

**Interactive Relations Between Selfie Behaviors, Body Image,
And Self Esteem in Females**

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Abstract

Since online social networking plays a crucial role in people's lives and people commonly share their life via selfies, it is vital to investigate the relationship of self-esteem, body images, and selfie-taking behaviors. The association between the level of engagement in behaviors related to one's self-portrait photograph (selfie) and self-perception, including self-esteem and body image, was investigated through a survey of 103 women aged 18 to 50 years selected from MTurk. The engagement of selfie behaviors, including posting and editing, was measured by two self-reported questions asking about the frequency of sharing and editing selfies separately, while self-esteem and body satisfaction was measured by participants' agreement to 20 statements. Pearson correlation coefficient was used to analyze the association. The result highlighted that the frequency of editing selfies was significantly negatively associated with people's level of self-esteem and the content of their body images, whereas the correlation was only found in the relationship between selfie-posting behaviors and body satisfaction but not self-esteem. The findings imply the negative impacts of active social media usage and high engagement in sharing selfies online on women's self-image and mental health. The contribution of these findings to the selfies-taking literature, as well as implications for future research, are discussed.

Keywords: self-esteem, selfies, body image, online self-presentation, social media, female

Introduction

Nowadays, social media has become a crucial part of people's lives, especially after the COVID-19 pandemic. According to Statista Research Department (2022), from 2020 to 2022, the average daily time spent on social media by U.S. users increased significantly from 56 minutes to 65 minutes, and 72% percent of the adult population use at least one social media service; mostly are female from 18–49-year-olds (86%). People browse information and pictures on social media every day, so social networking sites (SNSs) pose an increasingly significant effect on their mental health, interpersonal interactions, well-being, and self-image. Self-portrait photography, also known as the selfie, popularized proportionally to the increasing usage of social media. It quickly became the most frequently browsed type of picture in current media, while more than a million selfies are taken each day, and more than 17 million are uploaded and shared to social media sites (Lim, 2016). The amount of academic research has increased correspondingly to the growth in the popularity of selfies. As a way of self-presentation, selfie behaviors are concerned with people's self-image, mental health, and subjective well-being, so plenty of studies have investigated the characteristics that motivate people to take selfies. As selfies become a crucial part of internet life, investigating selfie behaviors helps researchers understand the underlying effects of social media and technology in depth.

Selfies and Age

Selfie behaviors were defined as activities in selfie-taking, -sharing, and -editing (Pew Research Center, 2022). Dhir et al. (2016) found that women are significantly more likely to take a selfie than men across cultures, and those in the age group between 18 and 49 post the most selfies. However, little research concerning self-image, including self-esteem and body satisfaction, was done on this age group. Most researchers were interested in female teenagers in their early stages

of emerging adulthood, that is, the age group between 18 and 25. First, they were the group that was most intensively engaged in social media and selfie-taking behaviors before 2015. Secondly, they were also most vulnerable to self-image issues, such as body concerns and low self-esteem (Fredrickson & Roberts, 1997). Nevertheless, the gap between the population engaging in selfies taking was diminished gradually from 13% to 3%, as the increasing population aged from 25 to 49 took and shared their selfies online (Pew Research Center, 2022).

Previous Research

Previous studies showed that taking and sharing selfies has connections with personality, self-perception, self-esteem, and body image (Sorokowska et al., 2016). Changes in selfie behaviors, such as changing the frequency of editing or posting, would have significant influences on self-perception (Vendemia & DeAndrea, 2021). Differences in characteristics of self-image, for example, high self-esteem, high body dissatisfaction, narcissism, and self-objectification, are also correlated with differences in selfie behaviors (e.g, Biolcati, 2019; Sorokowska et al., 2016; Shin et al., 2017). However, there were inconsistent findings on the relationship between self-esteem or body satisfaction and selfies behaviors across studies, as well as the direction of the relationship. Veldhuis et al (2020) did not find an association between body satisfaction or high self-esteem with the higher engagement in selfie behaviors. Another study found that taking selfies frequently harms self-esteem levels, indicating a negative connection between selfie behaviors and self-esteem (Shin et al., 2017). There were findings correlating body dissatisfaction with a higher frequency of selfie-posting and a higher tendency to edit selfies (e.g., Vendemia & DeAndrea, 2021; Gonzales & Hancock, 2011). Meier, E. P., & Gray, J. (2014) argued that more frequent posting and editing of a selfie decreases females' body satisfaction and leads to a higher tendency of seeking plastic surgery, since people underwent a

self-judgment of their appearance and body features. Though positive or negative correlations between engagement in selfie behaviors and self-esteem or body satisfaction were both stated in the past studies, a large proportion of studies suggested that frequent selfie-taking, sharing, and editing could potentially negatively affect women's self-perceptions (e.g., Vendemia & DeAndrea, 2021; Gonzales & Hancock, 2011; Meier, E. P., & Gray, J., 2014).

Self-Esteem & Body Image Satisfaction

Self-esteem and body satisfaction were perceived as two closely associated variables by many studies (Kékes Szabó, 2015). Nevertheless, these two concepts are not completely overlapped, and they have their unique features regarding self-image, in which self-esteem focuses on a general perception of self, whereas body satisfaction is more specific on body image and appearance (Kim, 2020). Self-esteem was generally measured by the Rosenberg Self-Esteem Scale, whereas the measurements of body image dissatisfaction varied across studies. Some studies measured a broader self-body image, while others specifically measured subjects' perception of their specific body parts (Mendelson et al., 2001). The design of the measurement was more dependent on the purpose of the study, with no consistent standard of measurement (McDermott et al., 2014).

Current Study

Selfies as a form of self-presentation were argued as a way to show people's ideal self through uploading pictures online (Meier, E. P., & Gray, J., 2014). The study shows that multiple times of multiplication potentially maximized the recognition of distinctions between their current appearance and their ideal self of people's self-image, thus deteriorating their self-perception. Moreover, how people present themselves online could modify their self-perception in the real world, and consistent selfie modification behavior leads to lower body satisfaction while

receiving appearance comments on selfies posted online decreases the level of self-esteem (Gonzales & Hancock, 2011). The orders of variables also matter. A study found that high self-esteem and body satisfaction would elicit the behaviors of taking and sharing selfies and diminish the behavior of editing. Since this study examined the relationship after the conduction of selfies behaviors, the investigation was on the potential influence of selfie behaviors on self-perception. The conclusion based on previous studies was that exposure to selfie-taking behaviors through the usage of SNSs is negatively related to people's self-esteem and body satisfaction.

Due to a lack of consistent findings regarding the association of selfie behaviors with self-esteem and body image satisfaction, the purpose of this study is to investigate the existence of the correlation between these three factors. Women aged 18 to 50 ($N = 122$) were selected and asked to report their selfie behaviors and agreement with self-esteem and body image-related statements through a survey. The reason to choose this sample group was that firstly limited studies examined the selfie behaviors of women aged from 25 to 50, even if they were highly engaged in selfie-taking. Secondly, men are significantly less than women in the number of selfies taken and shared, especially for those related to appearance, and less prone to experience body concerns than females (Pew Research Center, 2022). The correlation coefficients between the average of self-esteem and body image and two components of selfie behaviors, posting frequency, and editing frequency, were analyzed. Based on previous findings, this study predicts that 1) women with a higher engagement in selfie-posting would have lower average self-esteem and body image satisfaction, and 2) women with a higher engagement in selfie editing would have a lower average self-esteem and body image satisfaction. The study can contribute to a

deeper understanding of selfie behavior and how it affects women's mental health and add more information on the potential mental effects of social media and technology usage.

Methods

Participants

Participants ($N = 103$) with ages from 18 to 50 ($M_{\text{age}} = 25.3$, $SD_{\text{age}} = 2.8$) were randomly selected from Amazon Mechanical Turk (MTurk), with 68.82% White, 12.9% Asian, 15.05% Black or African American, 3.23% Hispanic, and 70.97% married. The initial respondents were 122 women and 1 man, but the respondents that did not meet the criteria were discarded. Criteria included: 1) women aged from 18 to 50 who 2) respond to all the questions, 3) did not choose the same scale for the rating of 20 statements; 4) actively accessed social media services; 5) posted a selfie online at least once or twice in a few months.

Procedure

To examine the correlation between selfie behaviors and the average level of self-esteem and body dissatisfaction, a survey with three parts measuring selfie posting behavior, self-esteem, and body image satisfaction, respectively, was designed based on previous studies. Before the main part of the survey, two questions concerning their actively used platforms and the frequency of usage were asked in order to further understand their selfie behaviors and discard respondents who do not actively use social media services at first. And then, participants were asked to report their selfie behaviors and then rate 20 statements on a 4-Likert scale from strongly disagree to strongly agree. Subsequently, participants' age, gender, relationship status, and race were collected at the last stage to prevent an influence on their responses. The information on relationship status and the race was not included in the analysis of this study, but they can be potentially studied as possible mediators in later investigations. The survey was

completed on an electronic device whenever participants were available. The participants were compensated monetarily for their participation via MTurk after finishing the survey.

Materials

Selfie behavior was composed of two components: the frequency of posting selfies and the frequency of editing selfies (Shin et al., 2017). Selfie posting consists of both selfie-taking and sharing, while editing selfies was defined as modifications of body or face characteristics using filters, using editing software, or retaking and taking without posting. They were measured by two separate questions asking for the self-reported frequency. This study expects the combined average of self-esteem and body image scores to be more accurate at predicting these selfie behaviors than either self-esteem or body image scores would independently since they both covered each other's missing components that might contribute to selfie posting or editing (Fox & Rooney, 2015). Ten statements were designed based on the Rosenberg Self-Esteem Scale to measure the self-esteem level (Rosenberg, 1965). The measurement for body image satisfaction also consisted of ten statements: five statements for the general satisfaction level of their bodies and five statements for the general self-confidence in their bodies (McDermott et al., 2014; Mendelson et al., 2001). Scores were assigned to each statement of the measurement for self-esteem and body image satisfaction. Higher scores demonstrate higher levels of body satisfaction (see Table A2 in the Appendix) and self-esteem (see Table A1 in the Appendix). A correlation test was conducted to analyze the following: 1) the relationship between the combined average score of self-esteem and body image satisfaction and the frequency of selfie posting; 2) the relationship between the combined average score of self-esteem and body image satisfaction and the frequency of selfie editing. Though not targeting two hypotheses, the Pearson correlation

coefficients for 2 (self-esteem or body satisfaction) x 2 (posting frequency or editing frequency) four conditions were analyzed.

Results

The platform that is most actively used by participants is Facebook. 80.9% of our sample had actively used Facebook several times one day ($n = 83$), followed by 76.4% had used Instagram ($n = 79$), 59.6% had used TikTok ($n = 62$), 51.7% had used both Pinterest and Twitter ($n = 53$), 46% had used Snapchat ($n = 47$), 14.6% had used Tumblr ($n = 15$), and 12.4% had used WhatsApp ($n = 13$).

A Pearson correlation coefficient was performed to measure the strength of the linear relationship between selfie-posting frequency and the average level of self-esteem and body image satisfaction of females from age 18 to 50 ($N = 103$). We used an alpha level of .05 for all statistical tests. Results showed that the selfie-posting frequency ($M = 6.3$, $SD = 2.7$) was not significantly associated with the combined mean of self-esteem and body image satisfaction ($M = 15.6$, $SD = 6.7$), $p > 0.05$ but was significantly negatively associated with body satisfaction individually, $r(101) = -.22$, $p = .025$. Meanwhile, the selfie-editing frequency ($M = 11.32$, $SD = 6.49$) was weakly significantly associated with self-esteem and body satisfaction, $r(101) = -.23$, $p = .011$. There was a significantly strong positive correlation between self-esteem and body satisfaction, $r(101) = 0.47$, $p < .00001$.

Therefore, hypothesis 1 for posting was not supported, whereas hypothesis 2 that frequent editing was negatively related to the average level of self-esteem and body satisfaction was supported ($p < 0.05$).

Table 1*Table summarizing Pearson's r value*

	Means of two variables	Self-esteem	Body satisfaction
Selfie-posting frequency	-.19	-.17	-.22*
Selfie-editing frequency	-.25*	-.21*	-.29**
Body satisfaction	-	0.47**	-

* $p < .05$. ** $p < .01$.

Discussion

This study examined the correlation between selfie-posting behaviors, including posting and editing frequency, and the level of self-esteem and body satisfaction. Hypothesis 1, that greater engagement in posting selfies was significantly related to both self-esteem and body satisfaction level, was reversed, whereas hypothesis 2, that selfie editing behavior was negatively related to personal characteristics of self-esteem and body satisfaction, was supported. In addition, there was a significant weak correlation between higher engagement in posting behaviors and body satisfaction, but not self-esteem. Though the result of posting frequency is not significant, the negative correlation lines up with the previous prediction and the findings of other studies. Based on the findings, high engagement in selfie behaviors, of both posting and modifying, might lead to a decrease in self-esteem and body satisfaction, which was consistent with previous research and our prediction. This finding implies selfies are one of the underlying reasons for the negative effects of social media usage. Selfie editing behaviors are both significantly correlated with self-

esteem and body satisfaction, which may underscore its features as an appearance-judging behavior (Meier, E. P., & Gray, J., 2014). Editing selfies is an activity that highly stresses appearance defects, leading to a consequence of body image dissatisfaction. A strong correlation between self-esteem and body satisfaction was found in this study and multiple previous studies (e.g., Kékes Szabó, 2015; O'Dea, 2012; Kim, 2020), and body image is a considerable factor affecting self-esteem, so the negative impact of the editing behavior on body image satisfaction might spread to an individual's general perception of themselves, that is, lowering their self-esteem (O'Dea, 2012). Of the four conditions, two patterns in data were discovered. Firstly, the associations of conditions for selfie posting with self-esteem or body satisfaction were weaker than those for selfie editing. This result may be induced by the difference between selfie posting and editing in the extent of emphasis on appearance defects. Selfie posting is a less appearance-focused behavior compared to editing. Its relationship with self-perception depends more on people's thinking patterns when taking and sharing the photo, whether they highly engage in predicting other people's possible judgments or actions on the selfies uploaded or not (Veldhuis et al, 2020). Secondly, the associations of conditions for self-esteem with posting and editing behaviors were weaker than body satisfaction. Grounded on the result, self-esteem appeared to be less impacted by selfie behaviors, both editing and posting. Self-esteem as a more general perception of self is not specific enough to body or appearance that selfies are mainly relevant to, so it is not as closely related to selfie behaviors as selfie-editing behavior and would not be highly affected by engaging in selfie posting. These two patterns might propose an explanation for the insignificant relationship between self-esteem and selfie-posting behavior. Lastly, engagement in posting and engagement in editing had no interaction, indicating that the high

frequency to post a selfie does not influence the tendency for modification. The relationship between posting behavior and editing behavior could be further investigated in future studies.

This study found three significant correlations between four factors and contributed to the understanding of the potential negative effects of the selfie popularity online, as well as the negative influences of active SNSs usage on women's mental health and well-being. The Pearson correlation coefficient efficiently examined the relationship between selfie behaviors (posting or editing) and self-perception (self-esteem or body satisfaction). Limitations and further improvements were proposed. Other factors such as age, race, the platforms used, kinds of selfies uploaded, personality, and self-objectification may be concerned as confounds (McCain et al., 2016; Vendemia & DeAndrea, 2021; Gonzales & Hancock, 2011; Fox & Rooney, 2015). Since selfie behaviors are complicated and affected by many factors, multiple potential research can be conducted to study the effect of these confounding variables on the relationships found in this study. The majority of participants were in the age group between 23 and 33. Further studies can divide participants into groups of 18 to 25 years old and 25 to 50 years old to examine how age acts as a confounding variable. The operationalization of the concept of selfie behaviors might particularly need to be improved. Asking subjects to self-report their selfie posting and editing frequency is likely to collect biased data that is inconsistent with their actual behavior. Moreover, using frequency to measure selfie behaviors was considered too simple, since the effect of posting and editing on self-perception, including self-esteem and body satisfaction, might be more concerned with their thinking patterns when editing and posting selfies rather than simply the frequency, for instance, a tendency to deliberately consider when to post could have more comments and attention or how would other people think about this selfie. Requiring participants to rate statements regarding their thoughts during posting selfies, such as "I would not post right

after taking a selfie in order to get more comments”, probably would more efficiently measure the selfie posting behaviors. In terms of measurement of editing behaviors, possible improvements are to separate one question asking for their editing frequency into several questions asking about their usage of each editing tool, such as filters, retaking selfies, and taking without posting, individually.

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Appendix

Table A1

Rosenberg Self-Esteem Scale

Self-esteem	Score
1. On the whole, I am satisfied with myself.	Positive valence
2. At times I think I am no good at all.	Negative valence
3. I feel that I have a number of good qualities.	Positive valence
4. I am able to do things as well as most other people.	Positive valence
5. I feel I do not have much to be proud of.	Negative valence
6. I certainly feel useless at times.	Negative valence
7. I feel that I'm a person of worth, at least on an equal plane with others.	Positive valence
8. I wish I could have more respect for myself.	Negative valence
9. All in all, I am inclined to feel that I am a failure.	Negative valence
10. I take a positive attitude toward myself.	Positive valence

Note. Scores below 15 suggest low self-esteem; Positive valence items: Strongly agree = 3, Agree = 2, Disagree = 1, Strongly disagree = 0; Negative valence items: Strongly agree = 0, Agree = 1, Disagree = 2, Strongly disagree = 3

Table A2*Body Image Satisfaction Scale*

Body image	Score
I am satisfied with my body.	Positive valence
I feel people ignore me because of my looks.	Negative valence
I feel good when others reassure that I look all right.	Positive valence
My body makes me feel confident.	Positive valence
I want the “perfect” body.	Negative valence
I feel self-conscious about my appearance.	Negative valence
I find it difficult to look at myself naked.	Negative valence
I often feel myself less sexually attractive than other women.	Negative valence
In order to be physically attractive, I can hurt my health.	Negative valence
I would be easily affected by others' comments on my appearance.	Negative valence

Note. Positive valence items: Strongly agree = 3, Agree = 2, Disagree = 1, Strongly disagree = 0;
 Negative valence items: Strongly agree = 0, Agree = 1, Disagree = 2, Strongly disagree = 3