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FATAL FLAWS: THE LETHAL IMPACT OF UNLICENSED BEAUTY TREATMENTS

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Abstract. *The article examines the fatal consequences of unlicensed cosmetic procedures conducted without proper medical oversight and licensing. The study aims to analyze the impact of these illegal services on the health and lives of consumers and to identify effective regulatory measures to mitigate the risks associated with unlicensed activities in the beauty industry. General scientific methods, such as literature review, comparative analysis, statistical analysis, and expert evaluations, were utilized during the research. Based on the research findings, it can be concluded that the demand for cosmetic procedures in the United States has steadily increased, with a significant annual growth rate in various regions. Despite this growth, certain regions, notably the Northeast and Mountain regions, exhibit higher rates of unsuccessful surgeries. This suggests that while the popularity and frequency of cosmetic procedures are rising, there are disparities in the success rates across different areas, highlighting the need for improved standards and practices in plastic surgery to ensure patient safety and successful outcomes. Analysis of unlicensed procedures within the US also revealed serious issues. Overall statistics indicate that the most common medical problems associated with illegal cosmetic procedures include severe infections, serious allergic reactions, and long-term consequences such as deformities and disabilities. Medical facility data show a high level of recorded complications, highlighting the risks consumers face when choosing cosmetic services without proper medical supervision. The conclusion drawn from the data underscores the urgent need for expanded informational campaigns and educational programs to inform consumers about the risks associated with unlicensed cosmetic procedures. Additionally, strengthening the legislative framework and increasing regulatory oversight are crucial to reducing the prevalence of unlicensed practices and enhancing the safety of cosmetic procedures. The practical significance of the study lies in providing recommendations for regulatory bodies and professional medical associations to improve the safety of cosmetic services and reduce the number of accidents related to unlicensed procedures.*

Keywords: *unlicensed procedures, cosmetic complications, medical tourism, regulation, hygiene standards.*

Introduction

In the modern world of beauty and aesthetics, the influence of social media platforms like TikTok plays a critical role in shaping standards and trends for cosmetic procedures. The rapid spread of information and the accessibility of content enable celebrities, influential bloggers, and other social media users to act as the primary trendsetters. They actively promote cosmetic interventions such as Botox, platelet-rich plasma (PRP) therapy, and lip augmentation, fostering an image of ideal appearance based on American beauty standards, especially in the minds of the youth.

These beauty standards, widely propagated through social media, spread with exceptional speed, reaching all corners of the globe. This phenomenon not only blurs cultural distinctions but also significantly increases the demand for cosmetic procedures, often perceived as a means to achieve internationally recognized beauty.



However, this growing demand frequently meets an inadequately regulated service market, where high medical standards are not always upheld.

Unfortunately, the current trend of rising numbers of cosmetic procedures often comes with an increase in negative outcomes, including fatalities. Unregulated access to cosmetic services and the use of unlicensed practices sharply elevate health risks. Consequently, there is a noticeable rise in cases of infections, severe complications, and even death, which could have been avoided with proper regulation and oversight.

Given these challenges, there is an urgent need for a more thorough examination of these issues to enhance the regulatory control of the cosmetic services market and to educate the public about the risks associated with unlicensed procedures.

Literature review

The issue of fatal outcomes caused by unprofessional cosmetic procedures is well-covered in the press but remains underexplored in scientific literature. Researchers primarily focus on the risks and dangers associated with illegal and unqualified activities in the field of aesthetic medicine, especially the use of hazardous or uncertified materials for cosmetic procedures.

Significant studies in this area include the work of Coté, Mohan, Polder, Walton, and Braun [4], where the authors analyzed cases of adverse effects from injections of botulinum toxin type A reported to the U.S. Food and Drug Administration (FDA). Their research highlights the risks associated with certified use, emphasizing the potential dangers of unprofessional application.

Al-Mashat [1] explores the problem of illegal cosmetic centers operating without licenses, often under the protection of influential individuals. This research underscores the importance of ensuring proper regulatory oversight to prevent tragedies stemming from a lack of control.

The necessity for stricter regulation in aesthetic medicine is also addressed in an article by CodeBlue [3], which discusses the Malaysian Medical Association's call for enhanced regulation and oversight of cosmetic and aesthetic clinics. This highlights the global nature of the problem and the need for international efforts to address it.

Expert literature further illuminates contemporary aspects of this issue. For instance, a news report by Dentox [6] details the closure of several cosmetic salons in New Jersey due to illegal practices involving Botox and platelet-rich plasma injections. Such publications stress the importance of continuous monitoring and enforcement of licensing standards. Unfortunately, there are no new studies showing statistics on cosmetic surgery and its problems, but Powers Taylor [9] studied mortality in 2014, which can be considered as a baseline for the calculations.

Despite the abundance of literature on this topic, there is a noticeable lack of systematic material on mortality resulting from illegal medical procedures. Employing various scientific methods allows for an in-depth analysis, classification, and systematization of information to better understand the impact of unprofessional cosmetic procedures on public health.

The objective of this article is to systematize information regarding mortality due to illegal medical procedures in the United States.

Research results

Market overview of cosmetic procedures and unsuccessful outcomes



Unfortunately, current statistics for 2023 are not available. However, the American Society of Plastic Surgeons' "2023 Procedural Statistics Release" [7] provides the annual growth rate of procedure requests. According to this report, the growth rate of requests for various procedures is as follows: breast augmentation - 2%, implant removal – 9%, breast lift – 7%, breast reduction – 7%, liposuction – 7%, facelift – 8%, blepharoplasty (eyelid surgery) – 5% [7].

According to Powers Taylor [9], Americans spent over \$12 billion on cosmetic procedures in 2014, including both surgical and non-surgical procedures. In 2014, more than 10 million cosmetic procedures were performed. With the current annual growth rate of 5%, the total number of procedures in 2023 is approximately 15.75 million.

In the Eastern region, which includes Delaware, Florida, Georgia, North Carolina, South Carolina, Virginia, and West Virginia, 265,219 procedures were performed in 2014. Considering the average annual growth rate of 5%, approximately 431,200 procedures were performed here in 2023.

In the Central region, which includes Illinois, Indiana, Michigan, Ohio, Wisconsin, Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, and South Dakota, 312,223 procedures were performed in 2014. With an average annual growth rate of 5%, approximately 506,300 procedures were performed here in 2023.

In the Northeast region, which includes Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont, Maryland, New Jersey, New York, Pennsylvania, and the District of Columbia, 319,367 procedures were performed in 2014. Considering the average annual growth rate of 5%, approximately 517,600 procedures were performed here in 2023.

In the Southwest region, which includes Alabama, Kentucky, Mississippi, Tennessee, Arkansas, Louisiana, Oklahoma, and Texas, 276,236 procedures were performed in 2014. With an average annual growth rate of 5%, approximately 447,700 procedures were performed here in 2023.

In the Mountain region, which includes Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming, Alaska, California, Hawaii, Oregon, and Washington, 504,433 procedures were performed in 2014. Considering the average annual growth rate of 5%, approximately 818,000 procedures were performed here in 2023 [7-9].

According to statistical data, the most dangerous regions for plastic surgery in the USA are the Northeast and Mountain regions. The Northeast region, which includes states from Connecticut to Pennsylvania, has the highest number of unsuccessful surgeries despite the lowest number of procedures per surgeon. The Mountain region, including states like California, Arizona, and Washington, shows the highest average number of procedures per surgeon and the third-highest number of unsuccessful surgeries [7].

Types of illegal beauty procedures in the USA

In the United States, the issue of unlicensed beauty procedures is becoming increasingly urgent, raising concerns among regulatory authorities and consumers alike. Unlicensed cosmetic services encompass a broad spectrum of procedures performed without proper training and in inappropriate conditions, posing significant health risks to clients [6].



Unlicensed cosmetic centers offering surgical procedures can have fatal consequences. Holding these establishments accountable is exceptionally challenging, as they are often owned by prominent individuals with close ties to officials and influential figures in various countries.

One notable example includes "vampire facelifts," which involve injecting platelet-rich plasma (PRP) derived from the patient's own blood. When proper safety measures are not followed, this procedure can lead to serious infections, including HIV. Such cases were documented in New Mexico, where several women contracted HIV after visiting an unlicensed spa [10]. Other common unlicensed procedures include Botox and hyaluronic acid injections, frequently administered without adequate training or permits. The use of illegal injection devices, such as needle-free injectors, also raises concerns among regulatory bodies like the FDA, which warns of the risks of severe injuries and permanent damage [6].

Unlicensed cosmetic procedures are often conducted in residential settings, lacking essential sanitary conditions and appropriate oversight. These services can encompass a range of activities, including manicures, pedicures, facial treatments, hairdressing services, and various body treatments. The absence of proper sanitation control and qualified personnel increases the risk of infections, allergic reactions, and other complications.

Botulinum toxin therapy (Botox), commonly used for cosmetic enhancement, typically features a high safety profile and requires minimal time, usually less than 20 minutes. This procedure allows patients to resume their daily activities almost immediately without extended recovery periods. However, potential side effects include eyelid ptosis, eyebrow asymmetry, unnatural smiles, dry eyes, or excessive tearing. Although rare, there is a risk of the toxin spreading beyond the injection site, causing symptoms similar to those observed in botulism [4].

In November 2006, four individuals contracted botulism following beauty treatments. The doses they received in cosmetic salons were several thousand times the lethal amount [5].

Causes of fatal issues in beauty procedures

The pursuit of an ideal appearance has become a booming market, with demand continually rising. Most cosmetic surgeries are performed in private centers, some of which are no more than beauty salons. The lack of medical licenses among staff in such centers is a common problem. According to Dr. Ghaith Al-Saadi, a specialist in plastic and reconstructive surgery, one out of every fifteen patients visiting his clinic does not actually require surgery. However, social media and influencers drive the popularity of cosmetic procedures among the youth, putting their lives and health at risk.

One of the main reasons for errors is the use of cheap materials. For instance, WHO-licensed hyaluronic acid injections cost between \$100 and \$170, whereas illegal centers use unsafe materials priced at less than \$50, leading to serious health complications for patients [1].

The closure of aesthetic clinics and beauty salons during the COVID-19 lockdown led to an increase in unqualified practitioners and the use of home kits for cosmetic injections. This resulted in numerous adverse outcomes due to the inadequate experience of these practitioners.



In 2021, changes in income and the closure of clinics due to pandemic restrictions caused a rise in the search for cheaper alternative treatments online. Many individuals suffered severe burns, significant bruising, and swelling. In more severe cases, there were tissue damage, infections, lip ruptures, and blindness.

Filing lawsuits against beauty salons and unqualified practitioners presents numerous challenges for attorneys. Unfortunately, most unqualified practitioners are uninsured, especially those providing services at home. This raises concerns about the future of the industry and its impact on people's lives, particularly women under 30 who are often influenced by social media. Currently, the most popular cosmetic procedures, such as lip augmentation and dermal fillers, are not regulated by law.

Bringing claims of cosmetic negligence against unqualified practitioners has historically been very difficult or even impossible due to high employee turnover and a lack of insurance. The National Confidential Enquiry into Patient Outcome and Death (NCEPOD) found that 11.5% of registered practitioners ceased their operations within a year. Unlicensed practitioners are not required to have liability insurance and are not obligated to conduct follow-up appointments.

Errors during surgical interventions can cause deformities and leave permanent scars and damage. The patient's body may reject the product, triggering a cascade of diseases and painful side effects. The consequences have serious emotional and physical impacts. Filing for compensation is crucial to ensure financial support for further treatments, cover lost earnings, and hold the surgeon or service provider accountable [11].

Statistics on fatalities and health risks from cosmetic use

In the United States, practicing cosmetology requires a license to ensure practitioners possess essential skills and knowledge, particularly in sanitation to prevent the spread of diseases. Each state mandates this licensure, enforcing fines and potential criminal charges for unlicensed practice. Licensure involves completing an accredited cosmetology program and passing both written and practical exams. Transferring a license across states may necessitate additional training to meet specific state requirements. Regular renewal of the license is mandatory to continue practicing legally. This regulatory framework upholds the quality and safety of cosmetology services. Statistical data on fatalities resulting from services in illegal beauty salons are not typically available in open sources.

There are numerous instances where the use of certain cosmetic products, whether in salons or at home, has not led to death but has posed significant health risks. The main reasons for hospital visits in the U.S. due to beauty products are summarized in Table 1.

Fatalities: deaths related to cosmetic products are most often caused by the "Exemption 4" category, with a rate of 10.9%. Other product categories, such as "Other" and children's products, have significantly lower rates of 1.8% and 1.7%, respectively. This indicates that although fatal cases are relatively rare, the "Exemption 4" category poses the greatest threat.

Medically significant issues: analyzing data on medically significant issues, the highest rate is observed in the "Exemption 4" category, accounting for 78.0%. This indicates that these products cause significant health problems. The "Exemption 4"



category includes products with a special status exempting them from certain regulatory requirements, which may suggest potential health risks. Hair products are the second most frequent, with an impact rate of 66.0%. Makeup products rank third at 54.1%, indicating that both hair and makeup products also have a significant impact on consumer health.

Table 1 – Reasons for hospital visits in the U.S. due to beauty products use

Issue	Product Category	Percentage
Death	Exemption 4	10.9%
	Other	1.8%
	Baby or kids' products	1.7%
Medically important issue	Exemption 4	78.0%
	Hair products	66.0%
	Makeup	54.1%
Visited health care provider	Exemption 4	38.3%
	Facial products	29.3%
	Body lotions and other products	25.9%
ER visit	Body lotions and other products	12.2%
	Facial products	9.7%
	Makeup	6.1%
Hospitalization	Facial products	6.3%
	Tattoo products	6.2%
	Exemption 4	4.7%
Disability	Nail products	17.3%
	Hair products	5.6%
	Body lotions and other products	4.9%
Required medical intervention	Tattoo products	6.8%
	Facial products	2.6%
	Makeup	2.5%
Life-threatening condition	Other	5.5%
	Body lotions and other products	3.2%
	Facial products	2.5%

Note: systematically compiled by the author based on [8]

Medical visits: regarding medical visits, the highest rate is also seen in the "Exemption 4" category, which accounts for 38.3%. This suggests that these products cause issues requiring consultation or intervention by healthcare professionals. Facial products also lead to a significant number of medical visits, with a rate of 29.3%. Body lotions and other products, with a rate of 25.9%, are also notable in this context.

Emergency department visits: emergency department visits are most frequently triggered by the use of body lotions and other products (12.2%). Facial products are the second leading cause with a rate of 9.7%, and makeup products rank third with 6.1%. This suggests that these product categories can cause serious immediate medical problems.



Hospitalization: hospitalizations are most often caused by facial products (6.3%), tattoo products (6.2%), and the "Exemption 4" category (4.7%). This indicates that these products can cause health issues requiring prolonged medical intervention.

Disability: the highest number of disability cases are caused by nail products (17.3%), which is significantly higher compared to other categories. Hair products (5.6%) and body lotions and other products (4.9%) also contribute to a certain level of disability.

Need for medical intervention: tattoo products most frequently require medical intervention (6.8%). Facial products (2.6%) and makeup products (2.5%) also cause problems that need medical attention.

Life-threatening conditions: life-threatening conditions are most often caused by the "Other" category (5.5%), followed by body lotions and other products (3.2%), and facial products (2.5%). This indicates that these products can lead to serious medical complications that threaten life.

Overall, the introduction of new cosmetic products has had an intense negative impact. In 2016, 124 cosmetic products were recalled, with 117 having chemical or microbiological issues. The most common problems caused by these products were choking and burns, which required medical visits.

Even more misfortune came in 2016: the number of deaths caused by cosmetic products increased (493), compared to 202 in 2015 and only two in 2011. Fortunately, in 2017, there was a reduction in this number to 276. Hospitals admitted the highest number of patients due to cosmetic products in 2015, with 175 individuals hospitalized due to adverse reactions; however, this number decreased to 135 in 2016 and 38 in 2017 [8].

Mortality statistics from the use of cosmetic products in official sources indicate that the trend is worsening each year, and the number of cases is increasing (Table 2).

Table 2 – mortality statistics and risks due to cosmetic use [8]

Year	Death	Hospitalization	Disability	Life-threatening condition
2010	0.0	11.0	5.0	10.0
2011	2.0	20.0	4.0	8.0
2012	1.0	47.0	10.0	12.0
2013	1.0	30.0	7.0	12.0
2014	2.0	41.0	36.0	14.0
2015	202.0	175.0	64.0	21.0
2016	493.0	135.0	124.0	14.0
2017	276.0	38.0	27.0	6.0
2018	389.5	124.2	85.3	13.8
2019*	448.9	138.0	96.5	14.2
2020*	508.3	151.8	107.8	14.5
2021*	567.8	165.6	119.0	14.9
2022*	627.2	179.4	130.3	15.3
2023*	686.6	193.2	141.5	15.6
2024*	746.0	207.0	152.8	16.0
2025*	805.4	220.8	164.0	16.4



Note: author's forecast based on linear regression

U.S. policy on reducing mortality risks from illegal procedures

The United States employs various measures to reduce mortality associated with cosmetic procedures, including regulatory actions and initiatives by professional associations. The American Society of Plastic Surgeons (ASPS) is particularly active in this field, especially concerning high-risk procedures like Brazilian Butt Lift (BBL). Concerns over the high mortality rate of this procedure led to the creation of the Multi-Society Gluteal Fat Grafting Task Force. This group, representing several plastic surgery societies, aims to study factors contributing to increased risks, conduct scientific research to enhance safety, and educate surgeons to ensure patients are aware of the risks before undergoing such procedures [2].

Regulatory bodies, such as State Boards of Cosmetology, are actively working to identify and shut down unlicensed beauty salons. However, this issue remains pressing, especially in large cities and low-income communities, where access to licensed services can be limited [10]. Closing illegal centers is challenging due to their connections with influential individuals. Even when such centers are discovered, shutting them down and holding them accountable is difficult. Many of these centers are linked to well-known figures who wield influence over political and administrative bodies [1].

An even greater challenge for regulatory bodies is medical tourism, which significantly complicates the oversight of the quality and safety of medical services received by U.S. citizens abroad. Medical tourism involves traveling to other countries for medical services, including cosmetic surgeries, often attractive due to lower costs and shorter waiting times compared to similar procedures in the U.S.

Additionally, many of these clinics offer "package" deals, which include not only the medical procedure but also transportation, accommodation, and other services. This creates an illusion of safety and comprehensive care. However, in practice, patients may be left without adequate medical support after the surgery. In case of complications, they often must return to the U.S., where local doctors may not provide adequate help due to unfamiliarity with the details of the procedure and the methods used.

Conclusions

Unlicensed cosmetic procedures are becoming an increasing problem in the United States and beyond, posing significant threats to consumer health and even life. The use of unauthorized methods and materials, often at much lower prices, attracts consumers seeking quick and economical ways to improve their appearance. Such procedures, performed without proper sanitary conditions and medical licenses, greatly increase the risk of infections, allergic reactions, and other serious complications, including fatalities. The growing popularity of medical tourism, leading to travel abroad for procedures, is particularly concerning, often ending tragically due to lower standards and lack of proper oversight.

The issue is compounded by inadequate regulation and the challenges in holding unlicensed operators accountable, especially those connected to influential individuals.



This creates serious challenges for regulatory bodies trying to identify and shut down such salons. Many of these centers are located in large cities and low-income communities, where access to licensed services is limited. These challenges require stronger legislative measures and more effective oversight by regulatory agencies, as well as better education and awareness for the public about the risks of unlicensed procedures.

Overall, the situation demands immediate action from both national and international regulatory bodies to ensure safer conditions for those seeking to improve their appearance. Measures should include not only stricter regulation and control but also educational campaigns to inform the public about potential risks. Addressing this issue will require cooperation among government agencies, professional medical associations, and civil society to reduce the number of adverse incidents and ensure safe conditions for medical procedures both domestically and abroad.

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