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Shortage of Plastic Surgeons in Lebanon: Impact of the 2019 Economic Crisis

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Background: Lebanon's ongoing economic crisis since 2019 has seen an unprecedented migration of professional healthcare workers. This article analyzes the adequacy of registered plastic surgeons in Lebanon in 2023.

Methods: A list of registered plastic surgeons was obtained from the Lebanese Order of Physicians. Registered plastic surgeons were contacted via email or phone and were asked to fill in a survey questionnaire addressing their work status. Additionally, the number of plastic surgeon graduates, between 2018 and 2022, was obtained from Lebanese medical schools.

Results: Of the 162 plastic surgeons registered with the Lebanese Order of Physicians in 2023, 158 responded to the survey (97.5%). The work settings of the active plastic surgeons fell into three categories: working in Lebanon full time, splitting work between Lebanon and abroad, and exclusively working abroad. The ratio of plastic surgeons practicing full time in Lebanon is 1.11 per 100,000 inhabitants, which is significantly below the recommended ratio of 2.01. Twenty eight percent of the plastic surgeons working in Lebanon are aged between 65 and 75 years. Meanwhile, an average of only three graduates (2018–2022) enter the workforce annually after completing training in plastic and reconstructive surgery residency. Among the various subspecialties within plastic and reconstructive surgery, aesthetic surgery was the most commonly practiced by those surveyed.

Conclusions: There is a relative shortage of plastic surgeons in Lebanon that is compounded by a significant focus on aesthetic procedures. Implementation of strategies is needed to bridge this gap and meet the needs of the underserved people of Lebanon. *(Plast Reconstr Surg Glob Open 2024; 12:e5593; doi: 10.1097/GOX.0000000000005593; Published online 7 February 2024.)*

INTRODUCTION

Surgical diseases have significantly contributed to the global health burden, where approximately 11% of the world's total disability-adjusted life years (DALYs), or years of full health lost by an individual(s), are accounted for by surgically correctable disabilities.[1] This impact varies across different regions of the total DALYs: from 7% in Africa to 15% in Europe.[1] Such wide disparities raise concerns about the role and adequacy of surgical services in healthcare systems in underserved and socioeconomically vulnerable countries.[2]

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Plastic and reconstructive surgery is considered one of the pillars of the surgical disciplines and one of the founding specialty boards among the 20 boards recognized by the American Board of Medical Specialties. The procedures defined by the discipline form the treatment cornerstones for a plethora of medical conditions leading to lethal illness and disability. Most notably, traumatic and occupational injuries, malignancies, and congenital anomalies alone account for 66% of the estimated DALYs that are addressed by services within the scope of plastic and reconstructive surgeons.[3]

In developing countries, there is an insufficient distribution of physicians in general, and plastic surgeons in particular. China and India have around 1.5 plastic surgeons per million population, which is approximately 20 times less than that in North America, where the ratio is about 17 plastic surgeons per million.[4] The ratios are

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even lower in the third-world and developing countries, as exemplified by the scarcity faced in sub-Saharan Africa. Uganda's population of 27 million is served only by three plastic surgeons, a ratio of one per 9 million population.[4] Given that a large proportion of plastic surgeons worldwide focus their practices on aesthetic surgery, these low ratios become even more poignant.[5,6] Aesthetic surgery represents a service that is universally demanded by all population groups. However, its impact on reducing the overall disease burden with a favorable impact on DALY is miniscule.[3]

Since 2019, Lebanon has been lingering in the throes of an economic crisis that has seen a 90% devaluation of its currency. As the Lebanese pound is pegged to the US dollar, a dramatic rise in inflation coupled with retail supply shortages occurred. Consequently, healthcare professionals, including specialist physicians, have migrated or started to work at least part-time abroad, to offset their shrinking purchasing power. In 2021, around 400 doctors had left Lebanon.[7] By 2023, the Lebanese Order of Physicians (LOP) estimated that the number had grown to 3500 physicians, representing almost a quarter of the physician population in the country.

Our study aimed to investigate the adequacy and practice scope of plastic surgeons currently active in Lebanon, besides examining the annual number of plastic surgery specialists graduating from accredited training programs in the country. From these data, we hope to infer the adequacy of the available plastic surgeons in relation to the demand in an underserved nation. The results of this study will provide a framework for future policy measures to address these problems within Lebanon and possibly in other underserved nations.

Takeaways

Question: Amid the unprecedented migration of professional healthcare workers in Lebanon in 2023, starting with the economic crisis of 2019, does Lebanon still have an adequate number of plastic surgeons?

Findings: A survey is designed targeting the registered plastic surgeons in Lebanon in 2023; it encompasses questions related to their work activity status, work setting (in Lebanon or abroad), and subspecialty focus. A relative shortage of plastic surgeons in Lebanon that is compounded by a significant focus on aesthetic procedures was observed.

Meaning: Implementation of suitable strategies is needed to bridge the anticipated gap in plastic surgeons with respect to the needs of the underserved people of Lebanon.

MATERIAL AND METHODS

2023 LOP-registered Physician Characteristics

Biographic data of physicians was obtained with permission from the LOP branches of Beirut and Tripoli, and was used solely for conducting this study. All physicians who have practiced medicine after passing the standardized colloquium examination are registered in one of those two branches of the LOP. Lists contain biographical information that includes physicians' names, dates of birth, phone numbers, email addresses, clinical specialties, and home and clinic addresses, when applicable.

Plastic Surgeon Work Status, Work Settings, and Practice Patterns

Lists were filtered to obtain only physicians registered under the specialty of plastic and reconstructive surgery. The sample for this study (n = 162) represents 1.1% of the total number of registered physicians in the LOP (n = 15,059). A survey was sent to these physicians via email, with recurring reminders sent every 2 weeks for 2 months. In cases where physicians were unreachable by email, we contacted them by telephone. The survey was designed in Google Docs to encompass questions related to work activity status, work setting (in Lebanon or abroad), and subspecialty focus. [**See figure, Supplemental Digital Content 1,** which displays the survey designed to encompass questions related to work activity status, work setting (in Lebanon or abroad), and subspecialty focus of registered plastic surgeons in Lebanon. **http://links.lww.com/PRSGO/D59**.]

Graduates of Lebanese Plastic and Reconstructive Surgery Residency Programs

As of 2023, there are seven medical schools in Lebanon, with three of these offering postgraduate residency training in plastic and reconstructive surgery. Data were collected from these schools on the number of plastic and reconstructive surgery trainee graduates from 2018 to 2022.

RESULTS

2023 LOP-registered Physician Characteristics

According to the data provided by the LOP in Beirut and Tripoli, 162 (1.1%) plastic surgeons were identified among a total of 15,059 registered doctors. There were 149 male (92%) and 13 female surgeons (8%), with an average age of 52 ± 13 years. Among the 162 registered plastic surgeons, only four had inaccurate or unavailable contact details. The rest were successfully contacted, yielding a response rate of 97.5% (n = 158).

Regarding the age distribution of active surgeons, those under 55 years of age represent a group making up 60% (n = 89) of all active registered plastic surgeons. Those aged 60 years or older make up almost one quarter of all active surgeons at 24% (n = 36; Fig. 1).

Plastic Surgeon Work Status, Work Settings, and Practice Patterns

Among the 158 surveyed plastic surgeons, 92.4% (n = 146) of respondents indicated they were actively practicing in their specialty, 1.9% (n = 3) were engaged only in nonclinical academic or administrative roles, and 5.7% (n = 9) were retired or had stopped working altogether.

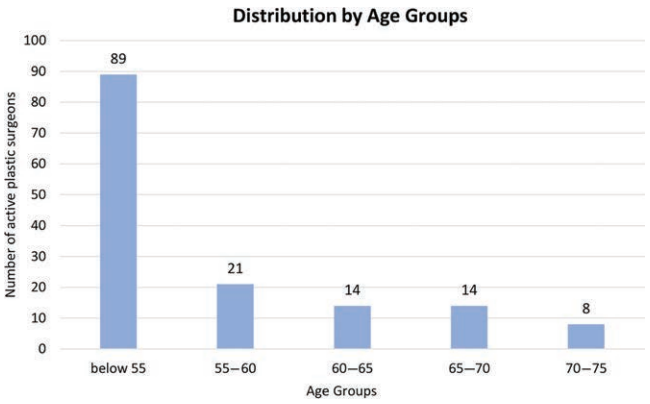

Fig. 1. Graph showing the distribution of active plastic surgeons by age groups.

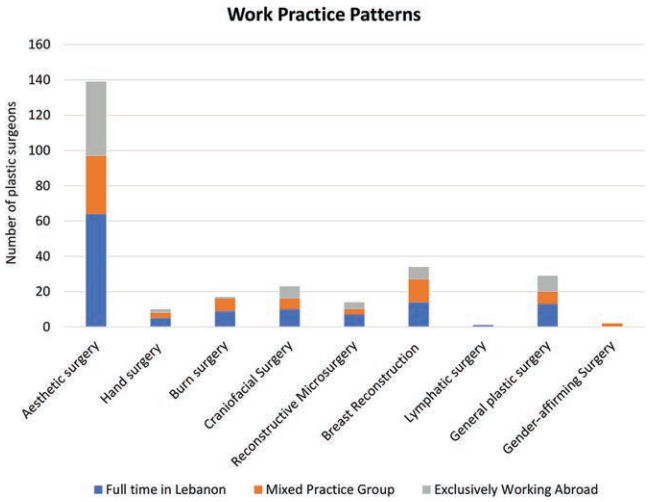

Fig. 2. Graph showing the work practice pattern of registered plastic surgeons in FTL, MP group, and EWA groups.

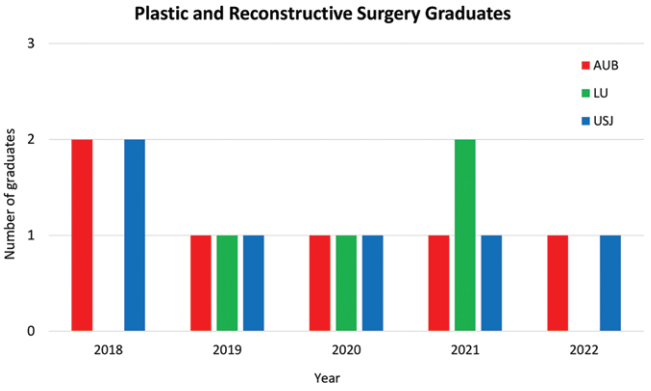

Fig. 3. Graph showing the number of annual graduates from plastic and reconstructive residency programs from medical schools in Lebanon, including American University of Beirut, Lebanese University, Saint Joseph University of Beirut, Beirut Arab University, Lebanese American University, The Holy Spirit University of Kaslik, and University of Balamand.

Of the 146 actively registered plastic surgeons, 45.2% (n = 66) of respondents indicated that they were practicing full time in Lebanon (FTL), 30.1% (n = 44) were exclusively working abroad (EWA), and 24.7% (n = 36) practiced in both Lebanon and abroad, representing a mixed practice (MP). Among the MP group, 63.9% (n = 23) reported splitting their practices between three and more than three countries (including Lebanon), and 36.1% (n = 13) had started working abroad after the 2019 economic crisis.

In the EWA group, 56.8% (n = 25) had decided to establish their work abroad immediately after completion of their residency training while maintaining their registration with the LOP. The other 43.2% (n = 19) had already been established full-time Lebanese surgeons who left after the crisis in 2019.

Among the 66 plastic surgeons in the FTL group, main focus areas of subspecialty practice were as follows: aesthetic surgery, 97% (n = 64); hand surgery, 7.6% (n = 5); burn surgery, 13.6% (n = 9); craniofacial surgery, 15.2% (n = 10); reconstructive microsurgery, 10.6% (n = 7); breast reconstruction, 21.2% (n = 14); lymphatic surgery, 1.5% (n = 1); and general plastic surgery, 19.7% (n = 13; Fig. 2). Note that some surgeons identified more than one subspecialty area as their focus of practice, thus accounting for a percentage greater than 100.

In the MP group, 91.7% (n = 33) reported a main practice focus of aesthetic surgery; 8.3% (n = 3), hand surgery; 19.4% (n = 7), burn surgery; 16.7% (n = 6), craniofacial surgery; 8.3% (n = 3), reconstructive microsurgery; 36.1% (n = 13), breast reconstruction; 19.4% (n = 7), general plastic surgery; and 5.5% (n = 2), gender-affirming surgery (Fig. 2).

Among the 44 practitioners in the EWA group, the main subspecialty focus was as follows: 95.5% (n = 42), aesthetic surgery; 4.5% (n = 2), hand surgery; 2.2% (n = 1), burn surgery; 15.9% (n = 7), craniofacial surgery; 9.1% (n = 4), reconstructive microsurgery; 15.9% (n = 7), breast reconstruction; and 20.4% (n = 9), general plastic surgery (Fig. 2).

Graduates of Lebanese Plastic and Reconstructive Surgery Residency Programs

From 2018 to 2022, three of the seven medical schools in Lebanon had accredited plastic and reconstructive surgery residency training programs, and a total of 16 surgeons graduated over that span (Fig. 3). This comes out to approximately three newly graduated plastic surgeons entering the workforce or joining posttraining fellowship programs annually.

DISCUSSION

Due in part to its unique confessional government structure, Lebanon has not conducted an official population census since 1932. Based on unofficial data though, Lebanon's population is expected to exceed 5.9 million people in 2023.[8] Our study indicates that the population ratio of active plastic surgeons in Lebanon, is approximately 1.73 per 100,000 inhabitants (2.05 before 2019). This ratio drops to 1.11 plastic surgeons per 100,000 (1.66 before 2019) if we consider only those working FTL. Based on several academic and healthcare industry

methodologies in determining acceptable physician-to-population ratios for various specialties, an average ratio of 2.01 plastic surgeons per 100,000 is considered sufficient.[9] Before the 2019 economic crisis, the ratio of plastic surgeons in Lebanon was consistent with these findings.

According to our survey, 62.5% of surgeons practicing abroad were doing so in the wealthier Gulf nations, which are by far the most common foreign practice destinations of part-time Lebanese plastic surgeons. The diversion of plastic surgeons to the nearby Gulf region has made it a viable option for those needing to supplement their income. This has placed an added strain on the remaining surgeons in Lebanon to provide care to an already underserved population, beside a loss in Lebanon's privileged status in the Middle East and North Africa region as an aesthetic medicine tourist destination.

A closer look at reconstructive subspecialties within plastic surgery, burn management, hand surgery, and trauma and cancer reconstruction show critical needs. Burn injury, for example, ranks as the eleventh most significant factor contributing to children's deaths and the fifth most common cause of nonfatal injuries in children worldwide.[10] Burns often require a protracted treatment course involving secondary management of burn scar contractures and joint mobility.[11] Our data identified 17 registered plastic surgeons performing burn management and reconstruction surgery. Only nine (53%) practice FTL, and of these nine, two work as full-time surgeons in Getaoui Hospital, the only specialized burn center in Lebanon. The rest practice at the American University of Beirut Medical Center (AUBMC) and other academic medical centers in Lebanon but focus on secondary treatment. Yamamoto et al cited that 0.5 burn centers are required for every 1 million inhabitants of a developing country.[12] With roughly 6 million inhabitants, Lebanon would need no less than three specialized centers. The challenge to building these centers is compounded by a weak central government that is unable to finance their establishment. Moreover, rampant poverty combined with a drastically underfunded Ministry of Public Health (MOPH) leaves a significant percentage of the population vulnerable to public health hazards. Although there are a few general surgeons who offer basic burn surgery treatments, burn injuries of even moderate acuity are mainly handled in the only specialized burn center in Lebanon, underscoring a shortage of adequate facilities.

Hand surgery is mainly involved in treating hand and upper extremity trauma. For the multitude of manual laborers in Lebanon, this represents a significant occupational health hazard. Our data revealed that only eight plastic surgeons practicing in Lebanon performed hand surgery. Only five are active in Lebanon on a full-time basis, and one was identified who performs complex secondary and microsurgical reconstruction. The other seven perform uncomplicated elective hand surgery procedures (ie, carpal tunnel decompression, trigger finger releases, and so on). The relative paucity of skilled hand surgeons was further worsened in 2019, with the loss of two hand surgeons who left to practice abroad. Although some orthopedic surgeons perform hand surgery, their contribution is limited to basic elective procedures. To our knowledge, no orthopedic surgeon in Lebanon performs complex or secondary reconstructive procedures such as complex tendon reconstruction, microsurgery, or finger replantation. This unmet need becomes evident when observing the many acute and chronic hand injuries referred to AUBMC from all over Lebanon, where a dedicated hand surgeon performs all complex reconstruction.

Breast reconstructive surgery has evolved drastically in the last few decades with the development of many new techniques in implant-based and autologous reconstruction. With earlier detection and better medical treatment, there has been a shift toward breast preservation and reconstruction. We identified 27 plastic surgeons in Lebanon who perform breast reconstruction. Only two performed advanced microsurgical breast reconstruction, and one of those transitioned to a full-time practice in the United States after 2019.

Reconstructive microsurgery is a sorely needed subspecialty in Lebanon. In addition to reconstruction after tumor extirpation, Lebanese plastic surgeons also deal with a relatively large number of blast injuries due to unexploded ordnances littering the southern region of Lebanon. We identified 10 plastic surgeons who perform reconstructive microsurgery: four of them are working in AUBMC and in Hotel Dieu de France – Universite Saint Joseph "HDF – USJ." Of these, only one performs lymphatic microsurgical reconstruction with free tissue transfer. The remaining six perform neurovascular microsurgical reconstruction. This leaves a ratio of only 1.5 microsurgeons for every 1 million, in a country where 6 million people reside.

Nearly 9% of surgical disease burden is attributed to congenital anomalies, where cleft lip and palate are among the most prevalent, affecting one of every 500–1000 live births.[13,14] Sixteen craniofacial surgeons were identified by our survey, all of whom treat facial fractures, soft tissue trauma, facial reconstructive surgery after tumor extirpation, and craniofacial anomalies (ie, cleft lip and palate). Of these, only eight focus on treating craniofacial malformations, and four practice FTL. However, only two work as part of a multidisciplinary team that provides appropriate and comprehensive cleft and craniofacial care. This number is grossly insufficient to serve a population of 6 million people, and while head and neck surgeons are available, none are focused on treating craniofacial malformations. The Global Smile Foundation organizes two medical missions yearly to address this deficit. Although these missions provide almost 50 cleft and craniofacial procedures annually, the lack of a long-term follow-up does not compensate for the comprehensive care provided by a dedicated multidisciplinary team.

The largest subspecialty practiced by Lebanese plastic surgeons is aesthetic surgery, with 95% (n = 97) of plastic surgeons indicating it as the main focus. Given the quality and affordability of plastic surgery in Lebanon, it was at one point ranked second behind Brazil in the number of aesthetic procedures performed per capita.[15] With the

ever-increasing demand in Lebanon and in the nearby Gulf nations, aesthetic subspecialties offer a more lucrative venue for plastic surgeons than any reconstructive ones.

Data obtained from the medical schools in Lebanon show that between 2018 and 2022, an average of three plastic surgery trainees graduated annually from their respective residency programs. LOP data showed that roughly 50% of newly graduated plastic surgeons opted to pursue some degree of practice abroad. This ratio is alarming, considering the aging plastic surgeon population in Lebanon, where 28% of active surgeons in fall in the 65–75 age group. This is partly because older doctors are not able to retire due to their meager retirement reserves. Although the LOP provides a form of social security for retired physicians, it is not sufficient to cover the expenses of daily living. Walker et al reviewed the 2009 American Medical Association statistics and found that nearly 37% of plastic surgeons practicing were older than 55 years; nevertheless, a decline in skills must be considered with aging.[16] The combination of an aging surgeon population and a greater number of new graduates opting to practice outside will soon transform a shortage of practitioners into an outright crisis.

Despite our findings, there are limitations to this study. Data collection via a qualitative method is influenced by recall bias of the respondents surveyed. The subject of a future study might investigate the actual procedures performed throughout Lebanon by each plastic surgeon, to delineate actual practice patterns more accurately. One issue is the lack of a centralized data bank for case logs in Lebanon. As the MOPH requires all surgical procedures to be performed in a hospital setting, these data would require obtaining privileged case logs from all hospitals, and would be impractical for our purposes.

A set of potential solutions can be considered to tackle the problem of plastic surgeon shortage in Lebanon. The LOP must formulate a strategy for deciding the number of trainees enrolled in plastic and reconstructive residency programs, to fill the anticipated growing gap in the upcoming years. Training programs also need to gear their training toward the reconstructive subspecialties, and to work collaboratively with the LOP and the MOPH. Moreover, foreign trainees in the university hospitals may address shortages in times of necessity, though they only account for 2%–3% of the total trainees in Lebanon. This requires a memorandum of understanding agreement between structures in need and university hospitals, allowing foreign trainees to work in their facilities under the supervision of a local specialist. Finally, Lebanon has always had collaborations with its plastic surgeon specialists in the diaspora, who actively participate in humanitarian missions to offset shortages during these difficult times.

It is worth mentioning that by early 2023, the private business sector in Lebanon has adapted to the economic circumstances, and particularly the healthcare system (which is mainly privatized) requires payments for services in US dollars. Thus, remitting partial payments to their staff in dollars to offset the volatility of the Lebanese pound. Anecdotally, we have noticed a few of our colleague physicians returning to practice in Lebanon. However, although many healthcare facilities have readapted, banks continue to impose capital controls on all personal and business accounts maintained in US dollars, making it difficult for the average Lebanese citizen to afford health insurance and healthcare services. This substantially decelerates the progress of plastic surgery medicine within the country. Thus, an ideal solution for the Lebanese government is to provide viable healthcare coverage for its population, while also funding public hospitals to allow them to support plastic surgeons who deliver comprehensive reconstructive services. Achieving such a goal, however, is at the very least, contingent upon an injection of funds into the Lebanese banking system from the International Monetary Fund, and this is currently unlikely, given Lebanon's divided political landscape.

CONCLUSIONS

As presented earlier, the data show a low ratio of plastic surgeons in Lebanon in 2023, with a skewed preference toward aesthetic surgery. Different strategies are suggested to encourage retention of more plastic surgeons in Lebanon and to place emphasis on practice patterns that align with the needs of an underserved population.

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DISCLOSURE

The authors have no financial interest to declare in relation to the content of this article.

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ETHICAL APPROVAL

The Ethical Committee at the LOP validated the survey and approved it for use (approval no.: LOP—1298/ 2023)

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