in the Northeast. Directors reported a wide range of dedicated academic time prior and during the COVID-19 pandemic. In addition, 94.7% of directors reported that they were using adjunct resources to substitute for lost clinical/surgical experiences, which included online lectures, surgical videos, self-study methods, research, telemedicine, and other avenues (Table 4).

Additional comments in free-form format were given from 4 fellowship directors. One mentioned that the pandemic timing worked well

TABLE 3. Fellowship Director Responses to Questions Regarding COVID-19 Impact on Current Fellows With Responses Recoded From "0% to 25% Reduction" to "75% to 100% Reduction"

Characteristic	75%–100% Reduction	50%–75% Reduction	25%–50% Reduction	0%–25% Reduction
Impact on normal day-to-day workload	68.4%	26.3%	0%	5.3%
Impact on amount of clinical education	57.9%	26.3%	5.3%	10.5%
Impact on day-to-day workload of fellowships with a focused interest	83.3%	0%	0%	16.7%

TABLE 4. Fellowship Director Responses to Questions Regarding the COVID-19 Pandemic

Questions	Director Response
Still performing surgical cases	36.8%
Fellows do not participate in Telehealth clinics	47.4%
Before COVID-19 had 0–5 h of academic time	31.6%
Before COVID-19 had 6–10 h of academic time	31.6%
Before COVID-19 had 11–15 h of academic time	15.8%
Before COVID-19 had 16–20 h of academic time	0%
Before COVID-19 had 20+ h of academic time	21.1%
During COVID-19 had 0–5 h of academic time	47.4%
During COVID-19 had 6–10 h of academic time	15.8%
During COVID-19 had 11–15 h of academic time	5.3%
During COVID-19 had 16–20 h of academic time	5.3%
During COVID-19 had 20+ h of academic time	26.3
Using resources to substitute for lost clinical/surgical experiences	94.7%
Does anticipate delays with new fellow start date in July	15.8%
COVID-19 did impact the interview process for new fellows	10.5%
Had a fellow pulled from fellowship duties to participate as part of care teams for patients with COVID-19	5.3%

because it was toward the end of the fellowship, but job seeking for graduates might be a challenge because most practices are under economic hardship. Another director mentioned that the upcoming fellow declined the fellowship offer to pursue job searching. One added that their fellow was not able to get the proper paperwork during the COVID-19 pandemic, and they are looking for a new fellow. Lastly, a director mentioned that their respective institution was initially going to defer fellowship entry for the upcoming academic year.

Nine fellowship directors responded to the follow-up survey, giving a response rate of 31%. A total of 78% of directors reported that facial aesthetic surgery has been affected greatly by COVID-19, followed by body aesthetic surgery (55.6%), injectables (33.3%), breast aesthetic surgery (44.4%), and facial trauma surgery (22.2%). Questions pertaining to the 2021 fellows revealed that 77.8% of directors do not anticipate delays with these fellows, and only 11.1% of directors reported that COVID-19 affected the interview process. More than half of directors said that they anticipate no impact on the 2021 fellows because of COVID-19. A total of 88.9% of directors reported that they were able to provide the same salaries and benefits to their fellows. Additional comments echoed that things will be different throughout their practice if a vaccine is not created, and one added that blue states might not resume normal operation as quickly as red states.

TABLE 5. Fellow Responses to Questions Regarding to Overall Impact of COVID-19 on Various Aspects of Their Training With Responses Recoded From “No Impact” to “Significant Impact”

Characteristic	Significant Impact	Moderate Impact	Mild Impact	No Impact
Overall impact of COVID-19 experience	33.3%	55.6%	11.1%	0%
Impact on educational experience	11.1%	33.3%	55.6%	0%
Impact on surgical experience	22.2%	33.3%	44.4%	0%
Impact on becoming a well-trained aesthetic surgeon	0%	11.1%	66.7%	22.2%

Nine aesthetic surgery fellows responded to the fellow-only survey, giving a 28% response rate (9 of 32). Three responses were from the South, 3 from the West, 2 from the Midwest, and 1 from the Northeast. Three fellows had a focused interest in facial aesthetic surgery, and all programs were 1 year long. A total of 33.3% of fellows reported a significant impact on the overall impact of COVID-19 on their experience (Table 5).

With regard to overall experience and outlook, questions pertaining to education, clinical, and fellows' own thoughts on their capability were asked. A total of 11.1% reported a significant impact on their education experience, and 22.2% reported a significant impact on their surgical experience. None of the fellows reported a significant impact on their ability to become a well-trained aesthetic surgeon (Table 5). Questions about daily workload and clinical education were additionally asked. A total of 33.3% of fellows reported a “50% to 100% reduction” in their normal day-to-day workload. The impact on day-to-day workload of fellows with a focused interest was also looked at, with 0% reporting a 75% to 100% reduction. In addition, 44.4% reported a “0% to 25% reduction” in their clinical education (Table 6). More than half of the fellows reported that facial aesthetic, aesthetic breast, body aesthetic, and injectables are the procedures that have been affected the most.

One hundred percent of fellows are still performing surgical cases, and 22.2% of fellows do not participate in telehealth clinics. One hundred percent of fellows have been able to substitute any lost experience through online lectures, surgical videos, self-study, research, and telemedicine. Academic times also varied slightly from before and after COVID-19. In addition, 11.1% of fellows were pulled from their fellowship duties to participate as part of care teams for COVID-19–positive patients, and 22.2% volunteered. Questions about future plans and financial issues were also asked. More than half of fellows reported that COVID-19 did impact the job interview process for them, and a third of fellows anticipate issues with securing a job after their fellowship ends. In addition, 22.2% reported that their salaries and benefits were lowered (Table 7).

DISCUSSION

The effects of the COVID-19 pandemic on health care have led to mass changes in all fields of medicine. The necessity of postponing all nonemergent or elective cases to help maintain safety and reallocate resources early on in the pandemic means that fields like aesthetic surgery have had to make significant adjustments.^{9,10} This poses challenges because aesthetic plastic surgery training in residency is limited, and the solution to this problem are fellowship programs in this field.⁸ If the fellowship programs are compromised or postponed, it can affect training and, potentially, the types of services future aesthetic surgeons would offer to patients.

Overall, all of the fellowship directors in the study expressed that the COVID-19 pandemic has had at least a mild impact on the field of plastic surgery. In addition, when divided by regions, 100% of Northeast

TABLE 6. Fellow Responses to Questions Pertaining to Daily Impact of COVID-19 Recoded From “0–25% Reduction” to “75% to 100% Reduction”

Characteristic	75%–100% Reduction	50%–75% Reduction	25%–50% Reduction	0%–25% Reduction
Impact on normal day-to-day workload	11.1%	22.2%	33.3%	33.3%
Impact on amount of clinical education	11.1%	33.3%	11.1%	44.4%
Impact on day-to-day workload of fellowships with a focused interest	0%	33.3%	33.3%	33.3%

TABLE 7. Fellow Responses to Questions Regarding the COVID-19 Pandemic

Questions	Director Response
Still performing surgical cases	100%
Fellows do not participate in Telehealth clinics	22.2%
Before COVID-19 had 0–5 h of academic time	55.6%
Before COVID-19 had 6–10 h of academic time	33.3%
Before COVID-19 had 11–15 h of academic time	11.1%
Before COVID-19 had 16–20 h of academic time	0%
Before COVID-19 had 20+ h of academic time	0%
During COVID-19 had 0–5 h of academic time	44.4%
During COVID-19 had 6–10 h of academic time	44.4%
During COVID-19 had 11–15 h of academic time	11.1%
During COVID-19 had 16–20 h of academic time	0%
During COVID-19 had 20+ h of academic time	0%
Using resources to substitute for lost clinical/surgical experiences	100%
Anticipates issues with securing a job after fellowship ends	33.3%
COVID-19 did impact the job interview process	55.6%
Was pulled from fellowship duties to participate as part of care teams for patients with COVID-19	11.1% pulled 22.2% volunteered
Salary benefits were continued through pandemic	77.7% were same 22.2% were lowered

fellowship directors said they felt a significant impact, followed by the West with 66.7% of directors saying that they felt a significant impact. This makes sense because of New York in the Northeast being one of the hardest hit states early on, along with California in the West. This impact may also be attributed to the length of each fellowship. Because the fellowships are 6 months to 1 year long, a few months off of training is insurmountable. Three of the nonendorsed ASAPS fellowships are 6 months long, whereas the ASAPS-endorsed fellowships are generally a year, but guidelines state that they can be 6 months if there is a focused interest. All fellowship directors said there was at least a mild impact on the surgical experience of the fellowship, and 94.7% said that there was at least a mild impact on the education experience of their fellows. Aesthetic surgery fellowships revolve heavily on procedures, often with the fellow being first assistant on most cases, as well as didactic learning and research.⁶ The pandemic has led to less time in the operating room and interacting with patients, especially with only 36.8% of fellowships still performing cases at the time of the survey. In addition, 94.7% of programs do 25% or less reconstructive surgery, focusing more on aesthetics. These surgeries were some of the first elective cases to be postponed because of early pandemic guidelines, which could have severely restricted these program fellows' time in the operating room. Fellow responses to similar questions yielded similar overall results. All fellows reported at least a mild impact on their overall experience, educational experience, and surgical experience. Both directors and fellows agreed that facial aesthetic surgery, body aesthetic surgery, aesthetic breast surgery, and injectables are procedures that had been affected greatly.

The overall workload of the fellows had also decreased, with 94.7% of directors saying that their fellows have had at least a 50% reduction in their day-to-day workload. A total of 83.3% of fellowship directors whose program has a focused interest reported at least a 75% workload reduction. Programs with focused interests tend to be only 6 months, so not only are they decreasing their workload daily, but they also could have been missing up to half of their intended surgical cases. A total of 89.57% of directors said that they have felt at least a mild

impact on the clinical education of their fellows. Despite these findings, only 5.3% of directors said that they believe that there has been a significant impact for their fellows to become well-trained aesthetic surgeons. This may be because the pandemic and restrictions hit closer to the end of the fellowship training times, when fellows had learned the bulk of their training as mentioned by one of the directors. Fellow responses to similar questions yielded slightly different results. Fellows reported generally less of a reduction in their normal day-to-day workload and reductions in their clinical education. In addition, the fellows with a focused interest all reported less than a 75% workload reduction. None of the fellows reported that COVID-19 will have a significant impact on their ability to become a well-trained surgeon. These discrepancies may be due to the small number of responses and the difference in time frame. As the pandemic has progressed, the more recent months may have allowed fellows to get closer to their normal schedules as more information and protocols have been put into place.

July was the start date for new incoming fellows, and despite uncertainty on when the pandemic will subside, 26.3% of fellowship directors stated that they anticipated no impact on their new fellows. In addition, only 15.8% of fellowship directors said that they anticipate delays, and 89.5% of fellowship directors said that they were able to interview as normal for their new fellows. However, they did add that Zoom calls, Skype sessions, phone interviews, and other adjustments were made to accommodate. In addition, directors reported that the 2021 fellows should not be affected significantly. The majority agree that they were able to interview as normal and should not expect delays for the 2021 fellows. The current impression seems that there is less of an impact on future aesthetic surgery fellows; however, this is also dependent on the length of the restrictions and evolution of the pandemic.¹⁰ If a new surge in cases occurs, this may change.

Fellowship programs not being able to perform at full capacity have left some strain on directors. At least 1 program had to close because of financial constrain, and some are struggling. Two fellows reported that their salaries and benefits had to be lowered because of COVID-19, which causes a strain on future attendings and may impact decision making on their future jobs. A total of 55.6% of fellows reported that COVID-19 did impact their interviews for their attending job positions post their fellowship, and 33.3% anticipate securing a job after their fellowship ends. Although many do have jobs lined up, the uncertainty of the pandemic may alter the original plans of some fellows.

In addition, 47.4% of fellowship directors and 22.2% of fellows reported that their programs do not participate in telemedicine, and overall, there has not been a large shift in the amount of academic time fellows have. Programs can use this time to fully implement telemedicine, which would still allow for patient encounters, consults, and follow-up visits.^{1,4} Doing so can help integrate telemedicine into fellowship programs even during nonpandemic times for a more efficient process and also allow them to be readily prepared for future global emergencies.^{1,11} Fellowships can also take this time to increase academic activity. Currently, 94.7% of directors have said that their fellows are using other resources to substitute for lost surgical experience, including online lectures, surgical videos, self-study methods, research, telemedicine, and other avenues. This shows the great effort that individuals are taking to minimize any hindrances due to the COVID-19 pandemic; however, a structured plan can be established to standardize learning and goals. There are also economic issues to consider during this time. Because most aesthetic surgery cases are out-of-pocket services, the economic deficit that the COVID-19 pandemic has caused for many patients may deter aesthetic surgery volumes in the immediate future.⁵ The toll that the COVID-19 pandemic might take on the field itself must be taken to consideration, and adjustments and education can be made during this time to help alleviate future concerns.⁵

As with any survey-based study, our study has several limitations. First, the cross-sectional nature and the long-term changes and impact on resident education were not explored. However, this study

gives us a unique perspective from fellowship directors and fellows on adaptation to a changing educational environment. Second, these surveys were not validated through rigorous measures but were constructed using multi-institutional input with pilot studying. Recall bias could also impact responses. This initial survey is strengthened by the substantial response rate (65.5%) from fellowship directors nationally, supporting the generalizability of these findings. However, our follow-up survey to the directors only had 9 responses and may not fully represent director data for those additional questions. These secondary questions, however, were targeted to more specific questions, whereas the initial survey answered the director's overall perceptions, which was the main focus of the study. Our fellow survey additionally only had 9 responses, and this small sample size may skew the data and not be representative as well. However, we believe these additional surveys were necessary to gain a deeper understanding and insight from the fellows firsthand. Furthermore, the 1 fellowship director in the Midwest did not respond, potentially skewing the geographic-specific data. In addition, as mentioned previously, certain areas of the United States were more acutely and profoundly affected by COVID-19 in the initial stages and had greater restrictions on health care services and the general public. Information and guidelines about the pandemic are quickly evolving, and many of the predictions are based on current knowledge, which may change even in the near future as more information becomes available.¹⁰ This study is a snapshot of the perceptions during this specific period, and follow-up surveys should be sent out to assess trends over time as more information becomes available and to assess whether attitudes are guided more by institutional policy, state regulations, news outlets, or personal anticipation. Ongoing evaluations on how the COVID-19 pandemic might impact the training of current and future fellows should be assessed. This rapidly evolving pandemic is plagued by uncertainty, and stakeholders should abide by the most recent information to make decisions.

During the summer of 2020, as most of the country was opening up for business and other routine activities, many felt that the worst of the pandemic was nearing an end. In surgery, elective cases, including aesthetic procedures, were resumed. Now in the fall of 2020, a new surge in the intensity of the pandemic seems to be occurring. Times and events are still uncertain, and some even predict another slowdown or, worse, another lockdown. Restructuring efforts will undoubtedly impact fellowship training, where skills require consistent exposure to master surgical technique. To counter the loss of operative experience may be an option to maintain surgical skill. Oral board-style case preparation can also be a valuable way to refine clinical decision making during off-service times.

CONCLUSION

This article aimed to evaluate the potential impact of the COVID-19 pandemic on current and future aesthetic surgery fellows from the perspective of program directors and fellows early on in the pandemic. The COVID-19 pandemic has posed rapid and major changes in training for fellows, with reduced surgical and education experiences. Aesthetic surgery fellowship directors recognized a significant negative impact on their fellows, but most stated that they did not feel an impact on their ability to become quality surgeons. Fellows recognized a moderate impact, and most stated that they feel a mild impact on their ability to become a well-trained surgeon. Fellowship directors also did not anticipate major impacts to future fellows. However, the pandemic is constantly evolving, and further evaluation of long-term impacts should be explored. Programs can use this time to reevaluate policies, protocols, educational priorities, and workflow patterns to better position themselves for the future.

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