

The COVID-19 Pandemic Changed the Prevalence of Plastic Surgery in Israel

Ariel Tessone MD^{1,2} and Moti Harats MD^{1,2}

¹Department of Plastic and Reconstructive Surgery and National Burn Unit, Sheba Medical Center, Tel Hashomer, Israel

²Talpiot Medical Leadership Program, Sheba Medical Center, Tel Hashomer, Israel

ABSTRACT

Background: In late 2019, a new strain of coronavirus (coronavirus disease 2019 [COVID-19]) spread rapidly throughout the world. The American Society of Plastic Surgeons reported a pandemic-related surge in the demand for aesthetic surgery compared to the same popularity of procedures prior to the pandemic. **Objectives:** To determine whether this phenomenon also occurred in Israel.

Methods: We collected data from three leading private medical centers in Tel Aviv. Data were compared for the years 2019 and 2020 by surgical procedure. Number of orthopedic, gynecologic, and hand procedures served as control data.

Results: We present a detailed pandemic-related timeline relevant to aesthetic surgery in Israel. Overall, the demand for aesthetic surgery increased, with a marked trend toward body contouring procedures.

Conclusions: The Israeli aesthetic surgery market was affected by the COVID-19 pandemic, with a post-closure surge. The popularity and number of procedures are unique to the Israeli market.

IMAJ 2023; 25: 182–186

KEY WORDS: aesthetic surgery, coronavirus disease 2019 (COVID-19), pandemic

In late 2019, a new strain of coronavirus (COVID-19) spread rapidly around the world. The first reported death occurred on 11 January 2020, and the first confirmed patients outside mainland China were reported on 20 January in Japan, South Korea, and Thailand, and on 21 January in the United States. On 30 January, the WHO declared a global health emergency [1].

The first confirmed patient with COVID-19 in Israel was reported on 27 February 2020 [2], and the first COVID-19 related death on 20 March [3]. In early March 2020, national prevention measures were taken. These actions culminated in the declaration of the first of three complete closures, on 14 March (cessation of all non-essential commercial, recreational, industrial, and educational activities) and a complete lockdown (stay-at-home policy) on 25 March 25.

On March 18, the Israeli Society of Plastic, Reconstructive, and Aesthetic Surgery issued a non-mandatory directive to its members and to the Ministry of Health recommending the cessation of all non-urgent procedures, including all cosmetic interventions and aesthetic surgical procedures. This directive was based on a perceived global and national shortage in ventilators and intensive care units with suitable facilities and staff. On 19 April, the Israeli Society of Plastic, Reconstructive, and Aesthetic Surgery retracted its recommendation. During the month of suspension, elective surgery was suspended in the public system as well, including aesthetic procedures covered by insurance/health-maintenance organizations (i.e., breast reduction, abdominoplasty, brachioplasty, thigh lift).

During the year 2020 compared to 2019, the American Society of Plastic Surgeons reported a marked pandemic-related surge in the demand for aesthetic surgery. The same popularity of procedures remained as prior to the pandemic. Rhinoplasty was the most popular surgical procedure, followed by blepharoplasty, face lift, liposuction, and breast augmentation [4,5]. These five procedures were also the most popular procedures in 2019, although the order of popularity differed [6]. Reports in the mass media reported similar trends universally [7–10].

We hypothesized that the same phenomenon would be observed in Israel, based on major cultural and aesthetic influences the United States exerts on Israel (parts of Europe also share in the same cultural sphere; however, cultural diversity makes data less coherent). While an overall surge would be noticeable, no major changes in the popularity of any single procedure would be observed (apart from the order among the leading procedures).

The aim of this study was to validate or refute this hypothesis and to find differences between the Israeli and global plastic surgery markets.

PATIENTS AND METHODS

We collected data from three leading private medical centers in Tel Aviv that have countrywide referral bases. Data were compared by

procedure type and month for the years 2019 and 2020, according to surgical procedures. Volumes of orthopedic, gynecologic, and hand procedures served as control data based on a weaker cultural connection (the exception being pregnancy termination).

The plastic surgeries for which data were collected included breast augmentation, breast reduction, mastopexy with or without augmentation, abdominoplasty, and body contouring (brachioplasty, thigh lift), liposuction, rhinoplasty, otoplasty, face and neck lifts, gynecomastia correction, explantation or exchange of implants, blepharoplasty, and combined procedures.

Data from all three centers were combined and analyzed as an aggregate for commercial reasons.

RESULTS

OVERALL VOLUME OF PROCEDURES

The overall volume of cosmetic procedures increased in 2020 compared to 2019 in all three participating centers. The relative change, however, varied widely from an increase of 8% to 67%. Of note, these numbers do not reflect operating room occupancy and are restricted by operating room capacity. As some centers were closer to full capacity pre-pandemic, the increase in volume was milder. By comparison, data from the years 2019 and 2020 for the participating centers showed a 5% decrease in

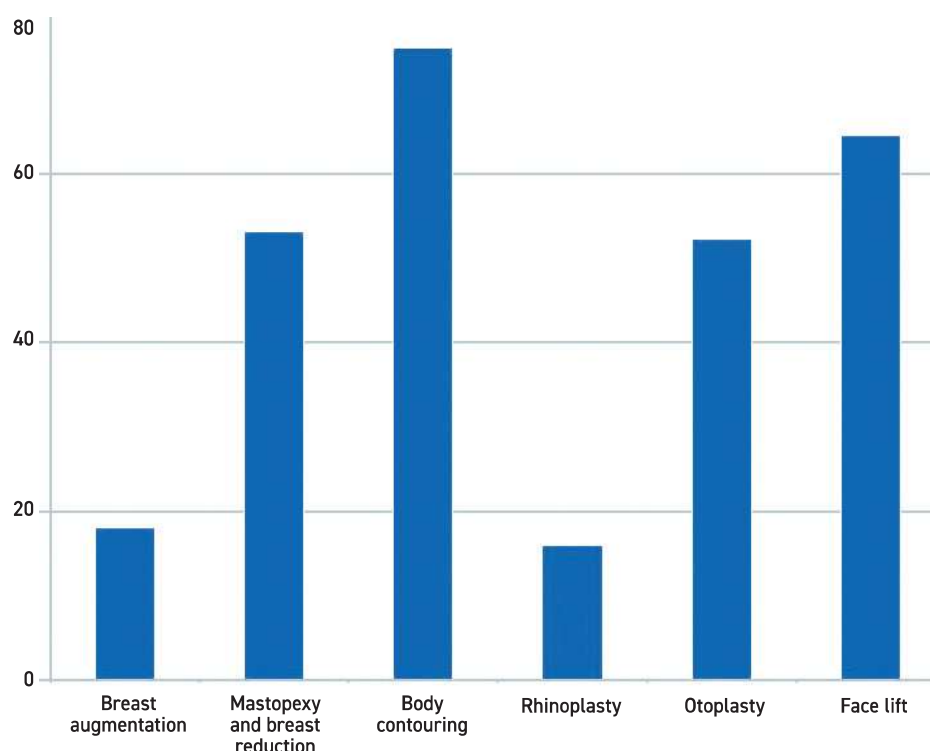
volume of hand surgery, 6% increase in volume of gynecologic procedures (including termination of pregnancy), and no change in the volume of general orthopedic procedures.

SPECIFIC CHANGES IN THE VOLUMES OF PROCEDURES

Figure 1 shows the relative change (%) for each procedure between 2019 and 2020. All but two categories showed a marked increase in popularity (> 50%). These two categories without increase were rhinoplasty, which is the most popular procedure, and breast augmentation. One explanation may be the lack of room to grow. Breast augmentation is a procedure with popularity challenges regardless of the pandemic.

- *Breast augmentation:* The average increase between the years 2019 and 2020 was 18.1%, the range was -8.2% to 55.5%.
- *Mastopexy, with or without augmentation, and breast reduction:* These procedures were aggregated due to similar demographics. The average increase was 53.1%, range 16.4–92.0%.
- *Body contouring procedures:* These procedures included abdominoplasty, brachioplasty, thigh lift, liposuction, and combined procedures. They showed an average increase of 74.9%, range 11.8–136%.
- *Rhinoplasty:* The average change in volume was 16%, range -21.0–62.6%.
- *Otoplasty:* The average change in volume was 52.2%, range 2.4–119%.

Figure 1. Relative Change 2019 to 2020 (%) by procedure



- *Facial procedures:* The procedures included face lifts, neck lifts, brow lifts, and blepharoplasty. These procedures increased by an average of 64.5%, range 17.1–154%.

For certain procedures (e.g., breast augmentation, rhinoplasty, and otoplasty), the number of procedures decreased at some centers. However, this finding is likely due to surgeon migration between centers rather than to a drop in popularity of the procedure, as evident from the average changes across centers and a compensatory increase in neighboring centers.

THE RELATIVE POPULARITY OF THE PROCEDURES

Rhinoplasty was the most popular procedure in the participating centers, and reduction/pexy mammoplasties were the second most popular. These findings did not change between 2019 and 2020. Likewise, facial procedures as an aggregate held fifth place in both 2019 and 2020 in the participating centers, and otoplasty held sixth place in both years [Figure 2].

While both breast augmentation and body contouring increased between 2019 and 2020, the increase in breast augmentations was moderate (18.1%), while body contouring increased dramatically (74.9%). This difference resulted in body contouring procedures becoming the third most popular procedure in the participating centers in 2020, replacing breast augmentation, which became the fourth most popular.

MONTHLY VOLUME OF THE PROCEDURES

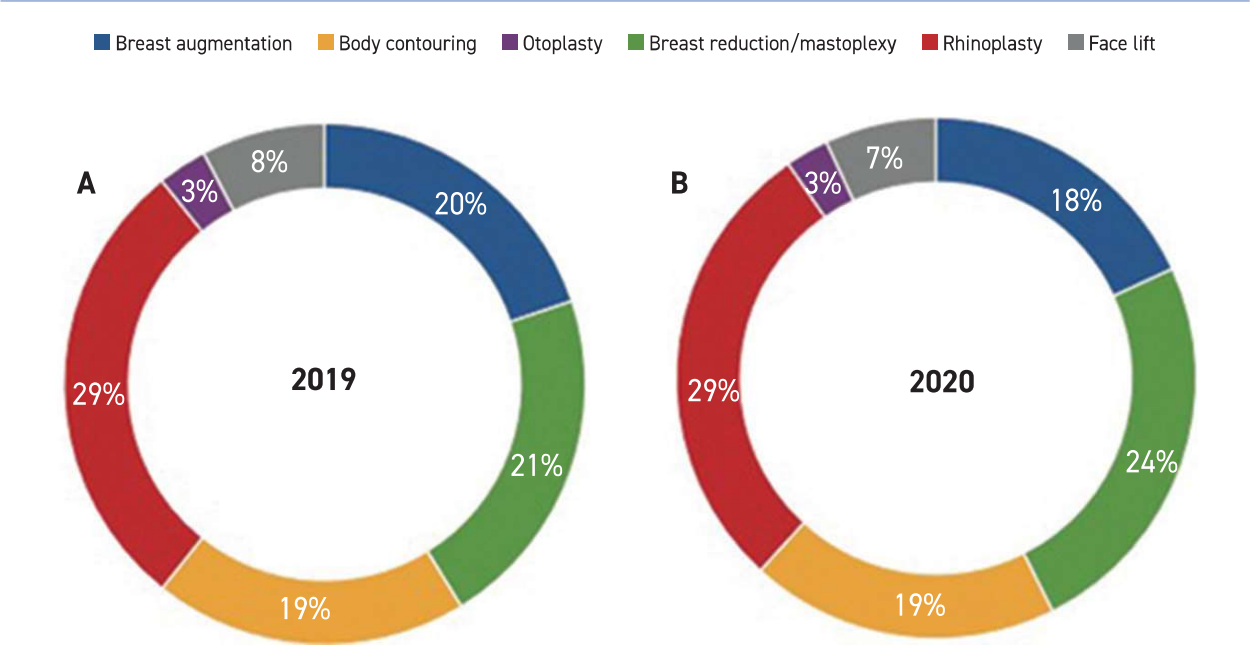
We analyzed the monthly distribution of procedures for 2019 and 2020. In January, February, and March 2020, we found little to no change in the overall volumes of procedures performed, compared to the volumes in these months in 2019 (-0.58%, +6.35%, and -1.67%, respectively). However, in April 2020, we found a reduction of 91.3% compared to April 2019. During the rest of 2020, we found that the volume of procedures performed was about double that of the respective months in 2019. This increase included temporary surges in May, June, and November (an increase of approximately 135%) and a peak in August 2020, during which the volume more than tripled compared to August 2019.

Peak increases were observed in breast augmentation in May (197%) and August (186%); in mastopexy and breast reduction in June (229%) and August (260%); in body contouring in May (172%), June (185%), and July (175%); and in rhinoplasty in August (243%), November (270%), and December (202%).

DISCUSSION

The 2020 COVID-19 pandemic had a marked effect on the global aesthetic surgery market, with a rebound surge in the demand for aesthetic surgery and minor changes in the relative popularity of certain procedures. Of note, the American Society of Plastic Surgeons reported a total drop of 14% in aesthetic surgery for 2020 compared to 2019, with an average hiatus of 8.1 weeks in surgical activity [11]. Israel also experienced a surgical

Figure 2. The relative popularity of each procedure in two participating centers in [A] 2019 and [B] 2020 with no major changes in that metric



hiatus, but only for 1 month. We examined whether the Israeli aesthetic surgery market followed U.S. trends. We assumed that the U.S. market was a good representation of the western market as a whole. We collected data from three leading private surgical centers in Tel Aviv for the years 2020 and 2019 and compared volumes by procedure type and month.

Overall, the data collected showed a surge, in the demand for plastic surgery in Israel following the first lockdown with procedure numbers rising by double-digit percentages, up to a 67% increase. This positive trend echoes other positive trends reported in the U.S. market. Since the surgical hiatus in Israel was shorter than in the United States, the effect on the total number of procedures performed in Israel during 2020 was minimal. The surge following the first lockdown completely counterbalanced the lost time and even augmented the regular demand for aesthetic procedures. Of note, one surveyed center showed a lower increase in volume than the other two. This finding is probably due to capacity limitations of the operating room since this center was operating at over 90% occupancy prior to the pandemic. Operating room capacity limitations were also reflected in procedure-specific increases at that center. Nevertheless, we found an increase of 40–50% in the demand for aesthetic surgery in 2020 compared to 2019. In comparison, other non-plastic elective and semi-elective procedures surveyed did not experience the same increase in demand, apart from that which can be explained by population growth (a finding that coincides with a 4.5% annual growth in aesthetic surgery between the years 2018 and 2019 prior to the pandemic).

PANDEMIC AND PANDEMIC-RELATED RESPONSE EFFECTS

Our data showed a clear temporal connection between the pandemic timeline and the number of procedures performed with January, February, and March of 2020 exhibiting comparable numbers to those of the respective months in 2019. On 18 March 2020 the pandemic-related cessation of elective surgery began, which may explain a slight decrease in the number of procedures compared to March 2019. This effect exacerbated during April 2020, with a sharp decline in procedures to close to zero. Due to the retraction on 19 April 2020 of the directive by the Israeli Society of Plastic Surgery to halt elective surgery, the number of procedures was expected to decrease to 30%, which could have been expected for that month. However, the actual volume showed a gradual return to full capacity. This volume can be explained by confusion and extra precautions by both surgeons and patients. For example, the safety of rhinoplasty to both patients and surgeons with regard to COVID-19 precautions was not clear and continued to be debated and investigated during the spring of 2020 [12]. The remainder of 2020, however, was defined by a growing demand for aesthetic surgery, with a volume of about double that of respective months in 2019. A temporary peak was experienced in May and June 2020, the 2

months following the return to regular elective surgical activity. This change can probably be explained by a *rebound effect*, by which procedures that had been postponed from April were performed during these 2 months. The surge in procedures during the second half of 2020 (July–December), however, merits a different explanation. While elective surgery returned to normal during these months, the rest of the Israeli market continued to experience periodic closures and transitioned to a remote work mode. These changes, coupled with an almost complete halt in commerce, leisure activities, and international travel, enabled potential patients time to recuperate from surgery and available funds to undergo surgery. These effects were not noticed in other elective and semi-elective procedures.

SPECIFIC PROCEDURES

Rhinoplasty has increased in popularity in recent years and has become the most popular aesthetic surgical procedure. Some have speculated that a *selfie effect* [13] caused an erroneous self-image and prompted people to seek rhinoplasty. In our study, rhinoplasty was the most popular procedure prior to the COVID-19 pandemic but sustained the greatest decline in numbers. At least one center reported not performing any rhinoplasties during April 2020 (100% decline). The return to rhinoplasties was also slow. The sharp decline and slow recuperation, however, had only a mild effect on the total number of rhinoplasties performed in 2020, during which the overall increase was 16%. One possible explanation is that the *selfie effect* was enhanced by a *zoom effect*, especially among high school and university students using cellular phones to attend lectures remotely (compared to home-office laptop or desktop computers that produce a more balanced self-image).

Breast reduction and mastopexy continued to be very popular, closures and remote work added a benefit of longer recuperation time. These procedures showed an average 53% increase, an effect shared with body contouring procedures, which increased by 75% on average. The marked increase caused body contouring procedures to surpass breast augmentation and to become the third most popular category of procedures in our study. Since liposuction and abdominoplasty comprise most of procedures in that category, and these procedures share demographics with reduction/pexy mammoplasty, we concluded that similar factors may explain the trends of both categories. This conclusion is supported by the recent popularity of combined breast and body contouring procedures (i.e., mommy makeover) in recent years [14].

LIMITATIONS

Our study was of a limited scope. Although we surveyed three leading medical centers, we estimate that the procedures included in this study represent only 13.5% of the aesthetic surgical procedures performed in Israel in 2020. Since all participating centers are in Tel Aviv, the possibility of a

geographic bias should be considered. However, Israel is a small country (commute times of less than 5 hours from the furthest locations to Tel Aviv), and individuals from remote locations in the country choose to undergo elective surgeries in Tel Aviv.

We could not obtain 2018 data for this study, and it may well be argued that the increase we observed was part of a general multi-year exponential year-over-year increase; however, this multi-year effect has not been observed and reported and the increase we observed far outweighs Israel's population growth.

Differences between the three surgical centers in reporting methods did not enable analyzing data for single procedures within categories, which could have yielded more precise conclusions.

Last, this study only compared the first year of the pandemic to the previous year. The possibility of a permanent change in the popularity and prevalence of aesthetic surgical procedures should be considered. This permanent change will be demonstrated or refuted when further data regarding procedure numbers in post-pandemic years will be retrospectively analyzed.

CONCLUSION

Following the first lockdown of the COVID-19 pandemic, the demand for aesthetic surgical procedures increased in Israel, similar to the trend in the U.S. market. This effect was sufficient to counteract external influences (the cessation of elective procedures during March and April 2020) in contrast to other geographical regions with longer closure periods. Another finding is that the COVID-19 pandemic did not change, but rather emphasized the preference in the Israeli plastic surgery market for breast and body procedures over facial procedures other than rhinoplasty. Notably, body contouring procedures became more popular than breast augmentation. As an affluent society with sunny conditions and a very high ratio of shoreline to total area the large volume of breast and body procedures is not surprising.

Correspondence

Dr. A. Tessone

Dept. of Plastic and Reconstructive Surgery, Sheba Medical Center,
Tel Hashomer 5262000, Israel
Email: ariel@tessonemd.com

References

1. U.S. Centers for Disease Control and Prevention. CDC Museum COVID-19 Timeline [Available from <https://www.cdc.gov/museum/timeline/covid19.html>]. [May 2021].
2. Report on first confirmed COVID-19 patient in Israel [Available from <https://www.kan.org.il/Item/?itemId=67303>]. [May 2021].
3. Report on first COVID-19 death in Israel [Available from https://www.mako.co.il/news-israel/2020_q1/Article-72d797add79f071026.htm]. [May 2021].
4. Will the plastic surgery boom last after the pandemic? [Available from <https://www.plasticsurgery.org/news/blog/will-the-plastic-surgery-boom-last-after-the-pandemic>]. [May 2021].
5. American Society of Plastic Surgeons Unveils COVID-19's Impact and Pent-Up Patient Demand Fueling the Industry's Current Post-Pandemic Boom [Available from <https://www.plasticsurgery.org/news/press-releases/american-society-of-plastic-surgeons-unveils-covid19s-impact-and-pent-up-patient-demand-fueling-the-industrys-current-post-pandemic-boom>]. [May 2021].
6. 2019 plastic surgery statistics [Available from <https://www.plasticsurgery.org/documents/News/Statistics/2019/plastic-surgery-statistics-report-2019.pdf>]. [May 2021].
7. Zoom calls have Australians rushing for cosmetic surgery [Available from <https://thenewdaily.com.au/life/wellbeing/2020/07/20/cosmetic-surgery-coronavirus-popular/>]. [May 2021].
8. I can recover at home: Cosmetic surgeons see rise in patients amid pandemic [Available from <https://www.bbc.com/news/world-53341771>]. [May 2021].
9. Warning over surge in demand for cosmetic surgery in Japan amid pandemic [Available from <https://english.kyodonews.net/news/2020/05/c925fb9fd14b-warning-over-surge-in-demand-for-cosmetic-surgery-in-japan-amid-pandemic.html>]. [May 2021].
10. Masks, remote work boost appeal of plastic surgery [Available from <https://koreajoongangdaily.joins.com/2020/05/12/industry/plastic-surgery-plastic-surgery/20200512174807920.html>]. [May 2021].
11. Pandemic Took a Cut of Cosmetic Procedures in 2020. Richard Franki [Available from <https://www.medscape.com/viewarticle/950917>]. [May 2021].
12. Covid-19 and Rhinoplasty [Available from <https://rhinoplastysociety.eu/covid-19/>]. [May 2021].
13. Ward B, Ward M, Fried O, Paskhover B. Nasal distortion in short-distance photographs: the selfie effect. *JAMA Facial Plast Surg* 2018; 20 (4): 333-5.
14. Roberson A. Mommy Makeover: A Plastic Surgery Trend. [Available from <https://www.webmd.com/beauty/features/mommy-makeover-a-plastic-surgery-trend#1>]. [May 2021].

The fact that we live at the bottom of a deep gravity well, on the surface of a gas-covered planet going around a nuclear fireball 90 million miles away and think this to be normal, is obviously some indication of how skewed our perspective tends to be.

Douglas Adams (1952–2001), English author, screenwriter, essayist, humorist, satirist and dramatist; author of *The Hitchhiker's Guide to the Galaxy*

No horse gets anywhere until he is harnessed. No stream or gas drives anything until it is confined. No Niagara is ever turned into light and power until it is tunneled. No life ever grows great until it is focused, dedicated, disciplined.

Harry Emerson Fosdick (1878–1969), preacher and author