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The effects of social media and photo-editing applications on body image and attitudes towards cosmetic procedures

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ABSTRACT

Objective: Social media practices have been linked to body dissatisfaction, lower self-esteem, and acceptance of cosmetic procedures among women. This study examined the relationship between selfie photo-editing frequency, body image concerns, and acceptance of cosmetic surgery, while considering the effects of self-esteem.

Method: Participants ($N = 169$) consisted of Australian women aged 18–35 with an active social media account. A one-way MANCOVA was conducted to investigate the effect of selfie photo-editing frequency on fear of negative evaluation, body dissatisfaction, and acceptance of cosmetic surgery, while statistically controlling for self-esteem.

Results: After controlling for self-esteem, results indicated a significant effect of photo-editing frequency on fear of negative evaluation, $F(2, 165) = 4.16$, $p = .017$, partial $\eta^2 = .05$ and acceptance of cosmetic surgery, $F(2, 165) = 13.71$, $p < .001$, partial $\eta^2 = .14$. Follow-up univariate tests revealed that women who reported frequently using photo-editing applications before posting selfies on social media had significantly greater fear of negative evaluation than those who never used photo-editing applications, and significantly higher acceptance of cosmetic surgery than individuals who edited selfies infrequently or not at all, after controlling for self-esteem. However, photo-editing frequency was not associated with body dissatisfaction, suggesting that self-esteem might explain this effect.

Conclusion: Frequent selfie photo-editing may be associated with increased fear of social evaluation and greater openness to cosmetic procedures. Findings support the need for psychosocial screening in cosmetic settings and preventative social media literacy interventions for young women active on social media.

KEY POINTS

What is already known about this topic:

(1) Body image concerns are prevalent among young women, particularly during the transition from adolescence to adulthood.

(2) Social media practices, especially appearance-based comparisons, is associated with lower self-esteem, increased psychological distress, and body dissatisfaction.

(3) Prior research has established a strong link between low self-esteem and negative body image.

What this topic adds:

(1) Frequent selfie photo-editing was associated with greater fear of negative evaluation from others and increased acceptance of cosmetic surgery for young Australia women, even when accounting for self-esteem.

(2) Photo-editing frequency was only associated with body dissatisfaction when self-esteem was excluded from the model, suggesting that self-esteem might account for this effect due to a shared variance.

(3) Findings highlight the need for preventative and targeted social media literacy programmes and comprehensive psychosocial screening in cosmetic settings.

Introduction

Body image is a multifaceted concept that encompasses perceptions of appearance, weight, size, shape, and function (Grogan, 2021). Body image is influenced by internalised messages that form an individual's worldviews. A "positive" body image is associated with higher self-esteem, fewer depressive symptoms, higher rates of social engagement,

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satisfaction with appearance, and healthy eating attitudes (Gillen, 2015). In contrast, a "negative" body image or body dissatisfaction is associated with eating disorders, depression, self-harm, and anxiety (Black et al., 2019; Gaskin et al., 2013; Paans et al., 2018; Vannucci et al., 2017).

Body image concerns are highly prevalent among young women and are increasingly shaped by digital contexts. While social media platforms have revolutionised global communication and interaction, allowing people to connect with family and peers and enhance learning (Akram & Kumar, 2017; Weinstein, 2018), they have opened opportunities for constant appearance-based self-presentation, social comparison, and exposure to unrealistic beauty standards (Fardouly & Vartanian, 2015; Perloff, 2014). While these platforms can foster connection, studies have shown that engagement with appearance-focused social media is associated with body dissatisfaction, lower self-esteem, and greater endorsement of cosmetic procedures (Chen et al., 2019; Lonergan et al., 2019; McLean et al., 2015), significantly impacting the social and emotional wellbeing of young people, particularly in relation to body image, self-esteem, and eating disorders (Bourgeois et al., 2014; Duan et al., 2022; Gonzalez-Nuevo et al., 2021; Lonergan et al., 2020; Papageorgious et al., 2022; Perloff, 2014; Ruiz et al., 2022). For example, research has shown that social media usage (e.g., Facebook, Instagram) is associated with increased body dissatisfaction, especially among young women (Fardouly & Vartanian, 2015; Pedalino & Camerini, 2022; Rounsefell et al., 2020). In women across the age span, body dissatisfaction has been linked to functional impairments, lower quality of life, negative affect, and disordered eating patterns (Aparicio-Martinez et al., 2019; Becker et al., 2017). However, the relationship between social media engagement and body dissatisfaction appears to be mediated by social media comparisons (Brown & Tiggemann, 2016; Fardouly & Vartanian, 2015; Pedalino & Camerini, 2022). Pedalino and Camerini (2022) found that comparisons with social media influencers, not close or distant peers, fully mediated the relationship between Instagram use and lower body appreciation. Fardouly and Vartanian (2015) showed that the frequency of comparisons to close friends and distant peers, and upward comparisons to distant peers and celebrities, mediated the relationship between Facebook usage and body image concerns. In addition, Brown and Tiggemann (2016) demonstrated that exposure to social comparison mediated the relationship between celebrity and peer images and increased body dissatisfaction.

A growing body of work has highlighted the role of photo-editing practices, such as using filters or applications to retouch photos, in digital contexts. Editing behaviours not only allow individuals to modify their online appearance but may also reinforce unrealistic beauty ideals and normalise body manipulation (McLean et al., 2015; Tiggemann et al., 2020). Frequent engagement in photo-editing has been linked to higher levels of body dissatisfaction and appearance concerns (Lonergan et al., 2019; Mills et al., 2018). However, findings are mixed, with some studies suggesting effects depend on whether edited images are posted publicly or kept private (Mills et al., 2018). The popularity of photo-editing applications and filters on social media platforms has led to the trend of posting edited "selfies", but these tools have been criticised for promoting unrealistic beauty standards and creating pressure to meet altered appearances (Rajanala et al., 2018; Wang et al., 2019). McLean et al. (2015) found that among female high school students in Australia, frequent users of selfie photo-editing had higher levels of body dissatisfaction. They also revealed that those who heavily invested in posting selfies and seeking feedback through likes and comments had greater concerns about their body image. Conversely, participants who posted selfies less frequently and placed lower importance on receiving likes or comments had a more positive body image.

Recent studies have shown that individuals who have a tendency towards body dysmorphia or negative body image are more likely to use photo-editing applications to alter their features (Abbas & Dodeen, 2021; Maharani et al., 2020). The widespread use of social media filters and photo-editing applications has given rise to the phenomenon known as "Snapchat dysmorphia". This term refers to a group, mostly women under 35 years old, who are preoccupied with perceived flaws in their appearance and use editing tools to address their body dissatisfaction (Seekis & Barker, 2022). Edited photos shared on social media receive positive reinforcement through likes and comments, which strengthens the negative relationship between social media and body image (Mills et al., 2018). This suggests that photo-editing may operate as a distinct form of body image risk behaviour, but more research is needed to clarify its psychological correlates.

Further, acceptance of cosmetic surgery represents another important outcome linked to appearance-based social media use. Prior studies suggest that greater photo-editing and social media engagement are associated with increased willingness to consider surgical or non-surgical procedures (Chen et al., 2019; Zhao, 2021). It has been proposed that such practices

may blur the boundaries between one's "real" and "ideal" appearance, thereby reinforcing internalisation of unattainable standards and increasing openness to surgical modification. These findings raise concerns that photo-editing may not only contribute to immediate body dissatisfaction but may also influence longer-term normalisation of cosmetic enhancement.

The Tripartite Influence Model (Thompson et al., 1999) explains how body image is shaped by three primary sociocultural influences: family, peers, and media. These sources convey cultural and societal appearance ideals such as thinness or muscularity, which individuals internalise and use as standards for self-evaluation. Social media, in particular, amplifies these influences by providing ubiquitous exposure to idealised images and appearance-related feedback (Roberts et al., 2022). Although traditional media had a role in creating an unrealistic body image, the interactive and self-exposing nature of social media has a potentially larger influence, particularly amongst younger women who are more active on social media platforms compared to men (Anderson & Jiang, 2018; Appel et al., 2019; Burnette et al., 2017; Sorokowska et al., 2016). Therefore, it is important to specifically investigate the effects of social media interactions on body image, especially in the context of digital editing tools.

Self-esteem is a well-established predictor of body dissatisfaction (Zeigler-Hill, 2011) and may influence the extent to which photo-editing behaviours are associated with body image concerns. Individuals with low self-esteem typically spend more time on social media engaging in appearance comparison, further reinforcing negative body image (Lee & Lee, 2021; Midgley et al., 2021). Low self-esteem is an underlying issue among those with body dysmorphia or negative body image, driving them to seek external validation (Rounsefell et al., 2020). Festinger's Social Comparison Theory (Festinger, 1954) explains the relationship between social media and appearance comparison, contending that individuals naturally compare themselves to others to evaluate their abilities, yet those with lower self-esteem are more prone to comparing themselves and internalising media's beauty standards (Mieziene et al., 2014; Tremblay et al., 2021). Therefore, self-esteem is a critical factor in the relationship between body image and social media use, as the negative effects of social media might be driven by low self-esteem rather than social media practices.

Appearance comparison may also contribute to the increased prevalence of cosmetic surgery, as it coincides with the rise of social media and selfie photo-editing. Research consistently demonstrates a strong association between social media use, photo-editing applications, and acceptance of cosmetic surgery (Beos et al., 2021; Chen et al., 2019; Othman et al., 2021; Shome et al., 2020; Sun, 2021). Cosmetic surgery involves enhancing one's physical appearance through surgical and medical techniques (Swami et al., 2009). In Australia, the most popular cosmetic procedures are Botox, lip fillers, liposuction, and rhinoplasty, which have substantially increased since the year 2000, corresponding with the popularity of social media (Jobson & Freckelton, 2022; Statista Research Department, 2022). Research has indicated that exposure to social media and the normalisation of cosmetic enhancements may contribute to greater acceptance of cosmetic surgery (Di Gesto et al., 2022; Fogel & King, 2014; Maes & de Lenne, 2022; Nerini et al., 2014; Rodner et al., 2021; Walker et al., 2019). Acceptance of cosmetic surgery, particularly when driven by low self-esteem and negative body image, has been linked to psychological difficulties such as body dysmorphia, depression, and social anxiety (Bahreini & Chinaveh, 2018; Bonell et al., 2022; Furnham & Levitas, 2012; Shaw et al., 2016; Vashi, 2016). While cosmetic enhancements can improve self-image satisfaction when appropriately chosen, excessive preoccupation with non-observable flaws and using procedures to control body dissatisfaction can lead to severe psychological consequences (Vashi, 2016) such as suicidal ideation in those with body dysmorphia (Ortiz et al., 2022).

Despite this evidence, several gaps remain. First, most studies have been conducted in North American or European contexts, with limited research in Australian samples. Given cultural and regional variations in social media use and cosmetic surgery trends, replication in Australian populations is important for generalisability. Second, there is a need to elucidate the potential role of self-esteem in these associations. Finally, although appearance evaluation is a core dimension of body image, prior studies have not consistently assessed whether photo-editing behaviours are uniquely associated with this construct once self-esteem is considered.

The present study addressed these gaps by investigating the relationship between selfie photo-editing frequency, aspects of body image, and acceptance of cosmetic surgery in a sample of young Australian women, while controlling for self-esteem. Specifically, we tested whether more frequent photo-editing would be associated with (a) greater fear of negative evaluation, (b) lower appearance evaluation (i.e., body dissatisfaction), and (c) higher acceptance of cosmetic surgery. By focusing on psychological risk factors (fear of negative evaluation, low appearance evaluation)

and cognitions about cosmetic surgery, this study provides a nuanced contribution to understanding how digital appearance practices may shape women's body image and cosmetic surgery attitudes. Given that existing literature has demonstrated a strong association between low self-esteem and negative body image, self-esteem was included as a covariate.

Method

Study design and procedure

This study employed a quantitative observational design. Participants were recruited through social media (e.g., Instagram), the University of Newcastle (UON) SONA research participation system, and community noticeboards, using paid social media posts and flyers between July and September 2022. University students recruited through SONA received course credit for participation. Community participants recruited through online advertisements and social media were offered entry into a draw to win a $50 (AUD) gift voucher. After providing informed consent online, participants completed the survey through QuestionPro using their own devices. The survey included demographic questions, measures of photo-editing frequency and social media usage, and standardised questionnaires on self-esteem, fear of negative evaluation, appearance evaluation, and acceptance of cosmetic surgery. The average time to complete the survey was 15 minutes. Responses on QuestionPro were imported into a statistical programme for analysis. Ethics approval was obtained from the UON's Human Research Ethics Committee (Approval number: H-2022–0159).

Measures

Demographics and eligibility

Participants reported their age, relationship status, highest level of education, and occupation, and completed questions relating to exclusion criteria to determine their eligibility.

Social media use & photo-editing frequency

Participants self-reported their social media platform preferences from a pre-defined list (i.e., Facebook, Instagram, TikTok, Snapchat, YouTube, and Other), time spent on social media per day (i.e., 0–30 minutes, 30–60 minutes, 60–120 minutes, > 120 minutes), and the frequency of posting selfies (i.e., less than once per month, monthly, weekly, twice a week, daily). Frequency of selfie photo-editing was assessed using

two behavioural items: the first question examined whether the individual posted selfies and the second examined how often photo-editing applications were used when posting selfies on social media. Responses were rated as 1 (*never*), 2 (*not often*), and 3 (*often*). Participants self-reported the type of photo-editing application used (i.e., Instagram, Face Tune, Other), and the reason(s) for editing (i.e., alter shape of appearance, remove blemishes, soften wrinkles, other). Similar approaches have been used in prior research (e.g., McLean et al., 2015) to capture the applied behaviours most relevant to young women's digital image practices.

Social comparisons

Participants self-reported the type (i.e., friends, family, strangers, celebrities) and frequency of appearance-related comparisons (e.g., "*When looking at photos of family, how often do you compare your appearance to theirs?*") from 1 (*never*) to 4 (*very often*).

Self-esteem

The Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965) was used to assess global self-esteem. The 10-items (e.g., "*On the whole, I am satisfied with myself*") were rated on a 4-point Likert scale from 1 (*strongly agree*) to 4 (*strongly disagree*), with several items reverse scored. Higher scores reflect greater self-esteem. The RSES demonstrated high internal consistency in the present study (α = .92).

Fear of negative evaluation

The Fear of Negative Appearance Evaluation Scale (FNAES; Lundgren et al., 2004) is a 6-item self-report measure of participants' concern with how others evaluate their appearance. Items (e.g., "*I am concerned about what other people think of my appearance*") were rated on a 5-point Likert scale from 1 (*not at all*) to 5 (*extremely*). Lower scores indicate very little concern about others' judgement on appearance and higher scores indicate a large concern with others' judgement. The FNAES showed high internal consistency in this study (α = .94).

Appearance evaluation

The 7-item Appearance Evaluation subscale of the Multidimensional Body-Self Relations Questionnaire (MBSRQ-AE; Brown et al., 1990) was used to assess satisfaction with appearance (i.e., body satisfaction). Items (e.g., "*I like the way I look without my clothes on*") were rated on a 5-point scale from 1 (*definitely disagree*) to 5 (*definitely agree*), with items 6 and 7 reverse scored. Higher scores indicate satisfaction

with one's appearance and lower scores indicate dissatisfaction. The internal consistency of the MBSRQ-AE was high in this study (α = .94).

Acceptance of cosmetic surgery

The Acceptance of Cosmetic Surgery Scale (ACSS; Henderson-King & Henderson-King, 2005) was used to measure attitudes towards cosmetic procedures. The 15-item scale comprises three domains: intrapersonal (e.g., *"Cosmetic surgery is a good thing because it can help people feel better about themselves"*), social (e.g., *"If cosmetic surgery can make someone happier with the way they look, then they should try it"*), and consider (e.g., *"I have sometimes thought about having cosmetic surgery"*). Responses were rated on a 7-point Likert scale from 1 (*strongly disagree*) to 7 (*strongly agree*), with item 10 reverse scored. Higher scores indicate a favourable attitude or acceptance of cosmetic surgery. The ACSS demonstrated high internal consistency in this study (α = .94).

Data analysis

Statistical analyses were completed using IBM SPSS Version 28 (SPSS, Inc. Chicago, IL). Descriptive analyses were conducted to examine participant demographics and social media usage as well as the mean and standard deviation scores of the measures (see Table 1). Pearson's R correlation coefficient was used to assess the relationships between the scales, confirming their suitability for a multivariate analysis of covariance (MANCOVA) (Keselman et al., 1998). A one-way MANCOVA was conducted to examine mean differences between groups, controlling for self-esteem. Groups were categorised based on frequency of photo-editing application use: Never ($N = 68$), Not Often ($N = 58$), and Often ($n = 43$). Partial eta squared (η^2) was used as the effect size (.01 = small, .06 = medium, and .14 = large), interpreted by Field's (2018) guidelines. To control for maximum family-wise type 1 error, p was adjusted to a conservative value of α = .02 (Bird & Hadzi-Pavlovic, 2013). Participant demographic characteristics are grouped by photo-editing frequency (see Table 2) and by recruitment group (see Table 3). The dependent variables in the analysis were

fear of negative evaluation (FNAES), acceptance of cosmetic surgery (ACSS), and appearance evaluation (MBSRQ-AE).

Results

Participants

The final sample comprised 169 women aged 18–35 years. Participants were recruited from two sources: first-year psychology students at an Australian university ($n = 86$) and Australian community members ($n = 83$). Community participants were employed across a range of occupations. Forty-six individuals were excluded due to incomplete or missing data. The age distribution was as follows: 18–21 years ($n = 76$, 45.0%), 22–28 years ($n = 47$, 27.8%), and 29–35 years ($n = 46$, 27.2%). Over half of the sample had completed tertiary education ($n = 92$, 54.4%).

Social media usage

Most participants reported daily social media use of 60–120 minutes ($n = 68$, 40.2%), followed by > 120 minutes ($n = 56$, 33.1%). Instagram was the most frequently used social media platform ($n = 153$, 90.5%). More than half of the sample ($n = 101$, 59.7%) reported using photo-editing applications when posting selfies. The most common modifications were removing blemishes ($n = 65$, 38.5%), altering appearance such as reshaping features ($n = 36$, 21.3%), and softening wrinkles ($n = 16$, 9.5%). Other modifications included adjusting skin tone and enhancing the background.

Photo-editing, body image variables, and cosmetic surgery

A one-way MANCOVA was conducted to examine the impact of photo-editing frequency on fear of negative evaluation, acceptance of cosmetic surgery, and appearance evaluation, while controlling for self-esteem. The assumption of homogeneity of covariance matrices was met, Box's $M = 12.17$, $p = .459$. Levene's tests indicated homogeneity of variances for all dependent variables, fear of negative evaluation, $F(2, 166) = 0.08$, $p = .923$; acceptance of cosmetic surgery,

Table 1. Descriptive statistics and correlations for outcome variables.

Variable	n	M	SD	1	2	3	4
Appearance evaluation	169	29.87	10.28	__	−.62**	−.72**	−.30**
Fear of negative evaluation	169	18.86	6.59	−.62**	__	.66**	.43**
Self-esteem	169	22.12	5.72	−.72**	.66**	__	.31**
Acceptance of cosmetic surgery	169	62.12	20.31	−.30**	.43**	.31**	__

Note. ** Correlation is significant at the .01 level (2-tailed).

Table 2. Demographic characteristics of participants categorised by photo-editing frequency.

	Never (n = 68)		Not Often (n = 58)		Often (n = 43)	
Variable	n	%	n	%	n	%
Student	35	51.5	31	53.4	20	46.5
Employed	33	48.5	27	46.6	23	53.5
Age						
18–21 years old	30	44.1	24	41.4	22	51.2
22–28 years old	17	25.0	20	34.5	10	23.3
29–35 years old	21	30.9	14	24.1	11	25.6
Relationship Status						
Single	41	60.3	34	58.6	21	48.8
Married/partnered	25	36.8	19	32.7	16	37.2
Other	2	2.9	5	8.6	6	14.0
Highest education level						
High School	29	42.6	28	48.3	20	46.5
TAFE/Diploma	16	23.5	8	13.8	9	20.9
University degree	23	33.9	22	37.9	14	32.5
Time spent on social media per day						
0–30 min	3	4.4	4	6.9	0	0.0
30–60 min	21	30.9	11	19.0	6	14.0
60–120 min	25	36.8	25	43.1	18	41.9
120 min +	19	27.9	18	31.0	19	44.2
Comparison – friends[a]						
Never	7	10.3	10	17.2	9	20.9
Sometimes	39	57.4	22	37.9	10	23.3
Often	13	19.1	18	31.0	13	30.2
Very often	9	13.2	8	13.8	11	25.6
Comparison – family[a]						
Never	23	33.8	23	39.7	16	37.2
Sometimes	31	45.6	28	48.3	14	32.6
Often	9	13.2	4	6.9	5	11.6
Very often	5	7.4	3	5.2	8	18.6
Comparison – strangers[a]						
Never	4	5.9	2	5.2	1	2.3
Sometimes	25	36.8	15	25.9	8	18.6
Often	25	36.8	26	44.8	10	23.3
Very often	14	20.6	14	24.1	24	55.8
Comparison – celebrities[a]						
Never	10	14.7	5	8.6	2	4.7
Sometimes	29	42.6	23	39.7	11	25.6
Often	18	26.5	18	31.0	15	34.9
Very often	11	16.2	12	20.7	15	34.9

Note. N = 169.
[a]Refers to appearance comparison of self with images of friends, family, strangers, or celebrities.

$F(2, 166) = 0.28$, $p = .760$; and appearance evaluation, $F(2, 166) = 0.58$, $p = .559$.

Using Pillai's trace, there was a significant multivariate effect of photo-editing frequency on the combined dependent variables (fear of negative evaluation, acceptance of cosmetic surgery, and appearance evaluation), after accounting for self-esteem, $V = .16$, $F(6, 328) = 4.73$, $p < .001$, partial $\eta^2 = .08$, with a medium effect size.

As hypothesised, separate univariate tests revealed a significant effect of photo-editing frequency on fear of negative evaluation, $F(2, 165) = 4.16$, $p = .017$, partial $\eta^2 = .05$ (medium effect size), and acceptance of cosmetic surgery, $F(2, 165) = 13.71$, $p < .001$, partial $\eta^2 = .14$ (large effect size), after controlling for self-esteem. Contrary to expectations, there was no significant effect on appearance evaluation, $F(2, 165) = 0.65$, $p = .525$, partial $\eta^2 = .01$. However, when self-esteem was excluded from the model, appearance evaluation

became significant, $F(2, 166) = 3.19$, $p = .044$, partial $\eta^2 = .04$, and the effect of photo-editing frequency on fear of negative evaluation ($p = .001$, partial $\eta^2 = .08$) and acceptance of cosmetic surgery ($p < .001$, partial $\eta^2 = .16$) strengthened.

As hypothesised, planned post-hoc tests revealed that the Often photo-editing group had significantly higher fear of negative evaluation ($M = 20.66$, $SE = 0.76$) than the Never photo-editing group ($M = 17.88$, $SE = 0.60$, $p = .005$), after controlling for self-esteem. Additionally, as predicted, the Often photo-editing group showed significantly greater acceptance of cosmetic surgery ($M = 73.22$, $SE = 2.79$) compared to the Never ($M = 54.61$, $SE = 2.19$, $p < .001$) and Not Often photo-editing groups ($M = 62.71$, $SE = 2.38$, $p = .005$), after controlling for self-esteem. The Not Often photo-editing group also had significantly higher acceptance of cosmetic surgery ($M = 62.71$, $SE = 2.38$) than the Never photo-editing group ($M = 54.61$, $SE = 2.19$, $p = .013$), after controlling

Table 3. Demographic characteristics of participants categorised by recruitment group.

Variable	University (n = 86)		Community (n = 83)	
	n	%	n	%
Age				
18–21 years old	62	72.1	14	16.9
22–28 years old	18	20.9	29	34.4
29–35 years old	6	7.0	40	48.2
Relationship Status				
Single	60	69.8	36	43.4
Married/partnered	19	22.1	41	49.3
Other	7	8.1	6	6.8
Highest education level				
High School	62	72.1	15	18.1
TAFE/Diploma	18	20.9	15	18.1
University degree	6	7.0	53	63.8
Time spent on social media per day				
0–30 min	2	2.3	5	6.0
30–60 min	14	16.3	24	28.9
60–120 min	36	41.9	32	38.6
120 min +	34	39.5	22	26.5
Comparison – friends[a]				
Never	7	8.1	19	22.9
Sometimes	34	39.5	37	44.6
Often	26	30.2	18	21.7
Very often	19	22.1	9	10.8
Comparison – family[a]				
Never	27	31.4	35	42.2
Sometimes	41	47.7	32	38.6
Often	10	11.6	8	9.6
Very often	8	9.3	8	9.6
Comparison – strangers[a]				
Never	3	3.5	5	6.0
Sometimes	21	24.4	27	32.5
Often	33	38.4	28	33.7
Very often	29	33.7	23	27.7
Comparison – celebrities[a]				
Never	3	3.5	14	17.1
Sometimes	33	38.4	30	36.1
Often	25	29.1	26	31.3
Very often	25	29.1	13	15.7

Note. N = 169.
[a]Refers to appearance comparison of self with images of friends, family, strangers, or celebrities.

for self-esteem. Contrary to our hypothesis, there were no significant differences for appearance evaluation across any of the groups. There were also no significant differences between the Often and Not Often groups on fear of negative evaluation.

Discussion

The present study examined associations between social media engagement, photo-editing application use, body image variables, and acceptance of cosmetic surgery among young Australian women, while considering self-esteem. To our knowledge, this is the first study to measure these associations in an Australian sample of women with equal representation from university and community settings.

Consistent with our hypotheses, women who reported frequently using photo-editing applications before posting selfies on social media exhibited significantly greater fear of negative evaluation compared to those who never used photo-editing applications, even when considering self-esteem. Furthermore, frequent photo-editors showed significantly higher acceptance of cosmetic surgery than those who edited their photos infrequently, or not at all. These associations are consistent with a growing body of literature linking selfie editing and negative body image concerns (McLean et al., 2015; Tiggemann et al., 2020) as well as acceptance of cosmetic surgery (Chen et al., 2019; Zhao, 2021). These findings build on prior research (Lonergan et al., 2019; McLean et al., 2015; Mills et al., 2018; Tiggemann et al., 2020; Zhao, 2021) by highlighting that frequent photo-editing is not only associated with appearance-related concerns and cosmetic surgery acceptance, but also with social evaluative fears. While the cross-sectional nature of the data limits causal inference, the results suggest that frequent engagement in photo-editing prior to posting selfies on social media may be part of a broader pattern of appearance-focused psychological processes that warrant further longitudinal investigation. For example, Wang et al. (2022) found that selfie editing

predicted later cosmetic surgery consideration among adolescents, with facial dissatisfaction mediating this relationship. This suggests that frequent photo-editing may not only reflect pre-existing concerns but could also contribute to the development of appearance-related anxieties over time. These findings support the notion that selfie editing may function as a self-objectification behaviour, reinforcing internalised beauty norms and amplifying appearance monitoring.

Contrary to expectations, photo-editing frequency was not associated with differences in appearance evaluation (i.e., body satisfaction). This finding diverges from prior work (e.g., Lonergan et al., 2019; McLean et al., 2015; Mills et al., 2018) that has reported links between editing practices and body dissatisfaction. One explanation for this difference is that self-esteem, which was statistically controlled in the current study, accounted for much of the variance in appearance evaluation. When self-esteem was excluded from the model, this relationship became significant and the effect of photo-editing frequency on fear of negative evaluation and acceptance of cosmetic surgery also strengthened. This pattern suggests that self-esteem shares variance with other body image variables, particularly body dissatisfaction, and that higher self-esteem may protect against the negative effects of photo-editing on body dissatisfaction. Another explanation for this effect is methodological factors. The use of a single appearance evaluation subscale in this study may not have captured the full complexity of body dissatisfaction. Future research could address this by employing multidimensional measures of body dissatisfaction.

Additionally, most participants reported high social media use (i.e., minimum 60 minutes per day), particularly on Instagram (90%), and engaging in appearance-based online comparisons with celebrities and strangers. Similar to previous literature (Agrawal & Agrawal, 2021), the primary motivations for using photo-editing applications in this study were to enhance appearance and remove imperfections. Consistent with Objectification Theory (Fredrickson & Roberts, 1997), the act of editing selfies may heighten self-surveillance of perceived flaws, normalise appearance manipulation, and reinforce internalised appearance ideals. Over time, these processes may create a cycle where photo-editing both reflects and amplifies appearance-related concerns, which could explain the robust associations observed with cosmetic surgery acceptance in this study.

Overall, the findings suggest that women who regularly used photo-editing applications before posting selfies have a stronger fear of negative judgement compared to non-users, along with greater acceptance of cosmetic surgery than those who edited selfies infrequently or not at all, even after accounting for self-esteem. However, editing frequency was not related to body dissatisfaction, suggesting that self-esteem may play an essential protective role in digital contexts.

Clinical implications

Our findings have several practical implications for clinicians, cosmetic practitioners, and public health stakeholders. The observed links between selfie editing, fear of negative evaluation, and acceptance of cosmetic procedures, reinforce the importance of adhering to Australian guidelines that call for the systematic assessment of psychological risk prior to cosmetic surgery. Under the National Safety and Quality Cosmetic Surgery Standards (NSQCSS) and Medical Board requirements, health professionals must evaluate patient suitability, including screening for body dysmorphic disorder (BDD) using validated psychometric instruments (Australian Commission on Safety and Quality in Health [ACSQHC], 2023; Medical Board of Australia, 2023). Evaluating patient suitability is essential, as cosmetic procedures may provide short-term relief, but they are unlikely to address deeper psychological difficulties and may worsen long-term outcomes. For example, a recent systematic review found that although patients with mild to moderate BDD symptoms experienced a reduction in symptom severity postoperatively, a subset experienced an increase in symptoms, with many continuing to seek additional procedures despite initial interventions (Yong et al., 2025). This highlights the importance of referring individuals with high appearance preoccupation, low self-esteem, and/or a positive BDD screen to mental health clinicians before engaging in cosmetic procedures. Clinicians should also document informed consent discussions that include psychosocial risk and alternative treatment options, and consider delaying procedures until psychological difficulties have been appropriately addressed.

Our findings also have clinical implications for the prevention and treatment of mental health difficulties, especially for young women using social media. Social media engagement, particularly selfie photo-manipulation, is a potentially high-risk behaviour for women who have lower self-esteem. Frequently editing selfies, pre-occupation with appearance evaluation from others, and acceptance of cosmetic surgery, could be potential risk indicators for BDD and related body image disturbances. In addition, frequent exposure to retouched images and appearance

comparisons on social media from celebrities, strangers, or peers, can intensify the relationship between appearance comparison and body image, and are risk factors for eating disorders, especially among adolescents and younger women who are more likely to internalise beauty standards (Cohen et al., 2017; Izydorczyk & Sitnik-Warchulska, 2018; Lonergan et al., 2019). For example, engaging in photo-based activities on Facebook, and following appearance-focused content on Instagram, are associated with body image difficulties such as thinness drive, internalisation, and body surveillance (Cohen et al., 2017).

Furthermore, at the population level, our result support the need for preventative interventions that promote social media literacy and mitigate the negative effects of social media use. For example, a school-based social media literacy intervention has demonstrated improvements in body image-related outcomes in adolescent girls (Gordon et al., 2021). Similarly, previous research has found that social media literacy is a protective factor for adolescent girls and younger women, and may mitigate the potential negative link between body image and social media exposure (Burnette et al., 2017; Mahon & Hevey, 2021; Paxton et al., 2022). Therefore, interventions that promote social media literacy and foster positive body image should be considered to attenuate the potentially harmful effects of social media engagement and photo-editing applications, especially for women with lower self-esteem. Together, these findings highlight the importance of integrated approaches that combine clinical screening, public education, and social media literacy to reduce the psychosocial harms of digital appearance modification.

Limitations, strengths, and future directions

These findings should be considered in light of the study's limitations. First, the study's cross-sectional nature prevents causal inference and temporality claims. Longitudinal and experimental designs are needed to clarify directionality and mediating mechanisms (e.g., social comparison, self-objectification, self-esteem). Second, reliance on self-report, online recruitment, and single-method measurement may introduce response and selection biases. Future work could combine objective behavioural metrics (e.g., logged application use or observed photo-editing behaviour), ecological momentary assessment, or clinical interviews to triangulate findings (Kuru & Pasek, 2016). Third, the scales used to measure body image did not specifically address facial dissatisfaction, which is relevant to selfie photo-editing. Future studies could

modify existing measures to include facial features (Beos et al., 2021). A fourth limitation is that the ACSS does not reflect recent cosmetic surgery trends. That is, it does not differentiate between invasive and non-invasive procedures, which constrains interpretability. Future research could consider modifying the scale or introducing an additional scale to measure contemporary cosmetic procedures. In addition, our findings on participant acceptance of cosmetic surgery does not indicate that these individuals will necessarily engage with cosmetic surgery. It does, however, reflect an acceptance, consideration, and potential motivation to engage with cosmetic surgery. Furthermore, our findings cannot be assumed to generalise to adolescents under 18, older adults, or to male samples. Future research should broaden age and gender representation.

This study's strengths include a large, diverse, sample with balanced representation of university and community participants, enhancing both reliability and external validity compared with student-only samples. The inclusion of self-esteem as a covariate strengthens internal validity and contributes to understanding the unique associations between photo-manipulation and body-image outcomes. Additionally, the study addresses timely questions with direct clinical relevance, intersecting with evolving standards and regulatory guidance (e.g., NSQCSS, Medical Board), that underscores the translational significance of the findings.

Conclusion

Women who frequently used photo-editing applications before posting selfies reported greater fear of negative evaluation compared to non-users, and higher acceptance of cosmetic surgery than those who edited selfies infrequently or not at all, even after controlling for self-esteem. However, photo-editing frequency was not linked to body dissatisfaction suggesting that self-esteem might be a central protective factor in digital appearance behaviours. These associations highlight the importance of addressing underlying self-esteem issues, routine psychosocial screening in cosmetic settings, careful interpretation of cosmetic interest scores, and the implementation of evidence-based social media literacy programmes for young women. Future longitudinal and intervention research could refine measurement tools, test causal relationships, and examine the impact of integrating screening and referral pathways into clinical practice. By demonstrating the psychological correlates of selfie photo-

editing, this study contributes to the growing evidence base guiding both clinical screening and public health strategies to promote healthy body image.

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Data availability statement

The data that support the findings of this study are available from the corresponding author, J. R, upon reasonable request.

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