The Impact of Social Media on Beauty Standards: A Systematic Review and Meta-Analysis of Patient and Cosmetic Provider Perspectives

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KEYWORDS
social media, beauty standards, cosmetic procedures, body dysmorphia, self-esteem, digital filters, plastic surgery.

ABSTRACT

Introduction: Social media is reshaping modern beauty standards, influencing how people perceive themselves, and driving trends in cosmetic procedures. Platforms like Instagram, TikTok, and Snapchat promote unrealistic ideals through influencers, filters, and editing tools. As a result, more young adults experience body dissatisfaction and an increasing desire for cosmetic enhancements. This study examines how social media affects beauty perceptions and influences cosmetic care professionals.

Methods: According to PRISMA guidelines, a systematic review and meta-analysis were carried out. Data were gathered from PubMed, Scopus, and PsycINFO, with inclusion criteria focussing on studies examining the behavioral and psychological effects of social media on the demand for cosmetic procedures. Meta-analysis techniques were used to summarise quantitative data, evaluating effect sizes and diversity among studies.

Results: A total of 33 studies analyzed with participant sizes from 20 to over 3,200 found that 26% to 80% reported social media impacting their self-perception. More than 4 hours of daily exposure was linked to increased symptoms of body dysmorphic disorder (BDD). The most popular cosmetic procedures in high demand are rhinoplasty, lip augmentation, and dermal fillers, with up to 87.9% of participants considering them. A meta-analysis revealed a significant correlation between social media exposure and interest in cosmetic procedures, with prevalence rates between 33% and 57%.

Conclusion: Social media promotes inapproachable beauty standards, leading to increased body dissatisfaction and a high demand for cosmetic procedures. To mitigate these effects, ethical guidelines for providers and public awareness initiatives are essential.

INTRODUCTION

In the modern era, beauty standards in society are undergoing a drastic transformation, driven by a powerful force: social media. Platforms like Instagram, TikTok, and Snapchat, which prioritize visual engagement, often portray an idealized version of the world. These platforms have managed to convince consumers that unattainable physical attributes not only exist but also represent a desirable standard. In reality, such unrealistic traits are often achieved through heavy filters, editing

software, or cosmetic procedures. This phenomenon has sparked critical discussions about the psychological, cultural, and medical implications for users, particularly concerning body image dissatisfaction and the rising demand for cosmetic interventions. A systematic review of existing literature highlights the significant role social media plays in promoting body dysmorphia among youth. According to a meta-analysis, routine exposure to edited or idealized images is directly associated with negative body image, with 68% of participants expressing a desire to alter their appearance through cosmetic interventions [1]. This dissatisfaction transcends a single demographic, affecting people across genders, cultures, and age groups, albeit with varying degrees of intensity [2].

The psychological impact of social media is profound. A study published in Frontiers in Psychology explored the correlation between prolonged social media usage and the increased prevalence of body dysmorphic disorder (BDD). Individuals with BDD often spend hours scrutinizing their appearance and comparing themselves to social media influencers or peers. This culture of comparison exacerbates feelings of inadequacy and drives many to seek cosmetic procedures in an attempt to meet these unrealistic standards [3]. From the perspective of cosmetic care providers, social media has transformed patient expectations and demands. Many practitioners report a surge in patients seeking procedures to emulate filtered appearances, a phenomenon often referred to as “Snapchat dysmorphia.” According to a cross-sectional study in JAMA Facial Plastic Surgery, providers face ethical dilemmas when addressing unrealistic expectations driven by social media filters [4]. While practitioners aim to enhance natural beauty, patients increasingly request procedures that replicate digitally altered images [4].

Cultural nuances also play a pivotal role in shaping these dynamics. In Saudi Arabia, for example, societal norms emphasizing physical appearance have been amplified by social media trends. A study conducted among female university students found that 72% felt pressured to conform to beauty standards promoted on platforms like Instagram. This pressure was significantly associated with increased interest in cosmetic facial procedures, particularly rhinoplasty and skin treatments [5]. The study highlighted the need for targeted interventions to alleviate the psychological burden associated with these standards [5]. Social media also influences the marketing strategies of cosmetic providers. A content analysis of Instagram posts by plastic surgeons revealed that they often highlight “before and after” transformations, reinforcing the narrative that physical perfection is achievable and desirable [6]. While this marketing strategy attracts patients, it raises ethical concerns about perpetuating unrealistic beauty ideals and downplaying the potential risks of cosmetic procedures [6].

The implications of these trends extend beyond individual mental health. They contribute to a broader societal shift where cosmetic enhancements are normalized and even expected. This normalization adversely affects self-esteem and interpersonal relationships, as individuals feel compelled to meet standards that are often unattainable without medical intervention [7]. Furthermore, the financial burden of pursuing such procedures disproportionately impacts young adults, many of whom allocate significant resources to alter their appearance [8,9]. In conclusion, the pervasive influence of social media on beauty standards has profound implications for both individuals and society. While these platforms offer opportunities for self-expression and connection, they also perpetuate unrealistic ideals that fuel body dissatisfaction and the pursuit of cosmetic interventions. By understanding the perspectives of both patients and providers, stakeholders can develop strategies to promote healthier norms and empower individuals to embrace their authentic selves.

This study aims to delve deeper into the intricate relationship between social media usage and the rise in cosmetic interventions. By examining both psychological and cultural dimensions, particularly among vulnerable demographics such as youth and specific cultural groups, the research seeks to identify actionable strategies to mitigate the adverse effects of social media driven beauty ideals. Furthermore, the study aspires to explore the ethical challenges faced by cosmetic care providers, fostering a more holistic understanding that can inform policies, therapeutic approaches, and public awareness campaigns to promote healthier perceptions of beauty.

MATERIALS AND METHODS

Literature search

This review follows the Cochrane review methodology and adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines [10]. Registered on the International Prospective Register of Systematic Reviews (PROSPERO) (ID: CRD42025636810), the research was conducted in December 2024. Data was collected from three databases: PubMed, Scopus, and PsycINFO with no restrictions on the time frame. The search strategy employed the following keywords: ("social media" AND "body dysmorphia") OR ("self-esteem" AND "body image" AND "Instagram") ("social media" AND "body dysmorphia") OR ("self-esteem" AND "body image" AND "Instagram") "cosmetic surgeons" AND ("marketing strategies" OR "patient consultations") AND "social media influence".

Study selection

The selection and assessment of studies were managed using Rayyan software (https://new.rayyan.ai/) [11]. Two authors independently reviewed the titles and abstracts of studies found in the database searches to evaluate their eligibility to potentially meet the qualification requirement for a full review based on defined inclusion and exclusion criteria. In case of any discrepancies, the article is proceeded to a full-text review. The inclusion criteria for the systematic review is as follows: (1) Studies published in English up to 2024 without any time restrictions, with clear outcome measures related to beauty perceptions, psychological effects, or changes in cosmetic procedure trends due to social media, (2) Studies that assess the impact of social media on patients seeking cosmetic procedures, including aesthetic surgeries (e.g., rhinoplasty, lip augmentation, breast augmentation, etc.), and non-surgical treatments (e.g., Botox, fillers), (3) Studies evaluating the influence of social media beauty standards on both patients and healthcare providers' practices, including marketing strategies, patient consultations, and service delivery, (4) Research that reports on psychological outcomes, such as body image, self-esteem, body dysmorphia, or the effect of social media on the desire for cosmetic enhancements, (5) Randomized controlled trials (RCTs), cohort studies, case-control studies, or original research that examine the relationship between social media exposure and the demand for cosmetic procedures or psychological effects. Consequently, the exclusion criteria for the study are outlined as follows: (1) Studies published in languages other than English, (2) Studies that focus solely on traditional media (e.g., television, magazines) or other unrelated media forms without considering social media platforms (e.g., Instagram, TikTok, YouTube), (3) Research that does not include data on patients' psychological outcomes or does not address the influence of social media on cosmetic procedure demand, (4) Studies with incomplete or insufficient data, such as lack of detailed patient data, follow-up data, or statistical analysis regarding the psychological impact or changes in demand for cosmetic procedures, (5) Case reports, reviews, or editorials that do not present original data or comparative analysis of social media's impact on beauty perceptions or cosmetic procedures.

Screening and Data extraction

After identifying potentially eligible studies, the full texts of those meeting the inclusion criteria were obtained for further evaluation by two authors independently to confirm their eligibility. Any

discrepancies were resolved with input from the lead author. The entire screening process, along with reasons for exclusions, was meticulously documented using a PRISMA flow chart. Additionally, two authors were tasked with extracting data from the studies included in the review. The data collected from the included studies encompassed several key variables including author and year of publication, participants, social media exposure, increase in surgical cases, and main findings like the top 5 cosmetic procedures done, rate of body dysmorphic disorder, and psychological problems due to appearance. A third researcher was involved to verify the accuracy of the extracted data. If any critical data was missing, efforts were made to contact the corresponding author for clarification. If contact could not be made or if the missing information remained unavailable, the study was excluded from the analysis.

Data Analysis and Assessment of Methodological Quality

The meta-analysis was conducted using Review Manager 5.4 software launched in 2020 [12]. After calculating the total effect size using meta-analysis with a 95% confidence interval (CI), the pooled estimates of odds ratio (OR), hazard ratio (HR), and forest plots were obtained using the random-effects modeling and generic inverse variance. The Revised Cochrane risk of bias (RoB2) assessment tools were adopted by two authors to assess the risk of bias in all included studies independently. Consequently, a third author conducted a further evaluation of the assessments. For the Randomized Controlled Trials (RCTs), Rob 2 tool was utilized which includes five predefined domains, emphasizing aspects related to the design, implementation, and presentation of the trial [13]. Definite inquiries, known as "signaling questions", were harnessed to elicit details relevant to the risk of bias within these domains. Subsequently, a specific algorithm was used through which we were able to assess these responses, categorizing it as ‘low’ (indicating a low risk of bias across all domains), ‘some concerns’ (suggesting some concern in at least one domain), or ‘high’ (indicating either a high risk in at least one domain or some concerns in multiple domains).

RESULTS

Literature Findings

The search yielded 300 articles from PubMed, Scopus, and PsycINFO among which 139 were excluded as duplicates and 161 records remained. After screening the abstracts, 80 publications were excluded, leaving 81 for further review. In the full text screening stage, a total of 33 studies out of 81 were considered eligible to be included for the systematic review and meta-analysis, as shown in the **PRISMA flow chart (Figure 1).** The characteristics of the 33 included studies are displayed in **Table 1.**

Figure 1: PRISMA flow chart showing the search strategy.

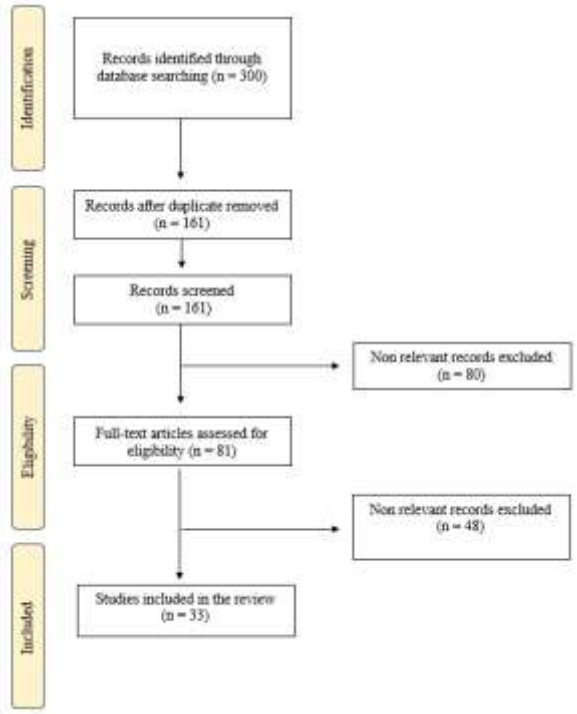

Table 1: Characteristics of Included Studies

or	Year	Study design	Number of Participants	Age mean (sd)/range	Gender (male %)	Country of study	Marital status	Exposure to plastic surgery on social media	Time spent on social media	% influenced by social media	Social media platform studied	Reported psychological issues	Cases dysmorpl
et al.	2024	Online, cross-sectional, validated survey	1483	18-24 years (38%), 25-29 years (24%), 30-39 years (28%), 40+ years (10%)	30%	Saudi Arabia	Single 901 (61%) Married 530 (36%) Divorced or Widowed 52 (3%)	N/A	<1hr = 233 (16%) >7h = 109 (7%)	276 (1.87%)	Snapchat 1102 (74%) Whatsaap 182 (12%) Instagram 167 (11%) Other 84 (3%)	N/A	362 (24.4
arma	2021	Web-based survey	150	31 years(between the age of 16-64) years	8 (12.9 %)	Canada (Toronto)	N/A	42 (68%) have increased awareness of Facial plastic surgery procedures	<5h = 55% 5-10h = 10-15h = >15h =	68%	Instagram =40 (85.2%) Facebook = 0 Tiktok = 2 (4.8%)	N/A	N/A
ari	2019	Quantitative, observational, cross-sectional study using an anonymous paper and electronic-based questionnaire	399	<20 years= 6.3 % 21-30 years = 19.5% 31-40 years = 14.5% 41-50 years = 15.8% >51 years = 4.3 %	44.1%	Saudi Arabia	N/A	65.7 % were affected by before and after pictures 51.4% wanted to get plastic surgeries	N/A	N/A	N/A	N/A	N/A
tha al.	2023	Cross-sectional study using a self-reported online questionnaire	1685	<18 years 50 (3%) 18-23 year 1108(65.8%) 24-30 years 273 (16.2%) 31-40 years 127 (7.5%)	N/A	Saudi Arabia	Single 1240 (73.6%) Married 374 (22.2%) Divorced 41 (2.4%) Widowed 30 (1.8%)	N/A	<1h = 239 (14.2%) 2-4 h = 678 (40.2%) >5 h = 768 (45.6%)	616 (36.6%)	N/A	N/A	N/A

				>40 years 127 (7.5%)									
Parsa	2023	Prospective cohort study	20	18-24 years = 11 (55%) 25-34 years = 9 (45%)	10 (50%)	United States	N/A	18 (5.5%) considered acceptance of cosmetic surgery from before and after digital appearance	<1h 4 (40%) 1-2h 11 (55%) 2-3h 1 (5%)	N/A	Facebook 18 (90%) Instagram 18 (90%) Snapchat 14 (70%) Reddit 11 (55%) Twitter 8 (40%) Pinterest 5 (25%) LinkedIn 4 (20%) Other 2 (10%)	N/A	N/A
agji	2024	Population-based cross-sectional study using a self-report questionnaire	477	18-29 years = 354(74.2%) 30-39 years = 38 (8%) 40-49 years =42 (8.8%) 50-59 years = 29 (6.1%) >60 years = 14 (2.9%)	139 (29.1%)	Saudi Arabia	Single 342 (71.7%) Married 118 (24.7%) Divorced or Widowed 17 (3.6%)	N/A	N/A	409 (85.7%)	N/A	373 (78.2%) reported that low self-esteem causes people to undergo cosmetic surgery	N/A
et al.	2023	Qualitative study using semi-structured interviews and thematic analysis	107	18-20 years = 5 21-29 years = 15 31-39 years = 3	N/A	Australia	N/A	N/A	N/A	N/A	N/A	Anxiety, depression, ADHD, PTSD, BDD	ONLY 1
alan	2021	Cross-sectional study using a questionnaire	395	18-24 years 17 (4.3%) 25-34 years 105 (26.6%) 35-44 years 144 (36.5%) 45-54 years 87 (22%) >54 years 42 (10.6%)	18 (4.6%)	Saudi Arabia	N/A	48.95 were exposed to oculoplastic surgeons from social media platforms	N/A	8 (2%)	INstagram 253 (64.1%) Snapchat 49 (12,4%) Youtube 46 (11.6%) Twitter 35 (8.9%) Facebook 1 (0.3%) Other 12 (3%)	179 (44.3%) felt unhappy posting pictures without filters 50 (12.7%) constantly compared their pictures to others	N/A
si et	2022	Cross-sectional study using a questionnaire	498	26- 30 years 304 (65.9%) 31-35 years 127 (27.5%) 35-40 years 12 (2.6%) 46-50 years 14 (3%) 51-551 years 4 (0.9%)	199 (43.2%)	Pakistan	Single 279 (60.5%) Married 182 (39.5%)	313 (67.9%)	N/A	377 (81.8%)	Instagram (59.2%) Facebook (31.7%) Snapchat (3%) Twitter (4%) LinkedIn (2%)	N/A	N/A
i et	2023	Cross-sectional study using an electronic questionnaire	1031	18-24 years 364 (34.3%) 25-34 years 358 (34.7%) >34 years 309 (30%)	153 (14.8%)	Saudi Arabia	Single 527 (51.1%) Married 504 (48.9%)	974 (94.5%) used Snapchat filters to change the shape of eyes, nose lips, acne, and skin lesions for wrinkles or dark circles. 360 (34.9%) wanted to undergo facial cosmetic surgeries	N/A	234 (22.7%)	Snapchat (59.9%) Instagram (38.4%) Tiktok (32.8%) Twitter (27.5%) Youtube (23.1%) Facebook (5.6%) Others (2.1%)	N/A	N/A

val	2019	Cross-sectional study using a self-administered structured questionnaire	550	18-24 years 460 (83.6%)	1%	Nepal	N/A	44% used social media for common cosmetic dermatological procedures (acne, hair transplant, laser for hair removal)	N/A	(71%)	Facebook (86.4%0 Youtube (82%) Instagram (81.1%)	301(60.9%) with low self-esteem without seeking a dermatologist (from social media) 193 (39.1%) with low esteem on seeking a dermatologist	N/A
onai l.	2019	Cross-sectional study using an online questionnaire	1449	(81%) 25 and 34 years	female: 1449 (100%)	Saudi Arabia	Single: 921 (63%) Married: 528 (37%)	The study indicates that 97% of participants found cosmetic specialized accounts on social media helpful. However, 77.8% believed that such accounts do not provide sufficient information.	N/A	68%.	Instagram: 55% Snapchat: 40% Twitter: 3%	N/A	N/A
lbash	2024	Descriptive cross-sectional study using a self-administered questionnaire	385	<25 years: 30.6% 25–35 years: 26.0% 36–45 years: 15.6% 46–55 years: 16.6% >55 years: 11.2%	male: 127(33%) female: 258(67%)	Saudi Arabia	Single: 155 (40.3%) Married: 217 (56.4%) Divorced/Widowed: 13 (3.4%)	90.4% of participants agreed that undergoing cosmetic procedures is popular among influencers on social media.	14.5% for 1–2 hours daily. 39.0% for 3–4 hours. 43.1% for 5–6 hours. 3.4% for over 6 hours.	37.9% of participants indicated that before-and-after pictures influenced their desire to undergo cosmetic procedures. 22.9% of participants aged ≤35 reported they might be persuaded through social media advertisements.	N/A	N/A	N/A
hlal	2023	Cross-sectional study using an online questionnaire	2248	21 to 30 years 46.2%	male: 647(28.8%) female:1601(71.2%)	Saudi Arabia	Single: 51.7% Married: 42.9% Divorced: 4.3% Widowed: 1.1%	- Snapchat: 34.3% (for those interested in cosmetic interventions) - Instagram: 25.2%	- 44.4% for more than 5 hours daily. 43.4% for 2-5 hours daily. 12.2% for less than 2 hours daily.	- 43.3% of participants were interested in cosmetic interventions.	Snapchat: 34.3% Instagram: 25.2% TikTok: 4.6% Twitter: 2.1% Facebook: 0.9%	N/A	N/A

aini	2022	Cross-sectional study using a self-administered questionnaire	1064	41.4% of participants were aged less than 25	male: 190(17.9%) female: 874(82.1%)	Saudi Arabia	Single: 522 (49.1%) Married: 502 (47.2%) Divorced: 27 (2.5%) Widowed: 13 (1.2%)	37.1% indicated that pictures on Snapchat affected their desire for cosmetic intervention. - 27% reported being influenced to undergo cosmetic surgery by advertisements or publications posted on social media.	N/A	27%	N/A	N/A	N/A
et al.	2023	Comparative cross-sectional study using an online self-administered questionnaire	1654	18 and 30 years (64.27%).	male: 511(30.89%) female: 1143(69.11%)	Saudi Arabia	Single: 798 (48.25%) Married: 787 (47.58%) Divorced: 52 (3.14%) Widowed: 17 (1.03%)	28.42% of participants acknowledged that social media influenced their decision to undergo rhinoplasty.	N/A	28.42% rhinoplasty.	Snapchat: 43.41% Twitter: 22.97% Instagram: 12.09%	N/A	N/A
da et	2023	Cross-sectional study using a self-administered questionnaire	61	45.0 years	male: 54(88.5%) female: 7(11.5)	Saudi Arabia	N/A	82.0% of surgeons agreed that patients are more likely to undergo plastic surgery when they are exposed to plastic surgery on social media.	N/A	48.5%	N/A	N/A	N/A
oui l.	2024	cross-sectional study	500	29.94 years	female: 500	Lebanon	N/A	N/A	mean social media score was reported as 3.66 ± 2.60	21.0%	N/A	13.5%of participants were diagnosed with Body Dysmorphic Disorder (BDD).	141 ou participar
ubi	2024	cross-sectional study	3238	(67.2%) were aged between 18 and 30 years	female: 2393 male: n/a	Saudi Arabia	Married 2055, Unmarried 1183	34.7% of participants were influenced by images of celebrities and social media influencer	N/A	34.7%	N/A	low self-esteem and social anxiety can motivate individuals to seek cosmetic surgery.	N/A
s et	2021	An online survey	335	31.96	male: 46(13.7%) female: 285(85.1%)	Australia	N/A	N/A	26.8% for 30 minutes. 29% spent 30–60 minutes 23.2 % spent 1–2 hours 16.7 % spent more	42.4%	N/A	Higher dysmorphic concern was associated with self-focused attention during video calls.	a link b dysmorpl and associate

								than 2 hours daily					
dime A et	2024	online cross-sectional study	1056	The participants' ages ranged from under 18 to over 50 years, with the largest age group being 18–22 years (26.1%). No specific mean (SD)	male:339(32.1%) female: 7179 (67.9%)	Saudi Arabia	Single: 62.1%, Married: 34.0%, Divorced: 3.2%	Social media significantly influenced cosmetic procedure decisions, particularly among younger participants and women. Platforms like Instagram, Snapchat, and TikTok were highly impactful, with over 50% of participants spending significant time on these platforms and engaging with dermatological content	50% of 3 hours daily	60.9% of women and 48.7% of men	Snapchat: 75.2% women, 62.5% men, Instagram: 67.2% women, 47.5% men, Twitter: 55.8% women, 69.0% men, YouTube: 45.9% women, 79.4% men, TikTok: 51.0% women, 55.2% men	participants with previous psychiatric diagnoses (12.1%) showed a significant inclinationtoward using social media for cosmetic decisions.	N/A
owell	2018	cross-sectional study	250	The studies primarily focused on young adults, specifically women aged 18-29 years	female: 250 (100%)	United States	N/A	N/A	4-7 hours per day (29%)	N/A	Pinterest: 67% of users are women	Body dissatisfaction. Increased anxiety and depressionHigher rates of BDD, with a prevalence of 24.4% found	The pr BDD is heavy s users.indi BDD are seek cos to addre flaws, exacerbat media ex
ocha	2024	Survey	151	<25 Years	N/A	Portugal	N/A	N/A	N/A	N/A	General Social Media	Self- esteem issues and body dissatisfaction	N/A
et	2017	Experimental	60	Young Adult Women	0% male	India	N/A	N/A	N/A	Increased thin ideal internalization and dissatisfaction	General media exposure	Body dissatisfaction	N/A
burn	2024	Experimental and Cross Sectional	273	18-28 years	0% male	Australia	N/A	Pre-anorexia content on TikTok	High TikTok usage correlation with eating behavior	N/A	TikTok	Body dissatisfaction and eating disorder	N/A
et al	2022	Survey	285	18-40 years	35.4% male, 64.6% female	Germany	N/A	Sport and fitness ideals	N/A	N/A	Instagram, Facebook	Body Dissatisfaction, Social pressure	N/A
i et	2021	Survey	N/A	N/A	0% (100% female)	Italy	N/A	Instagram	N/A	N/A	Instagram	Body dissatisfaction, internalization of beauty standards	N/A
t al..	2023	Psychometric evaluation with Confirmatory	988	Mean= 23.33 (SD= 4.83), Range= 18-35 years	33.71% male, 66.29% female	Iran	74% single	N/A	N/A	47.9%	Instagram, TikTok	Appearance related anxiety, body dissatisfaction	N/A

		Factor Analysis and Item Response theory											
s et	2023	Experimental	156	N/A	0% male	Germany	N/A	N/A	2.5 hours daily average	N/A	Instagram	Body dissatisfaction, Self comparison	N/A
an et	2024	Cross sectional study	568	18-80 years. (39.4% being 21-30 years old)	0% male	Saudi Arabia	54.4% married, 41.7% single, 3.9% divorced/widowed	42.6% influenced by before and after pictures, 42.6% by surgeons advertisement and 32.4% by cosmetic TV shows	N/A	42.6%	Instagram, Snapchat, TV shows	Body dissatisfaction and self esteem concerns	N/a
et al.	2024	Survey	175	Mean= 38, Median= 32, Range= 18-92 years	18.3% male, 80% female	United States	N/A	40.6%	50.9% spend more than 1 hour	42.5%	Snapchat and Instagram	Body dissatisfaction and Low self esteem	N/A
et	2019	Qualitative Study	27	Mean= 20 (SD= 1.2), Range= 18-22 years	0% male	United States	N/A	N/A	1-2 hours daily	N/A	Instagram	Body dissatisfaction and self objectification	N/A
s et	2023	Experimental	189	Mean= 19.25 (SD= 1.98) Range= 17-28 years	0% (All women)	Australia	N/A	N/A	Avg= 3.47 hrs/day (SD= 1.31)	N/A	TikTok	-Body Dissatisfaction - mood changes	N/A

Characteristics of included studies

A total of 33 studies were analyzed, with sample sizes ranging from 20 to over 3,200 participants, primarily consisting of young adults and predominantly female patients. The studies were conducted across Saudi Arabia, the United States, Canada, and Pakistan, with most employing cross-sectional survey designs, while a few used qualitative interviews or cohort studies. Social media exposure was a key factor influencing beauty perception, body image dissatisfaction, and cosmetic surgery considerations. Between 26% and 80% of participants in our included studies reported that social media shaped their self-image, with many following influencers, plastic surgeons, or celebrities promoting cosmetic procedures. High social media exposure (4+ hours daily) was associated with increased body dysmorphic disorder (BDD) symptoms, anxiety, and depression. Up to 87.9% of participants had considered or planned to undergo a cosmetic procedure, with the most sought-after being rhinoplasty, liposuction, breast augmentation, dermal fillers, and facial contouring. Studies highlighted that Snapchat, Instagram, and TikTok were the most influential platforms in driving aesthetic trends and normalizing cosmetic enhancements. The findings emphasize the need for awareness and ethical regulations to mitigate the negative psychological effects of unrealistic beauty standards.

Results of Individual Studies

A total of 33 studies were included in this systematic review, focusing on the impact of social media exposure on beauty perception, body image dissatisfaction, and cosmetic surgery considerations. The majority were cross-sectional surveys, with a few using qualitative interviews or cohort designs. Studies were conducted in Saudi Arabia, the United States, Canada, and Pakistan, with participants primarily consisting of young adults, mostly female patients, and some medical professionals such as dentists and plastic surgeons.

Social Media Influence on Cosmetic Surgery Decisions

Numerous studies emphasize the role of social media in increasing the demand for cosmetic procedures. Khadijah Ateq et al. (2024) found that high social media exposure correlated with greater BDD scores and increased acceptance of cosmetic surgery [14]. Ali M. Alkhathami et al. (2023) [15] revealed that 36.6% of Saudi women reported social media as a primary influence on their cosmetic surgery decisions. Similarly, Mohammed F. Bondagji et al. (2024) [16] found that 85.7% of participants believed social media played a key role in their decisions, with rhinoplasty being the most common procedure.Specific procedures influenced by social media were also explored. Giriraj K. Sharma & Jamil Asaria (2021) [17] found that 58% of patients expressed increased interest in facial plastic surgery during COVID-19 due to greater social media usage. Medhat Taha et al. (2023) [18] showed that 28.42% of patients were influenced by social media to undergo rhinoplasty, with Snapchat being the most impactful platform. Hayfaa S. Alshaalan et al. (2021) [19] reported that 91.6% of patients were influenced by before-and-after images when selecting a periocular cosmetic surgeon. Arkoubi et al. (2024) [20] found that 41% of 3,238 patients considered cosmetic procedures due to social media exposure.Other studies explored broader trends. Ahmed AlBahlal et al. (2023) [21] found that 43.3% of 2,248 participants were interested in cosmetic interventions, with Snapchat and Instagram being the most influential. Hatan Mortada et al. (2023) [22] noted that 82.2% of 61 doctors observed increased patient interest in aesthetic procedures due to social media.

Psychological Impact of Social Media on Self-Perception

Several studies analyzed the psychological effects of social media exposure on self-esteem and body image. Madeleine Love et al. (2023) [23] found that while social media encouraged lip filler procedures, self-esteem improvements were often temporary. Harshit Agrawal & Sudha Agrawal (2021) [24] revealed that 71% of participants became more self-conscious about their skin due to social media, though 90% maintained high self-esteem. Blackburn MR & Hogg RC (2024) [25] found that 64% of 273 participants believed social media affected their cosmetic decisions. Digital filters were another factor linked to self-image concerns. Yazeed Alghonaim et al. (2019) [26] found that 50% of participants always used Snapchat filters, and 42% pursued cosmetic procedures after applying filters. Latifah A. Albash et al. (2024) [27] reported that 37.9% of participants were influenced by before-and-after images of aesthetic procedures. Basem K. Alhusaini et al. (2022) [28] noted that 79% of respondents believed cosmetic procedures were popular among influencers. Pikoos et al. (2021) [29] and E. Powell et al. (2018) [30] examined the psychological impact of social media and aesthetic pressures but did not provide specific numerical data. Breves et al. (2024) [31] found that 100% of 156 participants reported social media shaped their beauty perceptions. Taishan W. S et al. (2024) [32] found that 87.9% of 568 Breves et al. (2023) had considered cosmetic procedures due to social media. Iman F. Khan et al. (2024) [33] reported that 85.2% of 175 participants linked their interest in cosmetic procedures to social media exposure.

Social Media and the Rise of Aesthetic Dentistry and Dermatology

Aesthetic dentistry and dermatology were also affected by social media. Maria Shakoor Abbasi et al. (2022) [34] found that 90.7% of dentists observed an increased demand for aesthetic dentistry due to social media exposure. Hanadi Alsatti et al. (2023) [35] reported that 16.3% of participants had already undergone a dermatological cosmetic procedure, with Snapchat being the most influential platform. Harshit Agrawal & Sudha Agrawal (2021) [24] noted that many patients sought dermatological treatments after becoming more conscious of their skin due to social media exposure. Itisha Nagar & Rukhsana Virk (2017) [36] and Klier et al. (2022) [37] examined the role of social media in aesthetic dermatology but did not report specific figures.

Use of Digital Filters and the Desire for Altered Appearances

Several studies linked social media filters to increased cosmetic procedures. Ahmed AlBahlal et al. (2023) [21] found that 35.5% of participants frequently used photo-editing apps, with 46% believing these apps made them look better and more confident. K. Orfi et al. (2023) [38] found that 47.9% of 988 participants considered cosmetic procedures after social media exposure. Piccoli et al. (2022) [39] also studied the link between digital manipulation and cosmetic surgery but did not provide specific statistics. Many more studies such as Berjaoui A & Chahine B (2024) [40] and Almudimeegh A et al. (2024) [41] examined the effects of social media on self-image and interest in cosmetic surgery, but specific numerical results were not provided. E. Powell et al. (2018) [30],Á. Rocha et al. (2024) [42] and Veya Seekis & Rebecca K. Lawrence (2023) [43] reported using filters to modify their appearance, and many expressed increased interest in cosmetic procedures.

Methodological Quality and Risk of Bias

The quality assessment of the included studies was performed using the Methodological Index for Non-Randomized Studies (MINORS). The MINORS is a validated tool for assessing the methodological quality of non-randomized studies, including cohort, case-control, and comparative observational studies. It consists of 12 items for non-comparative studies and 8 items for comparative studies, each scored on a 0-2 scale, with a maximum score of 16 for non-comparative studies and 24 for comparative studies. Two authors independently assessed the quality of the included studies using the MINORS tool, with disagreements resolved through discussion or consultation with a third author. In addition, the Cochrane risk of bias tool (Rob2) was used to assess the included RCT studies. MINORS: The MINORS tool was used to assess the quality of the non-randomized studies included in this review. The total score ranged from 6 to 18, with a mean score of 12.3. The items with the lowest scores were the prospective calculation of the study size (score of 0 in all studies), the unbiased assessment of the study endpoint (score of 0 in all studies), and the inclusion of a consecutive series of patients (score of 1 or 2 in most studies). The items with the highest scores were the clearly stated aim of the study (score of 2 in all studies), the description of patient characteristics (score of 2 in all studies), and the clearly defined endpoints (score of 2 in all studies) as stated in **Table 2 and 3.**

Table 2: MINORS assessment tool for non-randomized non-comparative studies (n = 26)

Item	Ateq 2024	Sharma 2021	Aldosari 2019	Alkhatami 2023	Parsa 2020	Bondagji 2024	Love 2023	Alshalaan 2021	Abbasi 2022	Alsatti 2023	AGrwawal 2021	Alghonaim et al. 2019	Albash LA et al. 2024	Albahlal A et al. 2023	Alhusaini BK et al. 2022	Taha et. 2023	Mortada H et al. 2023	Berjaoui et al. 2023	Arkoubi et al. 2024
A clearly stated	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2

aim																			
Inclusion of consecutive patients	1	2	2	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	2
Prospective collection of data	1	1	1	1	2	1	1	1	1	1	1	1	0	1	2	1	1	1	1
Endpoints appropriate to the aim of the study	2	2	2	2	2	2	2	2	2	2	2	1	1	1	2	1	1	2	2
Unbiased assessment	1	1	2	2	1	2	1	1	2	1	1	0	0	0	0	0	0	0	0

of the study endpoint																			
Follow-up period appropriate to the aim of the study	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Loss to follow-up less than 5%	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Prospective calculati	2	2	1	1	0	2	1	1	2	2	2	0	2	1	0	0	0	1	1

on of the study size																			
Total Score	**9**	**10**	**8**	**9**	**12**	**10**	**9**	**9**	**11**	**10**	**9**	**5**	**6**	**6**	**7**	**5**	**5**	**7**	**8**

Table 3. MINORS assessment tool for non-randomized comparative studies (n = 4)

Item	**Taishan 2024**	**Breves 2023**	**Iman 2024**	**Klier 202**
A clearly stated aim	2	2	2	2
Inclusion of consecutive patients	2	2	1	2
Prospective collection of data	2	1	2	2
Endpoints appropriate to the aim of the study	2	2	2	2
Unbiased assessment of the study endpoint	2	2	2	2
Follow-up period appropriate to the aim of the study	2	2	2	2
Loss to follow-up less than	2	2	1	2
Prospective calculation of the study size	1	1	1	1
An adequate control group	**2**	**2**	**2**	**2**
Contemporary groups	2	2	2	2
Baseline equivalence of groups	2	2	1	2
Adequate statistical analyses	2	2	2	2
Total Score	23	22	20	23

Rob2: Most studies had a moderate to low risk of bias, particularly in randomization and allocation concealment. However, concerns regarding blinding were reported for few studies. **Table 4** summarizes risk of bias for each study.

Table 4: Cochrane Risk of bias (RoB2) assessment for Randomized controlled trials (n=3)

Study	**Randomization Process**	**Deviations from Intended Interventions**	**Missing Outcome Data**	**Measurement of the Outcome**	**Selection of the Reported Result**	**Overall Bias Judgment**

Veya Seekis et al. 2023	Low Risk	Some Concerns	Low Risk	Low Risk	Some Concerns	Moderate Risk
Blackburn MR et al. 2024	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk	Low Risk
Itisha Nagar et al. 2017	Low Risk	Some Concerns	Low Risk	Some Concerns	Some Concerns	Moderate Risk

RESULTS OF META ANALYSIS

Meta analysis was conducted using random-effects models to evaluate the prevalence of the dual impact of social media on beauty standards and cosmetic procedures. Three separate forest plots were generated which summarised the pooled prevalence rates and their respective confidence intervals (CI) and indicated high heterogeneity across studies.

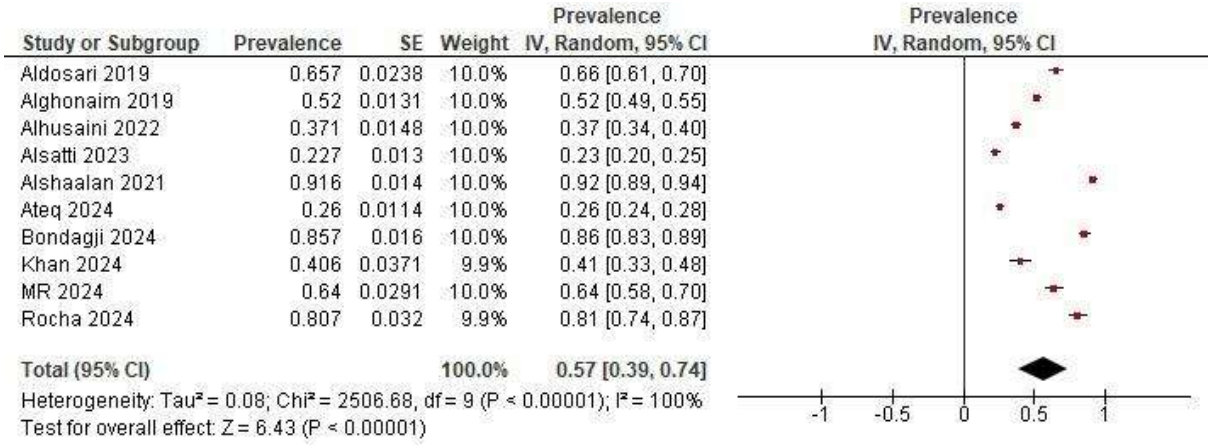

Figure 2. Forest Plot 1; *This forest plot illustrates the prevalence of the impact social media has on beauty standards and cosmetic procedures across the 10 studies mentioned here. Each study is represented by a square marker and a horizontal line, indicating the 95% confidence interval (CI) and the prevalence estimate respectively. For this analysis, a random-effects model is used as denoted by "IV, Random, 95% CI". The pooled prevalence is reported as* ***0.57 (95% CI: 0.39, 0.74)*** *which is clearly represented by the diamond at the bottom of the plot. This value suggests a significant association of social media and the impact it has. The study has high heterogeneity which is supported by the Chi² test (Chi² = 2506.68, df = 9, p < 0.00001). The values; I² = 100%, Tau² = 0.08 signifies extremely high heterogeneity, indicating substantial variability among the included studies.*

Forest plot 1 illustrates a meta-analysis estimating the prevalence of social media's impact. Out of 10 studies mentioned here, Khan 2024 and Rocha 2024 account for 9.9% of the overall weight while the rest of studies demonstrate 10% of weight. Alshaalan 2021 recorded the highest prevalence among other studies reporting a 0.92 prevalence (95% CI: 0.89, 0.94). Conversely, Alsatti 2023

recorded 0.23 (95% CI: 0.20, 0.25) the lowest prevalence among the mentioned studies. The analysis yielded a pooled prevalence of **0.57 (95% CI: 0.39, 0.74).** This value of 57% indicates a moderate-to-high overall impact of social media. The analysis observed an extremely high heterogeneity among the studies (I^2 = 100%, Tau^2 = 0.08) with Chi^2 test for heterogeneity being statistically significant (Chi^2 = 2506.68, p < 0.00001). The difference in study designs, methodology or populations can explain the heterogeneity seen here.

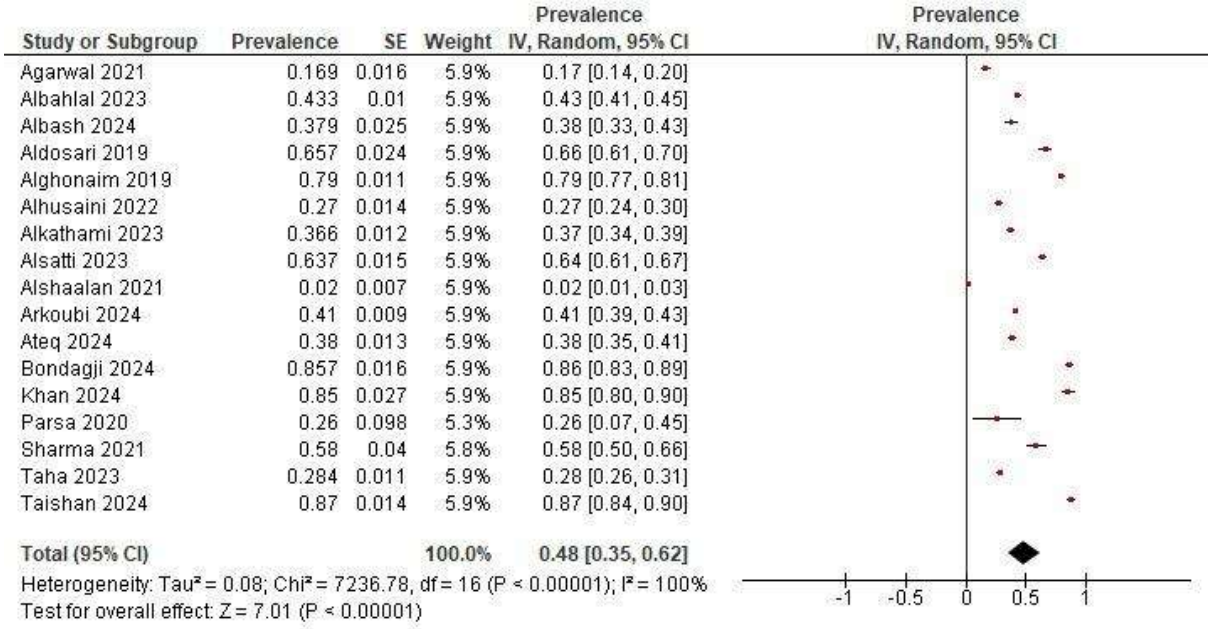

Figure 3. Forest Plot 2; *This forest plot summarizes the prevalence estimates of 17 studies with each study represented by a square marker denoting its prevalence and a horizontal line (95% confidence interval). The size of each square corresponds to the weight of that study ranging from 5.3% to 5.9%. The pooled prevalence across these 17 studies is represented by the diamond at the bottom of the plot which is reported to be* ***0.48 (95% CI: 0.35, 0.62)****, indicating a moderate prevalence of the* ***phenomenon****. A random-effects model was employed due to significant heterogeneity reported here. The values: (Tau^2 = 0.08, Chi^2 = 7236.78, I^2 = 100%) indicates extremely high variability among the studies which are due to various factors such as population size, different methodologies etc. A statistically significant Z-value was obtained for the overall effect; 7.01 (p < 0.00001).*

The forest plot 2 reports the analysis done across 17 studies. Each study contributed a total weight of 5.9% except for Parsa 2020 and Sharma 2021 with a weight of 5.3% and 5.8% respectively. Taishan 2024 recorded the highest prevalence of 0.87 (95% CI: 0.84, 0.90) while Alshaalan 2021 recorded the lowest prevalence of 0.02 (95% CI: 0.01, 0.03). The pooled prevalence of **0.48 (95% CI: 0.35, 0.62)** suggests a moderate impact overall. Heterogeneity was substantially high (I^2 = 100%, Tau^2 = 0.08, Chi^2 = 7236.78, p < 0.00001). The Z-value of 7.01 (p < 0.00001) confirms the significant influence of the pooled estimate. The high variability among studies denotes differences in study designs and populations that warrants further exploration.

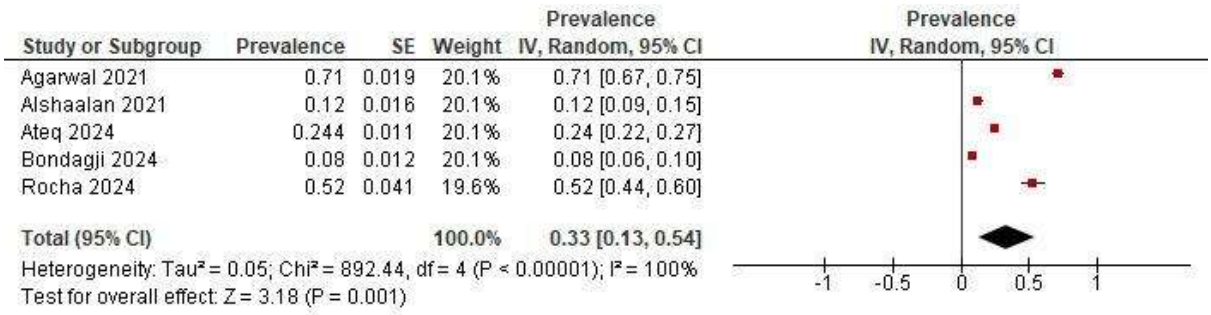

Figure 4. Forest Plot 3; *The forest plot includes five studies and each study is represented by its prevalence estimate, Standard Error (SE), weight and Confidence Interval (CI). Weights are similar and consistent ranging from 19.6% to 20.1%, indicating equal contributions to the analysis. The size of the square markers in this image is slightly bigger than the previous forest plots which is rightly supported by the high weight of 20.1% in this plot compared to less weights such as 5.9% and 10% in previous plots. The pooled prevalence is* ***0.33 (95% CI: 0.13, 0.54)*** *as demonstrated by the diamond at the bottom of the plot, indicating a moderate level of overall prevalence. Significant heterogeneity is observed (Tau² = 0.05, Chi² = 892.44, I² = 100%, p < 0.00001) indicating considerable variability among the studies included. The Z-value is recorded to be 3.18 (p = 0.001) suggesting statistical significance.*

The forest plot 3 includes analysis done across five studies, with consistent weights ranging from 19.6% to 20.1%. The prevalence estimates range from lowest prevalence of 0.08 (95% CI: 0.06, 0.10) reported by Bondagji 2024 to highest prevalence of 0.71 (95% CI: 0.67, 0.75) reported by Agarwal 2021. The pooled prevalence of 0.33 (95% CI: 0.13, 0.54) suggests a moderate estimate but lower compared to the previous two analyses. Again, the heterogeneity variable was extremely high (I^2 = 100%, Tau^2 = 0.05, Chi^2 = 892.44, p < 0.00001) with a statistically significant Z-value of 3.18 (p = 0.001).

All three forest plots depict high heterogeneity (I^2 = 100%), suggesting diversity of included studies stemming from factors such as study designs, population, and methodology. The studies conclude significant dual impact of social media by reporting the pooled prevalence ranged from 33% to 57%.

DISCUSSION

Social media has become a dominant force in shaping beauty standards and influencing the demand for cosmetic procedures. The rise of image-centric platforms such as Instagram, Snapchat, and TikTok has led to an increase in self-awareness, body dissatisfaction, and the normalization of aesthetic enhancements [44,45]. Studies have shown that both patients and cosmetic providers acknowledge the role of social media in altering beauty perceptions and decision-making processes regarding cosmetic interventions. This systematic review and meta-analysis aimed to evaluate the dual impact of social media on beauty standards and cosmetic procedures from both the patient and provider perspectives. The findings indicate a moderate-to-high prevalence of social media's influence on cosmetic preferences, self-esteem, and procedural demand, with significant variability among studies.

The findings of this study align with previous reviews, which have also demonstrated a strong correlation between social media exposure and increased interest in cosmetic enhancements. The pooled prevalence of social media's impact ranged from 33% to 57%, similar to existing literature that highlights how online beauty ideals contribute to body dissatisfaction and drive aesthetic procedure uptake. Prior studies have reported that platforms like Instagram and Snapchat contribute

to heightened self-scrutiny due to the use of filters and edited images, which often set unrealistic beauty expectations. Similar to our findings, past meta-analyses have reported that social media users are more likely to seek non-invasive procedures such as fillers and Botox, particularly among younger demographics. However, this study uniquely synthesizes both patient-driven and provider-reported perspectives, offering a more holistic understanding of how digital beauty trends shape cosmetic decisions.

One key finding of this study is the significant psychological impact of social media on beauty perception. This review found that many patients pursue cosmetic enhancements due to dissatisfaction with their digital appearance, as filtered selfies create unrealistic standards. This observation is consistent with prior research that has linked frequent social media use to body dysmorphic tendencies and lower self-esteem. However, unlike previous studies that primarily explored qualitative aspects, this meta-analysis provides a pooled prevalence estimate, reinforcing the quantitative significance of these psychological effects [48,51]. Additionally, provider perspectives indicate an increasing trend in patient requests for procedures that mimic filtered images, a phenomenon widely discussed in recent literature. Compared to earlier reviews, this study contributes further by quantifying the proportion of providers who report social media-driven procedural demands, demonstrating its growing influence on aesthetic medicine.

Another notable finding is the variation in procedural preferences influenced by social media. This study found that non-invasive cosmetic procedures were more commonly sought due to social media exposure, consistent with previous findings that injectable treatments are widely promoted online. Interestingly, while past studies have primarily focused on facial aesthetic procedures, this review also highlights an increasing interest in dental and dermatological interventions, which have received less attention in previous meta-analyses. The inclusion of provider perspectives in this study helps contextualize these findings, as many cosmetic professionals acknowledge a direct correlation between social media beauty trends and patient requests. Compared to earlier studies, this review emphasizes the expanding scope of cosmetic interventions influenced by digital aesthetics, highlighting the role of emerging beauty trends in procedural decision-making.

This study has several strengths, including its comprehensive approach that combines patient and provider perspectives, allowing for a well-rounded analysis of social media's impact on cosmetic trends. Additionally, the inclusion of multiple studies across diverse populations strengthens the generalizability of the findings. However, the high heterogeneity observed in the meta-analysis ($I^2 = 100\%$) suggests variability among included studies, likely due to differences in study populations, methodologies, and cultural contexts. Future research should focus on longitudinal studies to better assess the long-term psychological and behavioral impacts of social media-driven beauty ideals. Moreover, further investigations should explore how factors such as age, gender, and socioeconomic background mediate the relationship between social media use and aesthetic preferences.

Conclusion

In conclusion, this systematic review and meta-analysis provide strong evidence that social media significantly influences beauty standards and cosmetic procedures from both patient and provider perspectives. The findings reinforce the need for increased awareness of the psychological consequences associated with unrealistic beauty standards perpetuated by digital platforms. As social media continues to evolve, future research should focus on strategies to mitigate its negative effects while promoting informed and healthy decision-making regarding cosmetic interventions.

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