

CURRENT ROLE OF SOCIAL MEDIA IN AESTHETIC PLASTIC SURGERY: WHY PLASTIC SURGEONS MUST TAKE CONCERN?

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ABSTRACT

Introduction: In the medical field, particularly in areas like plastic aesthetic surgery and cosmetology, social media has emerged as a convenient and interactive means of educating and promoting the services of doctors, hospitals, and institutions. However, there remains a pressing need for further research to thoroughly understand the influence of social media on plastic surgery procedures. This study aims to review the literature on the current facets of social media that impact patients' decision-making in aesthetic plastic surgery.

Methods: Database PubMed was used for the search terms: "plastic surgery," "aesthetic," and "social media". Publication time ranges were set from 2019 until 2023. Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) were used to help arrange this literature review.

Result: Thirteen records were included in this study. The studies uniformly emphasize the effectiveness of social media as a communication tool between doctors and patients or social media users. Popular platforms like Facebook, Instagram, Snapchat, and Twitter are widely used, varying based on factors like country, age, and gender. These platforms enable the global spread of education and information about plastic aesthetic surgery, effectively reaching a diverse audience.

Conclusion : Social media serves as a platform for disseminating educational content, promoting professional work, engaging with the wider public community, and facilitating patient-doctor interactions in the decision-making process for plastic aesthetic surgery. Additionally, it plays a role in influencing patients' preferences regarding specific aesthetic plastic surgery procedures.

Highlights:

1. This study shows that in the era of society 5.0, digital technology has played a major role in doctor-patient communication in the medical field, especially in plastic aesthetic surgery.
2. Only a few plastic surgeons comprehend this digital transformation. It is hoped that this study will help plastic surgeons better understand and adapt to social media.

INTRODUCTION

The past two decades have witnessed a profound shift towards a technologically advanced society, driven by the technological revolution. Concurrently, social media platforms have experienced a

rapid surge in popularity.¹ Social media is defined as a digital medium facilitating the creation and dissemination of information within virtual networks and communities.² Merriam-Webster characterizes social media as electronic communication forms

wherein individuals establish online communities to share information, ideas, personal messages, and other content.³ The widespread presence of social media networks positions them as effective tools for connecting with patients. Initially conceived for communication across distances, social media has evolved into a crucial instrument for enterprises and businesses, offering an accessible avenue for outreach, promotion, and development.⁴ As in the medical area, social media now provides a simple, communicative ways of educating and even promoting the work of a doctor, hospital, or institution, especially in plastic aesthetic surgery and other cosmetology topics.

At first glance, social media is beneficial for plastic aesthetic surgeons. However, it must be remembered that the social media content that users read is not necessarily scientific truth. Furthermore, the topic of aesthetic plastic aesthetic surgery can be done by non-plastic surgeons. Nevertheless, the user cannot distinguish the truth. Further studies regarding the impact or influence of social media on plastic surgery procedures are critically needed for plastic surgeons to adapt and determine future attitudes toward social media.

METHODS

A digital search were conducted on September 16, 2023 using Database PubMed. The following search terms: "plastic surgery", aesthetic, "social media" were applied. Since this research focuses on collecting the latest literature, a time range was set from 2019 until 2023. Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) were used to assist the arrangement of this literature review. Literature includes review and systematic review articles explaining the impact or

influence of social media in plastic aesthetic surgery decision-making by patients who are, in this case, social media users. Figure 1 below shows the PRISMA flowchart.

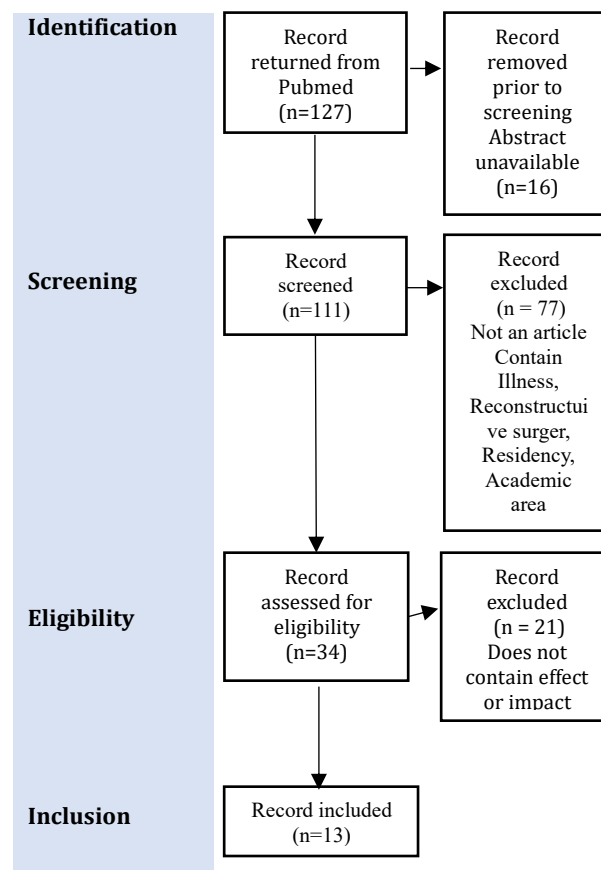


Figure 1. PRISMA flowchart in this study

RESULT

The Pubmed search yielded 127 records. After using PISMA flowchart, 13 records were chosen in this study. These articles were taken from 13 jounals, which are Aesthetic Surgery Journal Open Forum (n=3), Public Library of Science ONE (n=1), Plastic Reconstructive Surgery Global Open (n=3), Cureus (n=1), European Journal of Plastic Surgery (n=2), Indian Journal Plastic Surgery (n=2), Clinical Cosmetic and Investigational Dermatology (n=1). Table 1 below shows the summary of the included records.

Table 1. Records Included in This Study

Author	Title	Journal	Study type	Summary
Shauly, 2023 ⁴	The New Era of Marketing in Plastic Surgery: A Systematic	Aesthetic Surgery Journal	Review article	Delivering the correct content and using the right platform are both important in a cosmetic surgeon's social media marketing strategy. In

	Review and Algorithm of Social Media and Digital Marketing	Open Forum		addition, the age of the target demographic has a major impact on selecting appropriate material and a medium. Taken as a whole, social media marketing has the potential to attract new patients, inform existing ones, and expand a business's reach.
Nischwitz, 2021 ⁵	Analysis of social media use by European plastic surgery societies: A missing link for #PlasticSurgery.	PLoS One.	Retrospective analysis	The ever-increasing popularity of social media platforms demonstrates their essential role as modern information highways. Through their online communities, plastic surgeons and their professional associations may raise awareness about the benefits of relying on scientific data when making clinical decisions. The findings demonstrate that (a) polypresent PSS have more social media coverage than present PSS, as assessed by the number of Facebook followers as the most pervasive social media platform, and (b) there is no significant difference between the two groups' engagement across platforms. Therefore, we think having a social media presence is a great first step in expanding your audience. ASPS exhibited greater numbers compared to EURAPS, supporting the necessity for a social media task group to address education and patient safety in Europe. The quantitative facts supplied provide a reasonable basis for subsequent study. For European PSS, social media remain a mysterious technology whose full potential has yet to be realized.
Janik PE, 2019 ⁶	Internet and Social Media as a Source of Information About Plastic Surgery: Comparison Between Public and Private Sector, A 2-center Study.	Plast Reconstr Surg Glob Open.	Cohort study	Our research shows that people still trust recommendations from friends and family above other sources when looking for information on cosmetic surgery. Aesthetic plastic surgeons may be able to attract more patients by effectively using social media to reach and engage with their target demographic. Today's internet users expect businesses to have a strong online presence, and private practice cosmetic surgeons are no exception.
Alghonaim, 2019 ⁷	Social Media Impact on Aesthetic Procedures Among Females in Riyadh, Saudi Arabia.	Cureus	Cross sectional study	Women in Riyadh, Saudi Arabia, utilize Instagram more than any other social media site to get insight about cosmetic surgery options. Furthermore, the usage of face filters on social media has led to an increase in the number of cosmetic treatments being done. Finally, we propose that doctors set up professional and scientific social media profiles in order to give full and reliable information regarding cosmetic treatments.
AlBahlal, 2023 ⁸	The Effect and Implication of Social Media Platforms on Plastic Cosmetic Surgery: A Cross-sectional Study in Saudi Arabia From 2021 to 2022.	Aesthet Surg J Open Forum.	Cross sectional study	Based on the results of the research, it seems that Snapchat is the most influential social media site in terms of encouraging people to seek cosmetic treatment. This calls for further research on the effects of social media among cosmetic surgeons.
Mortada, 2023 ⁹	Use and Influence of Social Media on the Private Practice of Plastic Surgeons in Saudi Arabia.	Plast Reconstr Surg Glob Open.	Cross sectional study	While opinions on the use of social media within the profession of plastic surgery vary, there is no denying its increasing importance. There is a disparity in the usage of social media amongst disciplines. Private hospital and cosmetic surgeons are more likely than others to embrace social media and use it professionally.
Salinas CA, 2022 ¹⁰	Who is talking about #Facelift on Instagram?	Eur J Plast Surg.	Retrospective analysis	Over the last several years, we've seen a rise in plastic surgeons using Instagram to promote their most popular facelift procedures. In 2021, however, non-doctors and non-plastic surgeons created the vast majority of Instagram posts on the surgical technique #facelift.

Panse NS, 2017 ¹¹	Advocacy and mass education in plastic surgery: Efforts and outcomes.	Indian J Plast Surg.	Expert opinion	To effectively advocate for cosmetic surgery and educate our patients, our team has to work together in a focused, long-term way.
Gupta, 2020 ¹²	An Updated Review of Plastic Surgery-Related Hashtag Utilization on Instagram: Implications for Education and Marketing.	Aesthet Surg J Open Forum.	Retrospective analysis	ABPS and RCPSC board-certified plastic surgeons continue to be underrepresented amongst individuals sharing top plastic surgery-related material on Instagram. The upper posts were mostly utilized for advertising rather than teaching. Patients who utilize social media to discover a possible provider assume risks related to their safety and the outcomes of their surgery due to the high proportion of non-board certified physicians posting. Board-certified surgeons should make an effort to increase their online visibility since social media is and will remain an integral part of the cosmetic surgery industry.
Thakurani S, 2021 ¹³	Evolution of aesthetic surgery in India, current practice scenario, and anticipated post-COVID-19 changes: a survey-based analysis.	Eur J Plast Surg.	Case control studies	In addition to its obvious potential in the business and academic worlds, social media also has enormous potential as a means of entertainment and relaxation. The role of teleconsultations needs to be reprised and legalised. Webinars and virtual conferences will find more takers future.
Pearlman, 2022 ¹⁴	Factors Associated with Likelihood to Undergo Cosmetic Surgical Procedures Among Young Adults in the United States: A Narrative Review.	Clin Cosmet Investig Dermatol.	Retrospective analysis	Teens and twenty-somethings in the United States are increasingly considering cosmetic surgery. This group is poised to become an essential one to reach out to in the field of cosmetic surgery, both now and in the future.
Al Qurashi, 2022 ¹⁵	Influential Factors for Selecting a Plastic Surgeon: A National Survey in Saudi Arabia.	Plast Reconstr Surg Glob Open.	Cross-sectional study	According to the results of this survey, patients primarily consider the surgeon's credentials when deciding on a cosmetic surgeon. Attracting patients requires present and prospective Saudi Arabian aesthetic surgeons to have high levels of training and education. In addition, the evidence was unmistakable that patients are more comfortable with a surgeon who has received worldwide board certification. Thus, visiting overseas to world-renowned institutes to develop surgical abilities is encouraged.
Rudy, 2021 ¹⁶	Mining the Twittersphere: Insights about Public Interest in Facial Reanimation Surgery from a Decade of Twitter Data.	Indian J Plast Surg.	Retrospective analysis	Public interest in face reanimation surgery is being driven, in part, by the rising number of tweets discussing facial paralysis.

All of the studies mentioned above agreed that social media is an effective communication tool between doctors and patients/social media users. The most popular platform used varies by country, age, and gender, but Facebook, Instagram, Snapchat, and Twitter are at the top. Using these platforms, education or doctor's work on plastic aesthetic surgery can be spread globally, so that more people will be aware of it and, eventually, consider having it done by the plastic surgeon they have seen on social media. A study by Gupta, 2020 indicated that Board-certified plastic surgeons are still underrepresented among those who post top plastic surgery-related content on Instagram. Moreover, remember that a non-plastic surgeon can create content about plastic

aesthetic procedures, as demonstrated in a 2022 study by Salinas CA.

Social media, particularly Instagram, has emerged as a significant source of information for aesthetic procedures, wielding substantial influence among females in Riyadh, Saudi Arabia. The utilization of facial filters on social media platforms has notably contributed to a discernible upsurge in the prevalence of aesthetic procedures, underscoring the platform's impact on beauty standards and cosmetic trends.

To ensure the dissemination of comprehensive and reliable information about cosmetic procedures, it is recommended that physicians establish professional and scientific social media accounts. This proactive approach aims to

enhance the quality of information available on these platforms, fostering a more informed and discerning audience.

Individuals swayed by social media platforms, with Snapchat standing out prominently, demonstrate a heightened interest in seeking cosmetic treatment. This observation emphasizes the need for further studies to delve into the nuanced impact of different social media platforms among plastic surgeons and their potential patients.

While plastic surgeons hold divergent views on social media, there is a unanimous acknowledgment of its escalating role within the field. The adoption and perception of social media, however, differ across various practice types, with surgeons in private hospitals and those specializing in aesthetic surgery expressing a more positive inclination toward integrating social media into their professional practices.

An observable trend among plastic surgeons is the active creation of content related to facelift procedures on Instagram. Intriguingly, a substantial portion of content under the hashtag #facelift in 2021 originated from non-physicians and non-plastic surgeons, highlighting the diverse content contributors on this visual platform.

Efforts toward promoting advocacy for plastic surgery and educating patients require dedicated and sustained collaboration. Notably, board-certified plastic surgeons find themselves underrepresented in top plastic surgery-related content on Instagram, with a majority of posts leaning towards self-promotion rather than educational endeavors.

Looking ahead, the narrative anticipates an increasing interest in cosmetic surgical procedures among young adults in the United States. It also advocates for the reassessment and legalization of teleconsultations, foreseeing a rise in the popularity of webinars and virtual conferences within the field of plastic surgery.

Surgeon qualifications emerge as a pivotal factor influencing the choice of a

cosmetic surgeon, with an international board certification being notably preferred. The suggestion to travel abroad to esteemed institutions for skill enhancement reflects a commitment to maintaining high standards in the field.

In the realm of social media discussions, the escalating discourse on facial paralysis on Twitter is noted to correlate with heightened publications and surgeon engagement on facial reanimation surgery. This intersection of online conversations and medical discourse underscores the evolving dynamics between digital platforms and public interest in specific surgical domains.

DISCUSSION

Social media networks encompass various platforms like Facebook, Twitter, YouTube, Instagram, Pinterest, and Snapchat. These platforms boast staggering user bases, with Facebook is the most frequently utilized network, created in 2004 with 1.86 billion monthly users or approximately one-fourth of the world population. There are almost 1.3 billion people who use YouTube, a video-sharing platform launched in 2005. The photo-sharing app Instagram, which launched in 2010, has 600 million active users every single month. Twitter, a microblogging network that has been around since 2006, has 313 million active users per month throughout the world. Pinterest, a photo-sharing website that emphasizes collection postings, was launched in 2010 and has now amassed 150 million members. There are about 150 million daily users of Snapchat, a picture and video sharing platform launched in 2011.¹⁷

Statista reports that, the average daily social media usage for global internet users has seen a consistent rise, escalating from 90 minutes per day in 2012 to 147 minutes per day in 2022.¹⁸ The usage patterns of social media platforms differ among various age groups and genders. Initially catering to college students, Facebook's user base has expanded to include an older demographic. Millennials, born between 1981 and 1996,

tend to favor Snapchat and Instagram, while the baby-boomer generation, born between 1946 and 1964, shows a preference for Facebook.¹⁹ Among Twitter users aged 15 to 17, there's an equal split between genders, whereas among adult users, males outnumber females.¹⁷ In contrast to platforms like Instagram, Pinterest, Facebook, and Snapchat, which have a predominantly female user base, YouTube's user demographic skews towards males, constituting 62% of its users.²⁰

Shauly et al.'s systematic review revealed that the utilization of social media enables plastic surgeons to enhance not only their advertising efficiency but also their ability to educate, disseminate research, and effectively engage with patients.⁴ Conversely, patients find it more convenient to connect with a plastic surgeon that aligns with their requirements, allowing for easier inquiries and questions prior to any engagement. This aspect was explored in greater detail through the examination of the impact of social media marketing on plastic surgery using an electronic database. The criteria for inclusion and exclusion were satisfied by a collection of 16 articles identified from PubMed.⁴ These articles revealed that the utilization of social media empowers plastic surgeons not just for streamlined advertising but also for enhanced educational efforts, effective dissemination of research, and improved engagement with patients.²¹ On the other hand, patients have increased ease in finding a plastic surgeon that suits their requirements, facilitating more straightforward inquiries and the ability to ask questions in advance.

Social media plays a multifaceted role in influencing decisions related to plastic aesthetic surgery for patients. Firstly, it serves as a tool for disseminating educational content, providing valuable information and insights. Secondly, social media acts as a platform for plastic surgeons to showcase their work and connect with a wider audience, effectively promoting their practice. Lastly, it facilitates direct

engagement with patients, serving as a conduit for interaction, communication, and relationship-building within the realm of aesthetic surgery.²²

Social Media for Tool to Share Education

Plastic aesthetic surgeons exhibit a higher comfort level with using social media compared to other surgeons, reflecting the evolving landscape of marketing strategies within the field. This transformation, inherent in technological revolutions, brings forth both promising opportunities and potential pitfalls. Plastic surgeons can effectively capture interest by showcasing procedure results, sharing scientific advancements, providing insights into their personal lives, and even offering educational content for patients.¹ The internet, easily accessible with a simple click, provides patients with an abundance of information. Roughly half of individuals undergoing cosmetic procedures note that social media played a significant role in influencing their decision-making process, with a similar percentage reporting their active following of plastic surgeons on social media platforms.²³

Patients are not only utilizing the internet for educational purposes but are increasingly relying on social media as their primary source of referrals. A significant 63% acknowledge that these platforms serve as their initial search method.²⁴ Walden et al. discovered that whereas more than half of patients use Google or other internet resources to acquire further information, just ten percent of patients seeking cosmetic operations talk with a plastic surgeon directly. This is despite the fact that more than half of patients use Google or other online resources to gain additional information.²⁵ Additionally, Twitter has proven to be a helpful resource for academic plastic surgeons in recent years.²⁶

Social media serves as a valuable tool for plastic aesthetic surgeons to share educational content. This platform allows surgeons to disseminate information, insights, and advancements in the field,

reaching a wide audience. Plastic surgeons can leverage various formats such as posts, videos, infographics, and live sessions to educate both colleagues and the general public. By utilizing social media, surgeons can contribute to the continuous learning of their peers, showcase their expertise, and enhance public understanding of plastic surgical procedures, recovery processes, and address frequently asked questions. Live sessions and webinars offer real-time engagement, allowing surgeons to interact directly with an audience, share expertise, and clarify queries instantaneously, safety measures, and innovations. By leveraging platforms like Instagram, Twitter, or YouTube, surgeons can present results, share real-life experiences, and educate patients about various cosmetic procedures. This educational outreach through social media helps patients gain a deeper understanding of aesthetic surgery, enabling them to make informed decisions and engage more actively in their healthcare journey. This educational role of social media not only fosters professional development within the medical community but also empowers individuals to make informed decisions about cosmetic procedures.

While social media can be a powerful tool for Plastic Aesthetic Surgeons to share education, it's important to acknowledge potential drawbacks. One of the challenges is the risk of misinformation and the spread of unverified content. The open nature of social media platforms allows for a wide range of information to circulate, including content that may not be evidence-based or aligned with medical standards.

The brevity of social media posts can also limit the depth of educational content. In-depth and nuanced information may be challenging to convey effectively in a short post or video, potentially leading to oversimplification of complex topics.

Moreover, the competitive nature of social media can encourage some practitioners to prioritize marketing over educational content. This shift may lead to a focus on sensationalized before-and-after

images or promotional content rather than substantive educational materials. The visual nature of plastic aesthetic surgery content on social media may inadvertently contribute to unrealistic expectations among the audience. Filters, image editing, and before-and-after comparisons can sometimes create an idealized perception of outcomes, which may not accurately represent the realities and potential risks associated with plastic surgery procedures. The pressure to generate attention and engagement on social media may compromise the depth and accuracy of educational content shared by plastic aesthetic surgeons.

Lastly, the interactive nature of social media allows for user comments and discussions, which may lead to the sharing of personal opinions and experiences that may not be universally applicable. This dynamic environment can sometimes blur the line between professional advice and anecdotal information.

Social Media to Promote Work and Outreach to The Broader Public Community

An in-depth examination of three prominent social media platforms uncovered that 63% of posts on Instagram were generated by plastic surgeons, and a significant 83% of these posts were aimed at self-promotion.^{27,28} Additionally, plastic surgeons rank prominently among top social media influencers and generate a higher volume of promotional content.²⁹ Those specializing in aesthetic-focused practices exhibit a greater likelihood of utilizing social media, with the majority acknowledging its effectiveness as a marketing tool. This acknowledgment is attributed to the prevalent visual components inherent in the majority of social media platforms.

Cho's study indicated that most plastic surgeons employ social media to establish their practice's brand, draw in patients, and educate the general public. Failing to utilize this valuable tool could result in plastic surgeons being overshadowed in the ongoing

discourse. To fully harness the power of social media, it is essential for this field to initiate formal training on the appropriate and ethical utilization of social media.⁵⁴

Another research indicates a notable gap between plastic surgeons and the most influential platforms mentioned in the literature, including Instagram, YouTube, Snapchat, and Facebook. Currently, plastic surgeons show a preference for directing electronic marketing endeavors toward their practice websites rather than social media platforms. The study recommends that surgeons use social media more actively by sharing promotions, before-and-after photos, and videos to expand their client base instead of solely relying on their practice websites for information dissemination.⁵⁵

Social media's integration into practice promotion comes with advantages and drawbacks, notably impacting the doctor-patient relationship.³⁰ A decade ago, only 30% of plastic surgeons used social media for advertising, while 92% relied on their practice website for advertising purposes. However, a significant 62% of plastic surgeons believed that social media could be advantageous for their practice.³¹ These trends are observed on a global scale in the field of plastic surgery, evident in a study highlighting the United States as the highest contributor to Instagram posts related to #PlasticSurgery, amassing over 2 million posts, 369 million likes, and 6 billion views within 21 months. Istanbul, Turkey, emerged as the city with the highest number of related posts, totaling 102,108.^{29,32}

According to Arab et al's study, advertisements significantly impacted almost half of the respondents' choices regarding undergoing cosmetic treatments. Moreover, around two-thirds of the respondents displayed potential interest in or openness to undergoing cosmetic procedures in the future. Over half of these individuals follow plastic surgeons and fashion influencers who engage in discussions about cosmetic procedures. The study highlighted that individuals influenced

by cosmetic advertisements often had family members or friends who had also undergone cosmetic treatments.²³

The American Society of Plastic Surgeons conducted a survey in 2021, revealing that nearly half of all patients considering plastic surgery attributed their decision to the influence of social media. The dynamics of how plastic surgery is promoted on these platforms have undergone transformations due to four key factors. Firstly, the prevalence of user-friendly and sophisticated filters has become commonplace, enabling individuals to easily manipulate their appearance, such as altering the nose profile or simulating lip fillers through adept adjustments in "shadow and light." Secondly, the lockdown scenarios during the pandemic isolated people from familiar faces, intensifying the comparison of self-images and idealized versions, impacting self-esteem and body satisfaction. Thirdly, Work-from-home put us in an unfavorable light. Brushing tools didn't include Zoom or Google Meet cameras since they're intended for business use rather than entertainment. All of a sudden, we are staring at our unkempt, dimly lit reflections every day for hours on end. Lastly, big industry names brought a new wave of acceptance. Numerous famous people have spoken publicly about their own cosmetic surgery. Since cosmetic surgery has gained popularity, more research has been done and a dose of realism has been included. The influencers on each social network then started noticing the trend. On Instagram, a hashtag search for "plastic surgery" yields over 6 million results. For many of these standard procedures, many of these display before-and-after comparisons³³

The American Society of Plastic Surgeons (ASPS) places a strong emphasis on upholding the highest standards of personal and professional conduct among its member surgeons, especially in the realm of Ethical Issues in Online Marketing of Plastic Surgery. The ASPS Code of Ethics explicitly forbids any communication with the public that includes

false, fraudulent, misleading, or deceptive content. Members are obligated to use accurate and respectful language and images in all public communications. Ensuring respectful standards in advertising, professionalism, and ethics is a significant aspect of the fundamental training provided in plastic surgery residency programs. ASPS members are mandated to deliver services with full respect for human dignity, ensuring each patient receives the complete measure of service and devotion. It's crucial to acknowledge that the influence of a professional society's code of ethics is limited by governmental regulations pertaining to the restraint of trade.³⁴⁻³⁶

The ASPS Code of Ethics regulates the use of patient images in various contexts, such as journal articles, textbooks, educational presentations, or online platforms, with the requirement of full consent from patients without any pressure from plastic surgeons. Patients have the right to refuse the use of their personal images. However, if the images have been published or commercialized without consent, removing them from the internet can be challenging as the ownership may have shifted to the business that published them. This means both patients and doctors could lose control over the images.^{34, 36, 37}

The primary concern for surgeons when creating surgical videos or images is the safety and well-being of the patient. While procedural videos serve an educational purpose, they should not divert attention from the primary focus on the patient. Patient video images should respect privacy and be appropriate. Identifying features such as recognizable tattoos should be concealed, body parts unrelated to the procedure should be excluded from view, and all information related to the images should be removed to protect the patient's identity. Plastic surgeon websites should ideally reflect diversity and the reality of achievable results by showcasing real people and real outcomes. When using models, it is crucial to identify them as such and clarify that they are

models, not patients receiving the advertised services.^{34,37,38}

Furthermore, consistently emphasized the importance of safeguarding patient confidentiality, setting and maintaining boundaries, and being aware of the potential for widespread dissemination and lasting presence of content.^{39,40} The establishment of doctor-patient relationships on social media was discouraged, along with interactions that could be considered as providing patient care.^{39,41} The separation of professional and personal accounts, steering clear of sensationalism, and actively monitoring one's online presence.⁴²⁻⁴⁴

In 2020, the American Academy of Facial Plastic and Reconstructive Surgery reported that 72% of cosmetic surgeons encountered patients expressing a desire to enhance their appearance specifically for selfies. A study delving into the intricate connection between young adults' perceptions of cosmetic procedures and their social media behaviors underscored the significance of appearance-focused social media usage. The study found that a greater intention to undergo cosmetic procedures was associated with more frequent engagement with highly visual social media platforms.³³

This suggests a reciprocal relationship: the more young adults use platforms like Instagram and TikTok, the more likely they are to consider cosmetic procedures, and vice versa. This aligns with the idea that visually-oriented social media platforms facilitate and stimulate appearance-focused content, leading to more positive attitudes towards cosmetic procedures due to increased emphasis on appearance. Following influencers who have undergone cosmetic procedures was linked to a heightened perception of the normality of such procedures and a greater intention to undergo them. Conversely, following influencers who have not undergone cosmetic procedures was associated with a lower intention to do so, emphasizing the

significance of distinguishing influencer content. This aligns with the theory of imitation behavior.⁴⁵

Concerning the psychosocial implications of viewing cosmetic-related content on social media, a majority of respondents expressed potential interest in future cosmetic procedures. However, a significant portion indicated that the influence comes from acquaintances or social media influencers undergoing such procedures, rather than an inherent desire to alter their appearance or stand out. This aligns with the outcomes of a study by Furnham and Levitas, revealing that individuals with low perceived self-attractiveness were more inclined to consider cosmetic surgery, highlighting the impact of low self-esteem on decisions related to cosmetic treatments.⁴⁶

A study at Taif University, which examined the knowledge, attitudes, and practices of cosmetic surgery among 220 female students, found that while none of them had undergone cosmetic procedures, 79.1% had learned about cosmetic surgery through mass media.⁴⁷ This corresponds with the current study's findings, indicating a significant percentage of Saudi female university students following cosmetic surgery-related accounts on social media. Another study at King Abdulaziz University, involving 600 Saudi female university students, reported that 2.2% had undergone cosmetic surgery, and 23.3% acknowledged the influence of mass media on their decision to pursue cosmetic procedures.⁴⁸

Interestingly, when considering personal factors or demographics, it was found that following cosmetic clinics was significantly correlated with the acceptance and intention of cosmetic procedures. This aligns with a study conducted by Walker et al.,⁴⁹ which suggested that viewing images of individuals with enhanced facial features increases interest in cosmetic surgery. Importantly, the research findings suggest that body dissatisfaction does not act as a mediator in the relationship between social

media use and the desire for cosmetic surgery. There is a possibility that the desire for cosmetic surgery is not contingent on body dissatisfaction, as some researchers argue that individuals may express the same level of interest in cosmetic surgery regardless of their satisfaction with their bodies.

Another study suggests that following specific cosmetic clinics related to cosmetic procedures is significantly associated with the intention and acceptance of undergoing those procedures when personal or demographic factors aren't considered. On the contrary, following cosmetic brands doesn't correlate with acceptance or intent for cosmetic procedures but is linked to a heightened perception of the prevalence of these procedures. However, concerning the hypothetical intention to undergo cosmetic procedures, the use of social media, especially frequent engagement with visual content like following influencers who have undergone cosmetic procedures and editing one's images, positively relates to the intent to undergo such procedures.⁵⁰

Plastic aesthetic surgeons, particularly those in private practices or focused on aesthetic surgery, can leverage social media platforms can showcase their expertise, share informative content, and engage with a diverse audience. The visually-oriented nature of many social media platforms, such as Instagram, allows surgeons to visually present their work, providing potential patients with a tangible understanding of their skills and the results they can achieve.

Moreover, social media facilitates outreach to a wider demographic, breaking down geographical barriers. Surgeons can reach individuals who may not have easy access to traditional means of information. Through educational posts, live sessions, or Q&A sessions, plastic surgeons can disseminate valuable information, demystify misconceptions, and address concerns, contributing to public awareness and understanding of plastic surgery.

Additionally, social media serves as a platform for community building. Plastic surgeons can create a supportive community where individuals interested in aesthetic procedures can connect, share experiences, gain insights, and best practices, fostering a collective commitment to excellence in the field. Additionally, platforms like Instagram, Twitter, and Facebook enable surgeons to participate in global conversations, stay updated on industry trends, and contribute to the continuous improvement of plastic surgery practices. This sense of community fosters trust and transparency, crucial elements in the decision-making process for potential patients.

Engaging with the public through social media enables surgeons to build a strong online presence, establish credibility, and foster a sense of trust with the community. By responding to inquiries, participating in discussions, and sharing valuable information, surgeons can position themselves as authoritative figures in the field, contributing to the overall positive perception of plastic surgery.

Social Media as a Tool for Facilitating Patient Engagement

Over the last decade, there has been a noticeable shift in how plastic surgeons engage with social media. Thirty years ago, the primary method for choosing a doctor relied heavily on word of mouth. Presently, a comprehensive understanding of practitioners can be constructed through a mosaic of data. Despite the varying quality of information available online and on social media platforms, up to 40% of patients now heavily depend on social media when selecting a plastic surgeon.⁵¹

Among patients who eventually undergo aesthetic plastic surgery procedures, almost all conduct internet research before their initial consultation. Google serves as the initial go-to platform for individuals seeking information about plastic surgeons, followed closely by the surgeon's practice website and social media platforms,

which are identified as the subsequent most influential factors in the selection process.⁵² According to a study by Montemurro et al. in 2015, around 95% of patients surveyed utilized the internet to gather information about their desired surgery, with 46% specifically utilizing social media for this purpose.⁵³

The utilization of social media has the potential to mislead patients seeking recommendations for medical practices that best suit their needs. Many patients mistakenly believe that practitioners with a higher number of followers on Instagram or those featured on prominent plastic surgery social media platforms are necessarily the most qualified, which is not always accurate. Aldosari et al. mentioned that most patients who visit plastic surgery clinics were influenced in a positive manner, although not solely, by media reports showcasing cosmetic surgery outcomes.⁵⁶

Approximately one-third of the survey participants expressed a preference for cosmetic surgery clinics that actively engage on social media, possibly because of the clear and potentially embellished presentation of the services offered. Similarly, nearly one-third of the study population indicated a preference for consulting plastic surgeons who have a significant presence on social media, likely influenced by the doctor's positive reputation as promoted by influencers or through patient recommendations.²³

RealSelf.com, established in 2006, is among several social media platforms facilitating engagement between patients and between patients and surgeons. This rapidly expanding platform boasts 9.9 million users who can provide reviews, share before-and-after photos, and rate their surgical experiences. Additionally, RealSelf has 14,000 affiliated providers who can utilize the platform to interact with patients directly regarding pricing details and consultation scheduling or direct them to their personal websites for more information. Additionally, social media serves as a platform for open

communication and dialogue. Patients can engage directly with plastic surgeons, asking questions, seeking clarification, and sharing their concerns. This direct interaction fosters a sense of transparency and trust between patients and healthcare providers, ultimately enhancing the patient experience.

Social media facilitates a sense of community among patients who are considering or have undergone plastic surgery. Support groups, forums, and discussions provide individuals with the opportunity to connect, share experiences, and offer encouragement. This supportive environment can be particularly valuable during the decision-making process and the recovery journey.

Moreover, the real-time nature of social media enables surgeons to disseminate timely information about new technologies, advancements in procedures, and updates about their practice. This continuous flow of information keeps patients well-informed about the latest developments in the field, contributing to an educated and engaged patient community.

While social media has become a prevalent tool for facilitating patient engagement in the realm of plastic aesthetic surgery, it is essential to acknowledge the potential drawbacks associated with this approach. One significant concern revolves around the reliability and accuracy of the information exchanged on these platforms.

The interactive nature of social media platforms enables patients to ask questions, seek advice, and share experiences. However, this open exchange may also lead to the proliferation of misinformation. Patients might encounter conflicting opinions, unverified medical advice, or anecdotal accounts that could impact their understanding of procedures and recovery expectations.

Another challenge is the risk of unrealistic expectations. The visual-centric nature of social media allows for the sharing of before-and-after photos and success stories. While these can be valuable for

showcasing a surgeon's capabilities, they may inadvertently contribute to a perception that outcomes are universally flawless. Patients might develop unrealistic expectations about the results of their own procedures, potentially leading to dissatisfaction post-surgery.

Furthermore, social media engagement may blur professional boundaries. The informality of these platforms can create a more casual doctor-patient relationship, potentially compromising the seriousness of the medical context. This informality might lead to misunderstandings or misinterpretations of medical information, impacting the patient's decision-making process.

Privacy concerns also loom large. Patient engagement on social media may involve the sharing of personal information, images, or experiences. Ensuring the confidentiality and security of this information becomes a critical challenge, especially given the public and often permanent nature of content on these platforms.

Plastic Aesthetic Surgery Type Performed

In a study conducted by Sanati-Mehrizy et al., the influence of social media on the number of aesthetic procedures performed was investigated. They note a surge in rhytidectomy cases, possibly correlated with a positive online review from a patient who underwent this procedure. This surge is backed by rating systems that evaluate specific procedures as "worth it," often influenced by anticipated outcomes, achieved results, and procedural costs. Interestingly, the impact of online reviews extends beyond rhytidectomy to other aesthetic procedures. The study identifies a positive growth trend within one year (2015-2016 vs 2016-2017) in abdominoplasty, augmentation mammoplasty, augmentation mastopexy, and rhinoplasty case volumes, despite a general decrease in these procedures. This suggests that social media might have briefly but significantly

stimulated an increase in case volumes for these procedures during that year.³

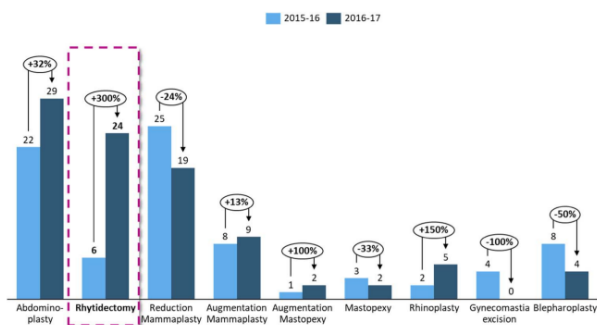


Figure 2. Comparison of 1-year growth rates among individual cosmetic procedures.³

The realm of plastic aesthetic surgery is witnessing a positive shift influenced by various factors contributing to the increase in procedures performed and the evolving landscape of patient preferences and outcomes.

One crucial catalyst for the rise in aesthetic procedures is the influence of social media and its visual impact. Platforms like Instagram and TikTok have become powerful channels for sharing before-and-after transformations, allowing patients have easy access to a vast array of information about different plastic surgery options, the direct communication facilitates a personalized approach to treatment, where surgeons can address individual concerns and provide tailored recommendations, ultimately enhancing the patient experience, enabling them to research and educate themselves. This increased awareness often translates into a higher demand for a variety of procedures, as patients become more informed and discerning about their aesthetic goals.

The positive portrayal of plastic surgery on social media, including success stories and transformations, helps destigmatize these procedures. As influencers, celebrities, and everyday individuals share their positive experiences, it contributes to normalizing cosmetic surgery, reducing societal taboos, and

fostering a more accepting attitude toward aesthetic enhancements.

The study provides an in-depth understanding of the influence of social media on plastic surgery, addressing its multifaceted impact on both patients and practitioners. It covers trends, patient behavior, surgeon practices, and the psychological aspects influenced by social media exposure, which adds strength and depth to the discussion. The introduction identifies major social media platforms and their user bases. The major social media platforms like Facebook, YouTube, Instagram, Twitter, Pinterest, and Snapchat. Highlighting their popularity and demographics. Statista's data showcases the steady rise in daily social media usage globally, emphasizing the growing influence of these platforms. Specific platforms attract different demographics based on age and gender, influencing their preferences in plastic surgery and related content. This study shown how plastic surgeons leverage social media for education, patient engagement, and promoting their work. Patients increasingly rely on social media for information and referrals. The text mentions how filters, lockdowns, remote work, and celebrity endorsements have influenced cosmetic surgery trends through social media.

Social media's influence on plastic surgery trends could contribute to negative aspects. The pressure to conform to beauty standards promoted on platforms may lead individuals to pursue surgeries without adequate consideration of their actual needs or well-being. Patients may desire outcomes that are heavily influenced by digitally altered images, which could lead to dissatisfaction post-surgery if these expectations are not met. Some patients might have unrealistic expectations about the outcomes of cosmetic procedures, leading to dissatisfaction even with successful surgeries.

Social media platforms might be a source of misinformation regarding plastic aesthetic procedures. This misinformation

can potentially lead to uninformed decisions and dissatisfaction with the results. Individuals may develop a distorted perception of beauty and feel pressured to conform to unrealistic standards, prompting them to undergo unnecessary or excessive cosmetic procedures. Excessive exposure to images and discussions about cosmetic procedures on social media can contribute to the development or exacerbation of body dysmorphic disorders. Individuals with BDD may perceive flaws in their appearance that are not evident to others, leading to unnecessary surgeries.

Negative comments, judgments, or comparisons on social media platforms can have a detrimental impact on individuals who have undergone plastic surgery. This may contribute to feelings of inadequacy or regret. The emphasis on physical appearance on social media can have a negative psychological impact on individuals, fostering feelings of inadequacy or low self-esteem. This can contribute to a cycle of seeking cosmetic procedures in an attempt to attain an idealized appearance perpetuated by social media, without addressing underlying psychological concerns. If these concerns aren't adequately addressed pre-surgery, patients might not achieve the expected psychological benefits. An excessive focus on physical appearance through cosmetic surgeries might overlook or neglect more critical aspects of health and well-being, mental health, and self-acceptance.

The desire for quick transformations, often popularized on social media, may lead to impulsive decisions that compromise safety. Cosmetic surgeries often involve significant costs. Some patients might experience financial strain due to the expenses involved, especially if the results don't meet their expectations. These procedures can incur costs that include the surgical fee itself, anesthesia costs, recovery costs, and post-treatment costs. These expenses can vary depending on the type of procedure, its complexity, and the location of the doctor's practice or medical facility. Some

more complex cosmetic procedures or those involving advanced technology may have higher costs.

It is important to consider the costs comprehensively and plan finances carefully before deciding to undergo cosmetic surgery. Patients need to understand that the involved costs may not only cover the procedure itself but also post-treatment costs, medications, and potentially additional costs that may arise during the recovery process.

Some types of cosmetic surgery can be considered an investment in well-being and self-confidence; however, it is crucial to have a clear understanding of the financial aspects. Patients should openly discuss costs with the doctor or clinic performing the procedure and ensure they have a comprehensive understanding of the details involved before deciding to proceed.

It's crucial for individuals considering plastic aesthetic surgery to approach the decision with a realistic mindset, well-informed expectations, and thorough consultation with qualified and experienced surgeons. Additionally, relying solely on social media for information about plastic surgery procedures may lead to misconceptions and contribute to negative experiences.

This study explores how social media exposure affects individuals' perceptions of cosmetic surgery, body image, and their intention to undergo such procedures. Patients heavily use social media for researching plastic surgeons and procedures, indicating a shift from traditional methods of finding doctors. Platforms like RealSelf enable direct engagement between patients and surgeons, allowing for reviews, sharing experiences, and interaction with providers. Studies suggest that online reviews and positive feedback on certain procedures influence the demand for those procedures. This comprehensive coverage makes the information novel and valuable for understanding the current landscape of plastic surgery practices in the age of social media.

This study focuses solely on the role of social media in patients' consideration of plastic aesthetic surgery, and it is limited to the most recent 5 years of review and systematic review articles from a single database. However, the authors became aware during the course of this study that social media's ethical issues, legal aspects, and the impact of social media on academic/plastic aesthetic residency need to be investigated further.

CONCLUSION

The involvement of social media in influencing patient choices regarding plastic aesthetic surgery can be categorized into three main roles: firstly, as a tool for disseminating educational content, promoting professional work, and reaching a wider public audience; secondly, as a means to facilitate engagement between patients and doctors; and thirdly, as a factor that shapes the preferences for specific aesthetic plastic surgery procedures. There is an anticipation for a comprehensive understanding of how social media profoundly impacts patients' surgical decisions. This understanding is seen as essential for plastic surgeons to effectively navigate the digital age, all the while safeguarding the integrity of the field of plastic surgery and upholding the ethical standards and skills imparted through education and training.

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CONFLICT OF INTEREST

The authors declared no potential conflict of interest with respect to the study, authorship, and publication of this article.

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AUTHORS CONTRIBUTION

All of the authors have contributed to the data collection and analysis. TAA contributed to script writing and publication process. HS contributed to concept planning and revision.

REFERENCES

1. Kliez ML, Kaiser HW, Machens HG, Aitzetmüller MM. Social Media Marketing: What Do Prospective Patients Want to See? *Aesthet Surg J*. 2020 Apr 14;40(5):577–83.
2. Obar JA, Wildman S. Social media definition and the governance challenge: An introduction to the special issue. *Telecommun Policy*. 2015 Oct 1;39(9):745–50.
3. Sanati-Mehrizy P, Margulies IG, Sayegh F, Ingargiola MJ, Taub PJ. The "RealSelf Effect": Can Patient Reviews on Social Media Impact Clinic Volume? *Ann Plast Surg*. 2020 Oct;85(4):352–7.
4. Shauly O, Marxen T, Goel P, Gould DJ. The New Era of Marketing in Plastic Surgery: A Systematic Review and Algorithm of Social Media and Digital Marketing. *Aesthetic Surg J Open Forum*. 2023 Feb 28;5:ojad024.
5. Nischwitz SP, Luze H, Rauch K, Lemelman BT, Heine-Geldern A, Rappl T, et al. Analysis of social media use by European plastic surgery societies: A missing link for #PlasticSurgery. *PLoS ONE*. 2021 Oct 14;16(10):e0258120.
6. Janik PE, Charytonowicz M, Szczyt M, Miszczyk J. Internet and Social Media as a Source of Information About Plastic Surgery: Comparison Between Public and Private Sector, A 2-center Study. *Plast Reconstr Surg Glob Open*. 2019 Mar 25;7(3):e2127.
7. Alghonaim Y, Arafat A, Aldeghaither S, Alsugheir S, Aldekhayel S, Alghonaim Y, et al. Social Media Impact on Aesthetic Procedures Among Females in Riyadh,

- Saudi Arabia. *Cureus*. 2019,11(10). Available from: <https://www.cureus.com/articles/24353-social-media-impact-on-aesthetic-procedures-among-females-in-riyadh-saudi-arabia>
8. AlBahlal A, Alosaimi N, Bawadood M, AlHarbi A, AlSubhi F. The Effect and Implication of Social Media Platforms on Plastic Cosmetic Surgery: A Cross-sectional Study in Saudi Arabia From 2021 to 2022. *Aesthetic Surg J Open Forum*. 2023 Jan 1;5:ojad002.
 9. Mortada H, AlRajhi B, Hashem A, Aljaaly HA, Obeid FM, Gelidan AG, et al. Use and Influence of Social Media on the Private Practice of Plastic Surgeons in Saudi Arabia. *Plast Reconstr Surg Glob Open*. 2023; 11 (5):e5012.
 10. Salinas CA, Kuruoglu D, Mayer HF, Huang TC, Sharaf B. Who is talking about #Facelift on Instagram? *Eur J Plast Surg*. 2022;45(3):415–20.
 11. Panse NS. Advocacy and mass education in plastic surgery: Efforts and outcomes. *Indian J Plast Surg Off Publ Assoc Plast Surg India*. 2017;50(1):85–90.
 12. Gupta N, Dorfman R, Saadat S, Roostaeian J. An Updated Review of Plastic Surgery-Related Hashtag Utilization on Instagram: Implications for Education and Marketing. *Aesthet Surg J Open Forum*. 2020;2(2): ojaa011. doi: 10.1093/asjof/ojaa011.
 13. Thakurani S, Gupta S. Evolution of aesthetic surgery in India, current practice scenario, and anticipated post-COVID-19 changes: a survey-based analysis. *Eur J Plast Surg*. 2021;44(1):129-138. doi:10.1007/s00238-020-01730-z.
 14. Pearlman RL, Wilkerson AH, Cobb EK, Morrisette S, Lawson FG, Mockbee CS, et al. Factors Associated with Likelihood to Undergo Cosmetic Surgical Procedures Among Young Adults in the United States: A Narrative Review. *Clin Cosmet Investig Dermatol*. 2022;15:859–77.
 15. Al Qurashi AA, Mortada H, Abuthiyab N, Al Zaid N, Aletani T, Arab K. Influential Factors for Selecting a Plastic Surgeon: A National Survey in Saudi Arabia. *Plast Reconstr Surg Glob Open*. 2022;10(8):e4458.
 16. Rudy HL, Ricci JA. Mining the Twittersphere: Insights about Public Interest in Facial Reanimation Surgery from a Decade of Twitter Data. *Indian J Plast Surg Off Publ Assoc Plast Surg India*. 2021;55(1):31–5.
 17. Sorice SC, Li AY, Gilstrap J, Canales FL, Furnas HJ. Social Media and the Plastic Surgery Patient. *Plast Reconstr Surg*. 2017;140(5):1047–56.
 18. Global daily social media usage 2023 [Internet]. Statista. [cited 2023 Sep 18]. Available from: <https://www.statista.com/statistics/433871/daily-social-media-usage-worldwide/>
 19. Vardanian AJ, Kusnezov N, Im DD, Lee JC, Jarrahy R. Social Media Use and Impact on Plastic Surgery Practice. *Plast Reconstr Surg*. 2013 May;131(5):1184.
 20. Donchev D. 40 Mind Blowing YouTube Facts, Figures and Statistics - 2023 - FortuneLords [Internet]. 2023 [cited 2023 Sep 18]. Available from: <https://fortunelords.com/youtube-statistics/>
 21. Economides JM, Fan KL, Pittman TA. An Analysis of Plastic Surgeons' Social Media Use and Perceptions. *Aesthet Surg J*. 2019;39(7):794–802.
 22. Gould DJ, Leland HA, Ho AL, Patel KM. Emerging trends in social media and plastic surgery. *Ann Transl Med*. 2016;4(23):455–455.
 23. Arab K, Barasain O, Altaweel A, Alkhayyal J, Alshiha L, Barasain R, et al. Influence of Social Media on the Decision to Undergo a Cosmetic Procedure. *Plast Reconstr Surg – Glob Open*. 2019;7(8):e2333.
 24. Alghonaim Y, Arafat A, Aldeghaither S, Alsugheir S, Aldekhayel S, Alghonaim Y, et al. Social Media Impact on Aesthetic Procedures Among Females in Riyadh,

- Saudi Arabia. Cureus [Internet]. 2019;11(10). Available from: <https://www.cureus.com/articles/24353-social-media-impact-on-aesthetic-procedures-among-females-in-riyadh-saudi-arabia>
25. Walden JL, Panagopoulous G, Shrader SW. Contemporary decision making and perception in patients undergoing cosmetic breast augmentation. *Aesthet Surg J.* 2010;30(3):395–403.
 26. Pusic AL, Lemaine V, Klassen AF, Scott AM, Cano SJ. Patient-reported outcome measures in plastic surgery: use and interpretation in evidence-based medicine. *Plast Reconstr Surg.* 2011;127(3):1361–7.
 27. Gupta N, Dorfman R, Saadat S, Roostaeian J. The Plastic Surgery Social Media Influencer: Ethical Considerations and a Literature Review. *Aesthet Surg J.* 2020 May 16;40(6):691–9.
 28. Ben Naftali Y, Duek OS, Rafaeli S, Ullmann Y. Plastic Surgery Faces the Web: Analysis of the Popular Social Media for Plastic Surgeons. *Plast Reconstr Surg Glob Open.* 2018;6(12):e1958.
 29. Fan KL, Economides JM, Song DH. To Bot or Not? Challenging the Top Social Media Influencers in #PlasticSurgery. *Plast Reconstr Surg.* 2019;143(1):337–43.
 30. Zarringam D, Decates T, Slijper HP, Velthuis P. Increased usage of botulinum toxin and hyaluronic acid fillers in young adults. *J Eur Acad Dermatol Venereol JEADV.* 2020;34(10):e602–4.
 31. Wheeler CK, Said H, Prucz R, Rodrich RJ, Mathes DW. Social Media in Plastic Surgery Practices: Emerging Trends in North America. *Aesthet Surg J.* 2011;31(4):435–41.
 32. Braun SE, O'Connor MK, Hornick MM, Cullom ME, Butterworth JA. Global Trends in Plastic Surgery on Social Media: Analysis of 2 Million Posts. *Aesthet Surg J.* 2021;41(11):1323–32.
 33. Saber DS. The "Instaface Effect": How Social Media Shapes Plastic Surgery Expectations [Internet]. Saber Plastic Surgery. 2022 [cited 2023 Sep 18]. Available from: <https://saberplasticsurgery.com/blog/social-media-and-plastic-surgery-expectations/>
 34. American Society of Plastic Surgeons. Code of Ethics. <https://www.plasticsurgery.org/documents/Governance/asps-code-of-ethics.pdf>.
 35. Dyer AR. Ethics, advertising and the definition of a profession. *J Med Ethics.* 1985;11(2):72-78.
 36. Pablo L. Gutierrez and Debra J. Johnson, MD. Can Plastic Surgeons Maintain Professionalism within Social Media?. *AMA J Ethics.* 2018;20(4):379-383. doi: 10.1001/journalofethics.2018.20.4.mso-c3-1804.
 37. Dorfman RG, Vaca EE, Fine NA, Schierle CF. The ethics of sharing plastic surgery videos on social media: systematic literature review, ethical analysis, and proposed guidelines. *Plast Reconstr Surg.* 2017;140(4):825-836.
 38. Crane GM, Gardner JM. Pathology image-sharing on social media: recommendations for protecting privacy while motivating education. *AMA J Ethics.* 2016;18(8):817-825.
 39. Wong WW, Gupta SC. Plastic surgery marketing in a generation of "tweeting" *Aesthet Surg J.* 2011;31(8):972–6.
 40. Lifchez SD, et al. Guidelines for Ethical and Professional Use of Social Media in a Hand Surgery Practice. *Journal of Hand Surgery-American* Volume. 2012;37A(12):2636–2641.
 41. Gould DJ, Grant Stevens W, Nazarian S. A Primer on Social Media for Plastic Surgeons: What Do I Need to Know About Social Media and How Can It Help My Practice? *Aesthet Surg J.* 2017;37(5):614–619.
 42. VRohrich RJ. So, Do You Want to Be Facebook Friends? How Social Media Have Changed Plastic Surgery and Medicine Forever. *Plastic and*

- Reconstructive Surgery. 2017;139(4):1021–1026.
43. McEvenue G, et al. How Social Are We? A Cross-Sectional Study of the Website Presence and Social Media Activity of Canadian Plastic Surgeons. *Aesthetic Surgery Journal*. 2016;36(9):1079–1084.
 44. Bennett KG, Berlin NL, MacEachern MP, Buchman SR, Preminger BA, Vercler CJ. The Ethical and Professional Use of Social Media in Surgery: A Systematic Review of the Literature. *Plast Reconstr Surg*. 2018 Sep;142(3):388e-398e. doi: 10.1097/PRS.0000000000004692.
 45. Ki CW' Chloe', Kim YK. The mechanism by which social media influencers persuade consumers: The role of consumers' desire to mimic. *Psychol Mark*. 2019;36(10):905–22.
 46. Furnham A, Levitas J. Factors that motivate people to undergo cosmetic surgery. *Can J Plast Surg J Can Chir Plast*. 2012;20(4):e47-50.
 47. Hammadi HA, El-Shereef EA. Study of Knowledge, Attitude and Practices of Plastic Surgery among Females Students at Faculty of Education, Taif University, Saudi Arabia. *Am J Public Health Res*. 2017;5(3):63–9.
 48. Al-Saiari AA, Bakarman MA. Experiences and attitude among Saudi female University students towards cosmetic surgery. *J Taibah Univ Med Sci*. 2015; 10(4):427–31.
 49. Walker CE, Krumhuber EG, Dayan S, Furnham A. Effects of social media use on desire for cosmetic surgery among young women. *Curr Psychol*. 2021; 40(7):3355–64.
 50. Hermans AM, Boerman SC, Veldhuis J. Follow, filter, filler? Social media usage and cosmetic procedure intention, acceptance, and normalization among young adults. *Body Image*. 2022;43:440–9.
 51. Montemurro P, Cheema M, Tamburino S, Hedén P. Online and Social Media Footprint of All Swedish Aesthetic Plastic Surgeons. *Aesthetic Plast Surg*. 2019;43(5):1400–5.
 52. Fan KL, Graziano F, Economides JM, Black CK, Song DH. The Public's Preferences on Plastic Surgery Social Media Engagement and Professionalism: Demystifying the Impact of Demographics. *Plast Reconstr Surg*. 2019 Feb;143(2):619.
 53. Montemurro P, Cheema M, Hedén P. Patients' and Surgeons' Perceptions of Social Media's Role in the Decision Making for Primary Aesthetic Breast Augmentation. *Aesthet Surg J*. 2018;38(10):1078–84.
 54. Cho MJ, Li AY, Furnas HJ, Rohrich RJ. Current Trends in the Use of Social Media by Plastic Surgeons. *Plast Reconstr Surg*. 2020;146(1):83e.
 55. Mess SA, Bharti G, Newcott B, Chaffin AE, Van Natta BW, Momeni R, et al. To Post or Not to Post: Plastic Surgery Practice Marketing, Websites, and Social Media? *Plast Reconstr Surg - Glob Open*. 2019;7(7):e2331.
 56. Aldosari B F, Alkarzae M, Almuhaya R, et al. Effect of Media on Facial Plastic Surgery in Saudi Arabia. *Cureus*. 2019.11(11): e6232. doi:10.7759/cureus.6232