



Article

Social Media Affordances of Ephemerality and Permanence: Social Comparison, Self-Esteem, and Body Image Concerns

Donggyu Kim ^{1,*} and Soomin Kim ²

¹ Annenberg School for Communication and Journalism, University of Southern California, Los Angeles, CA 90007, USA

² Stan Richards School of Advertising and Public Relations, University of Texas at Austin, Austin, TX 78712, USA

* Correspondence: donggyuk@usc.edu

Abstract: Instagram provides users with different features, including posts and stories. Instagram post stays on the users' feeds permanently unless the content is deleted. An Instagram story has an ephemeral nature as the uploaded content vanishes after 24 h. Through a survey of 224 respondents, this study explored individuals' psychological constructs when using different Instagram features. Instagram usage pattern (i.e., use of different features (video, emoji, etc.), categories of content (food, selfie, etc.) that users usually post, reasons for editing photos (slim body, flawless skin, etc.), amount of time to create and upload a post/story), social comparison, self-esteem, and body image concerns based on the user's perception of ephemerality and permanency were examined. Results demonstrated that the perception of ephemerality on Instagram stories were negatively related to social comparison and body image concerns. In addition, the longer the amount of time the user spent on posting either a post or story on Instagram, the higher the likelihood the user was to socially compare. Overall, the findings align with previous research suggesting that Instagram users who socially compare are likely to have lower self-esteem and higher body image concerns.

Keywords: Instagram; social comparison; self-esteem; body image concern; ephemeral social media



Citation: Kim, Donggyu, and Soomin Kim. 2023. Social Media Affordances of Ephemerality and Permanence: Social Comparison, Self-Esteem, and Body Image Concerns. *Social Sciences* 12: 87. <https://doi.org/10.3390/socsci12020087>

Academic Editor:
Andreu Casero-Ripollés

Received: 28 December 2022
Revised: 6 February 2023
Accepted: 6 February 2023
Published: 9 February 2023



Copyright: © 2023 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

The use of social media is on the rise, making it necessary to understand social media's influence on people. Nowadays, there are an increasing number of social media platforms (e.g., TikTok, Instagram) that use ephemeral content as their feature (Schellewald 2021). Ephemeral content is described as a "time-limited function of social media" and has been rising as the latest marketing and social media buzzword. These ephemeral social media applications allow content to be shared for a set time limit and then deleted automatically (Wakefield and Bennett 2018). Despite the increase in new ephemeral features, research focused on how permanent social media forms social comparison, impacts self-esteem, and creates body image concerns (Marengo et al. 2018; Jan et al. 2017), and only a few studies have shown how ephemeral content on social media influences people (McRoberts et al. 2017).

This research will focus on the social media platform Instagram, one of the fastest-growing social media networks (Pineda et al. 2020), to uncover how people understand and respond to different types of Instagram messages by comparing Instagram posts and Instagram stories. Instagram post and story are features on Instagram that allow users to share photos or videos with their followers. Unless the account is set as private, photos and videos that are uploaded can be viewed by anyone who uses the Instagram app. An Instagram post stays on an individual's profile permanently, whereas an Instagram story disappears after 24 h. However, users can pin their favorite moments of their story onto their profile to make it permanent. Unlike regular Instagram posts, users cannot publicly like or add comments to other users' Instagram stories (i.e., a third party cannot perceive

engagement). By examining whether users perceive these two Instagram messages to be ephemeral or permanent, the proposed study will reveal how different types of media could influence users' social comparison, self-esteem, and body image concerns.

The current research also focuses on finding the relationship between Instagram users' patterns of using Instagram and its influence on social comparison, self-esteem, and body image concerns. It examines different categories, such as content that users upload, usage of Instagram features, the reasoning for editing photos, and time spent uploading content. Through understanding Instagram users' usage patterns, we aim to better understand the behavioral traits of Instagram users, as well as the psychological impact their Instagram usage has on them.

2. Literature Review

2.1. Social Comparison in Social Media

Social comparison theory is the idea that individuals determine their worth when comparing themselves with others (Festinger 1954). Social comparison can be divided into upward and downward comparisons. Upward comparison is when individuals compare themselves with others whose abilities are better than their own (Nortje 2020), usually affecting their self-evaluations and self-esteem in hopes of enhancing their self-assessment (Collins 1996). Conversely, a downward comparison is when individuals compare themselves with someone worse off than them (Nortje 2020), which makes the individual perceived to be better off than the comparison target (Wills 1987). The favorable outcome of downward comparisons is that it produces an enhancement of the individual's psychological state (Wills 1987). People use social media networks to communicate, build relationships, and share information; however, it leads to users making upward and downward comparisons. Upward comparisons create a feeling of envy for other lifestyles, leading individuals to feel ungrateful for their own lives (Jan et al. 2017).

As social media usage increases, diverse research focuses on studying the relationship between social media and social comparison (Tiggemann et al. 2018; Verduyn et al. 2020). Social networking content is generated by peers, and individuals can decide how and when they wish to upload it. Although some studies show that social comparison increases subjective well-being (Verduyn et al. 2020) and inspiration (Meier and Schäfer 2018), more studies show the negative aspects of social comparison (Verduyn et al. 2020). Additionally, as most social networks are based on likes and comments, individuals are more likely to compare their number of likes to those of their peers (Tiggemann et al. 2018). Individuals who have a higher investment in their number of likes are more likely to compare their appearance and have facial dissatisfaction (Tiggemann et al. 2018).

Previous research on social media and its impact on social comparison focused on permanent social media (i.e., Facebook posts) where content stays on the user's profile persistently (Fox and Moreland 2015). Comparatively, there is a lack of research on users' social comparisons on ephemeral social media (i.e., Instagram stories). Previous studies showed that the ephemerality of social media confers more emotional benefits (Bayer et al. 2016), lowers self-presentational pressure (McRoberts et al. 2017), and reduces impression management concerns. Similarly, this study will examine whether the ephemerality of Instagram content is negatively associated with social comparison.

2.2. Self-Esteem in Social Media

Self-esteem refers to a person's positive or negative evaluation of the self. It is a psychological construct by which an individual determines themselves to be worthwhile (Battle 1978). There are different ways to describe self-esteem: self-worth, self-regard, self-respect, and self-acceptance (Robinson et al. 2013). Due to the expansion and concerns surrounding the use of social media, some studies argue that social media usage has a direct influence on self-esteem (Jan et al. 2017). One study showed that editing their post and carefully selecting the information on their social media profile leads to users experiencing enhanced self-esteem, that is, having higher self-esteem about themselves (Gonzales and

Hancock 2011). Additionally, positive feedback from friends such as comments or likes is likely to affect self-esteem as positive feedback enhances self-esteem, while negative feedback leads to decrease self-esteem (Valkenburg et al. 2006).

However, studies also showed that social media usage has a negative influence on self-esteem (Andreassen et al. 2017; Appel et al. 2015). While browsing other users' social media, people will start envying others' lifestyles that they view to be superior to theirs (Appel et al. 2015). Users begin to feel less privileged and inferior to others, making upward comparisons. These negative feelings about themselves have a direct impact on self-esteem. Studies also showed that an increase in social media usage causes self-esteem to decrease (Jan et al. 2017). Furthermore, high passive use of social media such as Facebook leads to more social comparison, which also negatively influences self-esteem (Ozimek and Bierhoff 2020). Other studies showed that social media users experienced lower states of self-esteem and life satisfaction while browsing others' posts (Midgley et al. 2020). Thus, the current literature on the influence of social media usage on self-esteem seems mixed (Cingel et al. 2022; Valkenburg et al. 2021).

Most research (Andreassen et al. 2017; Appel et al. 2015; Jan et al. 2017) examines the relationship between self-esteem and social media in general, including all types of social media. However, there is a lack of research dedicated to finding the differences in self-esteem while using different perceived social media messages. One study predicts that the transience nature of ephemeral social media promotes greater extroversion compared to permanent social media networks. By expressing more positive emotions online, the user's expressed fewer concerns about self-esteem on Snapchat (Bayer et al. 2016). As Instagram stories have a similar ephemeral nature, this paper will examine whether Instagram story users will show less self-esteem compared to when they are using Instagram posts.

2.3. Exposure to Idealized Image and Body Image Concerns

Exposure to idealized images and how people consume media has been largely studied in terms of traditional media (Brown and Tiggemann 2016), where people were exposed to idealized images of models and celebrities. The studies showed that exposure to thin-ideal images harms body satisfaction (Brown and Tiggemann 2016). However, due to the increase in social media usage and image-focused social media networks, people are now exposed to more of these idealized images not only from models and celebrities, but from friends and followers. People are not only exposed to these images, but users also try to create their best selves on their social media pages (Chua and Chang 2016). This behavior of self-presenting themselves as their idealized selves can be found in social media users who post photos such as selfies, editing their photos to upload the best presentation of their appearance (Goethals 1987).

As exposure to idealized images on social media networks increases, there are a lot of studies about the relationship between social media and body image concerns (Tiggemann and Anderberg 2020; McLean et al. 2015). The rise of virtual influencers (Kim et al. 2023) and computer-generated humans with unrealistic beauty standards are accelerating the need to study this issue. As Instagram allows users to edit their photos to achieve their ideal look, it creates more opportunities for Instagram users to be exposed to idealized images on their social media pages (Brown and Tiggemann 2016). When regularly exposed to the visual content of others on their social media, there are more opportunities for users to compare their appearances, which leads to negative effects on their body images (Marengo et al. 2018).

Body image is a perception or judgment of an individual's own body (Slade 1994). This perception is created by an individual comparing their body with someone else and having positive or negative feelings about their appearance. Social media which focuses on visual content (i.e., Instagram) leads to adolescents and young adults expressing more dissatisfaction with their body images and having more emotional symptoms (Marengo et al. 2018). However, when users are shown paired 'Instagram vs. Reality' posts where people upload photos of real images and Instagram-style idealized image posts, people

expressed less body dissatisfaction. In other words, this showed that idealized images on Instagram do affect users' body dissatisfaction (Tiggemann and Anderberg 2020). Another interesting finding was that social media users who are active showed significant body dissatisfaction and overvalued the importance of shape and weight. Users who invest more time and effort before uploading their photos also showed higher body image and eating concerns (McLean et al. 2015).

Unlike other social media networks, Snapchat users tend to send photos of their daily activities to people whom they have especially strong ties, i.e., their close friends, partners, and family (Piwek and Joinson 2016). Snapchat users are more effortless when sending photos to their friends, and are not focusing on obtaining pictures of their best selves. As Instagram stories have a similar ephemeral nature (Jan et al. 2017), this paper will examine whether Instagram story users will have fewer body image concerns than Instagram post users.

2.4. Social Comparison, Self-Esteem, and Body Image Concern

This paper also searched for evidence of whether people who perform more social comparison have lower self-esteem. As peeking is one of the primary motivations for Instagram users (Lee et al. 2015), people tend to use Instagram to vicariously experience others' lives and view others' content. Upwards social comparison is a common reaction amongst these people, and users start to envy the lifestyle of others and feel less privileged and inferior. These negative feelings that are formed while using Instagram will have a direct impact on self-esteem. Due to the increase in image-based social media, people focus on posting their best selves on their platforms. As Instagram offers different manipulation tools and filters, people focus on editing and transforming to create a more idealized image (Hu et al. 2014). Viewing other images and socially comparing themselves would lead users to engage in more body image concerns. The research will focus on whether social comparison will influence an individual's lower self-esteem and body image concerns.

2.5. Instagram Usage Patterns

Previous studies examined the motivation behind Instagram usage (Lee et al. 2015), but only a few mentioned usage patterns. The types of content people post, the features they use, and the efforts they make to create their content could be related to their social comparison, self-esteem, and body image concerns. Studying these elements will reveal how usage patterns influence an individual's social comparison, self-esteem, and body image concerns.

In conclusion, this study investigates the following hypotheses and research question:

H1. *Users who perceive Instagram stories as more ephemeral while posting will engage in less social comparison.*

H2. *Users who perceive Instagram posts as more permanent while posting will engage in more social comparison.*

H3. *Users who perceive Instagram stories as ephemeral will have high self-esteem and fewer body image concerns.*

H4. *Users who perceive Instagram posts as permanent will have low self-esteem and more body image concerns.*

H5. *Instagram users who socially compare more are likely to have lower self-esteem and more body image concerns.*

R.Q.: *How are people's Instagram usage patterns (use of different features (video, emoji, etc.); categories of content (food, selfie, etc.) that users usually post; reasons for editing photos (slim body, flawless skin, etc.); amount of time spent creating and uploading a post/story) associated with their social comparison, self-esteem, and body image concerns?*

3. Methods

A survey was conducted to examine how the perceived ephemerality and permanency of Instagram content differentially impacts social comparison, self-esteem, and body image concerns. The effects of Instagram usage patterns were also investigated as control variables. A total of 224 respondents who were part of the student participant pool at a U.S. university participated in our Qualtrics survey. Out of 224 responses, 205 were valid. Among the participants, 165 were female (73.7%) and 39 were male (17.4%). The average age range was 18–24 as all potential participants were students. About 62.5% were white, followed by Asian (12.1%), and others (11.2%). The participants, on average, accessed their social media accounts once a day and spent 1.7 h a day on Instagram. To ensure the quality of the research study, only active Instagram users were studied and participants who indicated they were not using the platform were excluded. A screening question asked how often they accessed their Instagram account. If they accessed Instagram less than once a week, they were filtered out of the data set.

3.1. Measurement

3.1.1. Independent Variables

Perceived permanency of Instagram posts was measured by three items adopted from [Fox and McEwan \(2017\)](#). Statements included “It is easier for others to go back and see/check my past posts”, “Content I am posting on Instagram post will stay on the platform for a long time”, and “It allows me to archive the posts that I perceive as valuable.” ($M = 5.8$, $SD = 0.97$, $\alpha = 0.756$) Participant’s perceived ephemerality of Instagram story was measured with two items adopted from [Morlok et al. \(2018\)](#). Statements included were “Content I am posting in the story disappears in a short period of time” and “It would be hard for others to go back to past content that I posted”. ($M = 5.26$, $SD = 1.18$, $\alpha = 0.688$).

3.1.2. Dependent Variables

Social comparison was measured by six items adopted from [Gibbons and Buunk \(1999\)](#): e.g., “I compare myself with others on Instagram to see if I am doing well socially”, and “I am not a person who often compares myself with others (reverse coded)”. ($M = 4.37$, $SD = 1.079$, $\alpha = 0.737$).

Self-esteem was measured with four items adapted from [Robins et al. \(2001\)](#). Statements included were “I am satisfied with myself”, “I take a positive attitude toward myself”, “I feel that I am very useful”, and “I am displeased with myself (reverse coded)”. ($M = 5.09$, $SD = 0.15$, $\alpha = 0.903$).

Body image concern was measured with two statements adopted from the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ-4) by [Schaefer et al. \(2015\)](#): “I feel pressure from Instagram to appear in better shape”, and “I feel pressure from Instagram to look thinner”. ($M = 5.04$, $SD = 0.5$, $\alpha = 0.941$).

3.1.3. Control Variables

Participants’ self-perception can be affected by a lot of different factors. Participants’ sex (165 females, 39 males) was controlled, and number of hours spent on Instagram was measured. The statement used for measuring daily usage of Instagram was “How many hours a day do you spend on Instagram? (30 min = 0.5 h)”. The time it took users to create and upload an Instagram post or story was measured with the statement, “How long does it take to create an Instagram post/story?”.

Instagram usage patterns measurement was adopted by [Lee et al. \(2015\)](#): “How likely are you to use the following features when posting something through Instagram post/story—Video, Emoji, Doodles, Instant Information (Adding location), Filters”; “How likely are you to post each category of content for Instagram post/story—Selfie, Food, Friends/Social Life, Pets”; and “Please indicate the importance of the following items when you edit your photo for Instagram post/story—Slim body, Flawless skin, Matching Instagram filter, Hide complexion”. There were no multicollinearity issues found during

the analysis. The following exploratory study took a quantitative approach to discover the correlations between the variables.

4. Results

To test the hypotheses, linear regression was employed through SPSS examining participants' social comparison, self-esteem, and body image concerns. Participants' gender, frequency of social media usage, and Instagram usage patterns were used as control variables. A regression analysis was conducted to examine whether the content, usage of Instagram features, reasoning for editing photos, and the amount of time spent creating and uploading content influence psychological traits such as social comparison, self-esteem, and body image concerns.

Hypothesis 1 predicted that users who perceive Instagram stories as more ephemeral will engage in less social comparison. However, the results of the regression test show that users who perceive Instagram story as ephemeral are more likely to socially compare ($b = 0.219, p < 0.01^{**}$). Thus, Hypothesis 1 was significant in the opposite direction. To test whether users' perception of Instagram posts as permanent affects their social comparison, a regression test was conducted. There was no significant relationship between the two variables ($b = 0.109, p > 0.05$), meaning that Hypothesis 2 was not supported.

To test whether the perception of the ephemerality of Instagram stories affects an individual's self-esteem and body image concerns, another regression analysis was conducted. However, the results show that there is no significant relationship between the perceived ephemerality of Instagram stories and self-esteem. On the other hand, users who perceived Instagram stories to be ephemeral are more likely to have body image concerns ($b = 0.179, p < 0.001^{***}$). Therefore, Hypothesis 3 was not supported. In testing regression between the perception of permanency and an individual's self-esteem and body image concerns, the results show that there is no significance between perceptions of permanency of Instagram posts and self-esteem and body image concerns, meaning Hypothesis 4 was not supported.

In another regression analysis of social comparison on participants' self-esteem and body image concerns, results show that participants who socially compare while using Instagram are likely to have lower self-esteem ($b = -0.2, p < 0.001^{***}$) and have higher body image concerns ($b = 0.335, p < 0.001^{***}$). Thus, Hypothesis 5 was supported. Figure 1 shows the overall analyzed results.

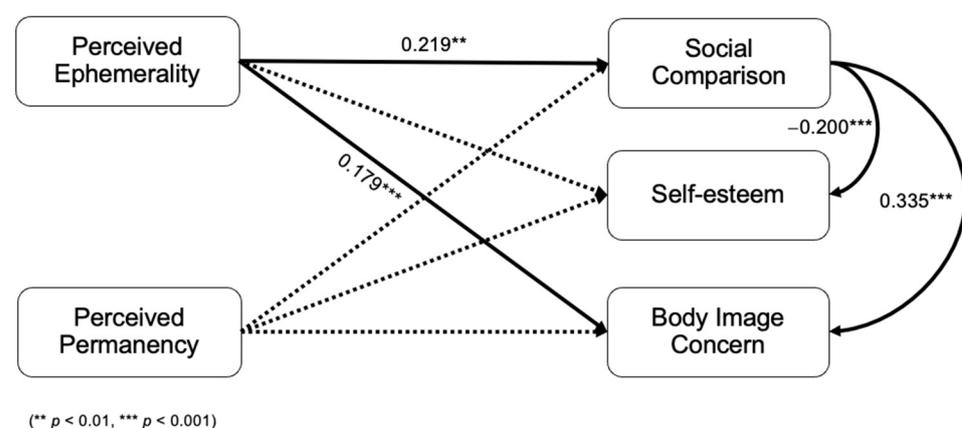


Figure 1. The impact of perceived ephemerality and permanency on social comparison, self-esteem, and body image concern. (** $p < 0.01$, *** $p < 0.001$).

When looking at the control variables, females are more likely to socially compare ($b = 0.714, p < 0.001^{***}$) and have body image concerns ($b = 1.277, p < 0.001^{***}$). In another regression test, the result showed that Instagram users who take longer to post are more

likely to socially compare ($b = 0.503, p < 0.001$ ***) and have body image concerns ($b = 0.241, p < 0.001$ ***)).

In terms of Instagram post usage patterns, users who utilize filters when uploading Instagram posts are more likely to socially compare ($b = 0.105, p < 0.01$ **) and have body image concerns ($b = 0.195, p < 0.001$ ***). In addition, users who usually post friends and social life on Instagram post have higher self-esteem ($b = 0.197, p < 0.05$ *). Additionally, Instagram post users who edit their photos for slim body ($b = 0.241, p < 0.05$ *) and flawless skin ($b = 0.42, p < 0.01$ **) are more likely to have body image concerns. In the case of Instagram story usage pattern, users who utilize filters when uploading Instagram posts are also likely to socially compare ($b = 0.123, p < 0.01$ **) and have body image concerns ($b = 0.219, p < 0.001$ ***). Additionally, Instagram story users who edit for slim bodies ($b = 0.374, p < 0.01$ **) have higher body image concerns.

5. Discussion

Due to the increase in social media usage, its impact on individuals was the focus of previous scholarly research (Marengo et al. 2018; Jan et al. 2017). Previous studies demonstrated that social media usage causes people to engage in social comparison (Tiggemann et al. 2018), by which self-esteem increased or decreased (Jan et al. 2017), and creates body image concerns due to an increase in idealized images on social media (Tiggemann and Anderberg 2020). The present study was designed to examine the effects of social media users' perceptions of the ephemerality and permanency of Instagram stories and posts on social comparison, self-esteem, and body image concerns.

The results show a significant relationship between the perceived ephemerality of Instagram stories and social comparison and body image concerns. However, there was no significant relationship between self-esteem and ephemerality perceptions. Contrary to the hypotheses, users who perceive Instagram stories to be ephemeral were more likely to compare and have *more* body image concerns. First, the results showed that users who perceive the Instagram story as ephemeral are more likely to socially compare themselves to their peers. It could be because Instagram story is used to share the user's everyday moments and highlight their daily activities. The ephemerality feature allows users to share a broader range of content, as it is an easy and quick way to share their moments (Morlok et al. 2018). Viewing others' lifestyles can evoke jealousy and envy towards others' lifestyles, which often leads to upward comparison (Jan et al. 2017). The result suggests that ephemerality itself does not reduce social comparison as the current study expected, but that when ephemeral features such as Instagram stories are used to boost fancy lifestyles, they can encourage even greater social comparison, since it adds to the presentation and promotion of the self.

Equivalent to social comparison, users who perceive Instagram stories as ephemeral are likely to have higher body image concerns. This was contrary to the hypothesis that predicted that users who perceived Instagram stories to be ephemeral would have fewer body image concerns. Based on a previous study (Jan et al. 2017), the present study hypothesized that users express fewer concerns, as ephemeral content allows users not to focus on obtaining pictures of their best selves. However, previous research also points out that social media that focuses on visuals could lead users to express more dissatisfaction with their body images (Marengo et al. 2018). As Instagram stories are also ephemeral social media that uses visual content, this time-limiting medium may have encouraged greater body dissatisfaction, especially when users think that they must present their best selves in the transient, ephemeral context. During the regression analysis, the results also showed some features that Instagram users use also influence their body image concerns. Instagram users who use filters and edit themselves for slimmer bodies tend to have greater body image concerns. This finding supports the possibility that people are keenly aware of their presentation on Instagram stories even if the content is ephemeral.

In opposition to the significant findings of perceived ephemerality of Instagram stories, there was no significant relationship between the perceived permanency of Instagram posts,

social comparison, and body image concerns. Previous research studies that examined the relationships between Instagram usage and psychological constructs have mainly focused on Instagram posts, as it is the key feature of Instagram. These studies have shown that individuals compare themselves by contrasting the number of likes to their peers (Tiggemann et al. 2018), envying others' lifestyles leads users to have lower self-esteem (Jan et al. 2017), and evaluating their appearance in comparison with others evokes increased body image concerns (Marengo et al. 2018). The current study's findings suggest that even though Instagram is used to upload photos or videos and share them with followers or a select group of friends (Lee et al. 2015), and heavy Instagram users tend to engage in more social comparison (Tiggemann et al. 2018), how permanent the uploaded content is perceived to be will not influence social comparison, body image concerns, or self-esteem. This may be because users believe that the Instagram content can be deleted anytime if they desire, and the small variance in the perception of permanency does not influence other psychological variables.

Besides examining users' perception of the ephemerality and permanency of Instagram, the study also hypothesized that users who socially compare are likely to have lower self-esteem and higher body image concerns. The results supported the hypothesis, as individuals who socially compare while using Instagram, both story and posting, had less self-esteem and more body image concerns. Previous research mentioned how people make upward or downward comparisons while using social media. People envy others, feeling less privileged and inferior to them, which can lead to negative feelings about themselves (Jan et al. 2017). Social comparison also impacts concerns about their body image. Social media networks allow people to edit and manipulate their photos (Hu et al. 2014), making it easy for people to upload photos of their best presentation. Exposure to the visual content of idealized images gives opportunities to compare their appearance, which encourages people to compare themselves with others and leads to negative perceptions of their bodies. The current result aligns with previous research that social comparison does negatively impact self-esteem and body image concerns.

Apart from the hypotheses, the present study also found results regarding social media usage patterns and whether it influences social comparison, self-esteem, and body image concerns. The types of features, edits, content, and time spent creating content were examined. First, the results show that the longer it takes to create and upload an Instagram post, the more likely users are to engage in social comparison and have body image concerns. Instagram story users who take a long time to create and upload also engaged in greater social comparison. As Instagram, both posts and stories, allows users to edit their photos (Brown and Tiggemann 2016), users spend more time creating and posting to create their ideal look. Regular exposure to idealized body images on Instagram will lead users to compare their appearance with others, which can cause users to have dissatisfaction with their bodies (Marengo et al. 2018).

Next, the current study also found that users who edit their content to create a slimmer-looking body, use filters, have flawless skin, and match Instagram filters are more likely to have higher body image concerns. Individuals who are concerned with their body image are likely to focus on editing their appearance to create their ideal look and worry about how they are presented on social media. Prior research suggests that there are two types of motivation for self-presentation: to please the audience and to match their ideal selves (Goethals 1987). Editing their content to create a more idealized look by editing their content shows how individuals value self-presentation and leads to increased body image concerns.

In sum, even though the current study did not find any significant relationships among the perceived permanency of Instagram posts, social comparison, self-esteem, and body image concerns, users who perceived Instagram stories as more ephemeral were found to engage in greater social comparison and have greater body image concern. Control variables such as gender and Instagram usage patterns were also significant predictors of social comparison and body image concerns. Females were more likely to heavily social

compare and have greater body image concerns. This finding aligns with previous research studies that show that exposure to images on social media has a detrimental effect on females' body image concerns.

6. Limitations

While the current study provides novel information about how different perceptions of Instagram messages influence individuals, the study does come with limitations. As the survey was distributed online, and respondents answered in a less controlled setting, and there is a possibility that the participants were less engaged with the survey. The survey respondents were also limited to college students in the U.S., restricting the result's external validity. Future studies should try to verify the results of the study by using a larger sample with higher heterogeneity. The current sample is too homogeneous, with a clear predominance of white women, all of them college students.

In addition, the measurement items for ephemerality and permanency perceptions consisted of only two or three statements, due to the lack of previous research in this area. For future studies, it is recommended to dive deeper into understanding the reasons behind social comparison through interviews to delve into other aspects that could be observed outside of the initially established considerations of the survey items. Additionally, the length of Instagram story has been increased to 60 s since our study, so people's perception of ephemerality might have changed in the current state. For future research, better operational definitions of ephemerality and permanency should be employed.

There is a lack of research on finding the difference between Instagram messages, Instagram posts, and stories. To create the hypotheses on the perceived ephemerality of Instagram stories, the current study relied on prior literature on Snapchat, which was used as an example as it has a similar ephemeral nature. However, while Instagram stories can be viewed by the same people as Instagram posts, users can designate viewers on Snapchat. Future research should add privacy perception as a control variable while testing the results. Previous research shows that individuals express how ephemerality counteracts their privacy concerns as users can control their content viewers (Morlok et al. 2018). It would be interesting to see how exposure to different people and content could potentially lead people to compare themselves with others.

Author Contributions: D.K.: writing—review and editing, visualization; S.K.: conceptualization, methodology, formal analysis, writing—original draft preparation; All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: The study was conducted in accordance with the Declaration of Helsinki, and approved by the Institutional Review Board of University of Texas at Austin, FWA # 00002030, STUDY00000201, Approved: 11 March 2020.

Informed Consent Statement: Informed consent was obtained from all subjects involved in the study.

Data Availability Statement: The raw data supporting the conclusions of this article will be made available by the authors, without undue reservation.

Conflicts of Interest: The authors declare no conflict of interest.

References

- Andreassen, Cecilie Schou, Ståle Pallesen, and Mark D.Griffiths. 2017. The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive Behaviors* 64: 287–93. [CrossRef]
- Appel, Helmut, Jan Crusius, and Alexander L. Gerlach. 2015. Social comparison, envy, and depression on Facebook: A study looking at the effects of high comparison standards on depressed individuals. *Journal of Social and Clinical Psychology* 34: 277–89. [CrossRef]
- Battle, James. 1978. Relationship between self-esteem and depression. *Psychological Reports* 42: 745–46.
- Bayer, Joseph B., Nicole B. Ellison, Sarita Y. Schoenebeck, and Emily B. Falk. 2016. Sharing the small moments: Ephemeral social interaction on Snapchat. *Information, Communication & Society* 19: 956–77.

- Brown, Zoe, and Marika Tiggemann. 2016. Attractive celebrity and peer images on Instagram: Effect on women's mood and body image. *Body Image* 19: 37–43.
- Chua, Trudy Hui Hui, and Leanne Chang. 2016. Follow me and like my beautiful selfies: Singapore teenage girls' engagement in self-presentation and peer comparison on social media. *Computers in Human Behavior* 55: 190–97. [CrossRef]
- Cingel, Drew P., Michael C. Carter, and Hannes-Vincent Krause. 2022. Social media and self-esteem. *Current Opinion in Psychology* 45: 101304. [CrossRef]
- Collins, Rebecca L. 1996. For better or worse: The impact of upward social comparison on self-evaluations. *Psychological Bulletin* 119: 51. [CrossRef]
- Festinger, Leon. 1954. A theory of social comparison processes. *Human Relations* 7: 117–40.
- Fox, Jesse, and Bree McEwan. 2017. Distinguishing technologies for social interaction: The perceived social affordances of communication channels scale. *Communication Monographs* 84: 298–318.
- Fox, Jesse, and Jennifer J. Moreland. 2015. The dark side of social networking sites: An exploration of the relational and psychological stressors associated with Facebook use and affordances. *Computers in Human Behavior* 45: 168–76. [CrossRef]
- Gibbons, Frederick X., and Bram P. Buunk. 1999. Individual differences in social comparison: Development of a scale of social comparison orientation. *Journal of Personality and Social Psychology* 76: 129–42. [CrossRef]
- Goethals, George R. 1987. Theories of group behavior: Commentary. In *Theories of Group Behavior*. New York: Springer, pp. 209–29.
- Gonzales, Amy L., and Jeffrey T. Hancock. 2011. Mirror, mirror on my Facebook wall: Effects of exposure to Facebook on self-esteem. *Cyberpsychology, Behavior, and Social Networking* 14: 79–83. [CrossRef]
- Hu, Yuheng, Lydia Manikonda, and Subbarao Kambhampati. 2014. What we Instagram: A first analysis of Instagram photo content and user types. Paper presented at Eighth International AAAI Conference on Weblogs and Social Media, Ann Arbor, MI, USA, June 1–4.
- Jan, Muqaddas, Sanobia Soomro, and Nawaz Ahmad. 2017. Impact of social media on self-esteem. *European Scientific Journal* 13: 329–41. [CrossRef]
- Kim, Donggyu, Eunjin Anna Kim, and Heather Shoenberger. 2023. The Next Hype in Social Media Advertising: Examining Virtual Influencers' Brand Endorsement Effectiveness. *Frontiers in Psychology* 14: 485.
- Lee, Eunji, Jung-Ah Lee, Jang Ho Moon, and Yongjun Sung. 2015. Pictures speak louder than words: Motivations for using Instagram. *Cyberpsychology, Behavior, and Social Networking* 18: 552–56.
- Marengo, Davide, Claudio Longobardi, Matteo Angelo Fabris, and Michele Settanni. 2018. Highly visual social media and internalizing symptoms in adolescence: The mediating role of body image concerns. *Computers in Human Behavior* 82: 63–69. [CrossRef]
- McLean, Siân A., Susan J. Paxton, Eleanor H. Wertheim, and Jennifer Master. 2015. Photoshopping the selfie: Self photo editing and photo investment are associated with body dissatisfaction in adolescent girls. *International Journal of Eating Disorders* 48: 1132–40. [CrossRef]
- McRoberts, Sarah, Haiwei Ma, Andrew Hall, and Svetlana Yarosh. 2017. Share first, save later: Performance of self through Snapchat stories. Paper presented at 2017 CHI Conference on Human Factors in Computing Systems, Denver, CO, USA, May 6–11; pp. 6902–11.
- Meier, Adrian, and Svenja Schäfer. 2018. The positive side of social comparison on social network sites: How envy can drive inspiration on Instagram. *Cyberpsychology, Behavior, and Social Networking* 21: 411–17.
- Midgley, Claire, Sabrina Thai, Penelope Lockwood, Chloe Kovacheff, and Elizabeth Page-Gould. 2020. When every day is a high school reunion: Social media comparisons and self-esteem. *Journal of Personality and Social Psychology* 121: 285–307. [CrossRef]
- Morlok, Tina Natalie, Ioanna Constantiou, and Thomas Hess Hess. 2018. Gone for better or for worse? Exploring the dual nature of ephemerality on social media platforms. Paper presented at European Conference on Information Systems (ECIS 2018), Portsmouth, UK, June 23–28.
- Nortje, Alicia. 2020. Social Comparison: An Unavoidable Upward or Downward Spiral. *Positive Psychology*. Available online: <https://positivepsychology.com/social-comparison/> (accessed on 5 February 2023).
- Ozimek, Phillip, and Hans-Werner Bierhoff. 2020. All my online-friends are better than me—three studies about ability-based comparative social media use, self-esteem, and depressive tendencies. *Behaviour & Information Technology* 39: 1110–23.
- Pineda, Antonio, Elena Bellido-Pérez, and Ana I. Barragán-Romero. 2020. “Backstage moments during the campaign”: The interactive use of Instagram by Spanish political leaders. *New Media & Society* 24: 1461444820972390.
- Piwek, Lukasz, and Adam Joinson. 2016. “What do they snapchat about?” Patterns of use in time-limited instant messaging service. *Computers in Human Behavior* 54: 358–67. [CrossRef]
- Robins, Richard W., Holly M. Hendin, and Kali H. Trzesniewski. 2001. Measuring global self-esteem: Construct validation of a single-item measure and the Rosenberg Self-Esteem Scale. *Personality and Social Psychology Bulletin* 27: 151–61.
- Robinson, John P., Phillip R. Shaver, and Lawrence S. Wrightsman, eds. 2013. *Measures of Personality and Social Psychological Attitudes: Measures of Social Psychological Attitudes*. Cambridge: Academic Press, vol. 1.
- Schaefer, Lauren M., Natasha L. Burke, J. Kevin Thompson, Robert F. Dedrick, Leslie J. Heinberg, Rachel M. Calogero, Anna M Bardone-Cone, Mary K. Higgins, David A. Frederick, Mackenzie Kelly, and et al. 2015. Development and validation of the sociocultural attitudes towards appearance questionnaire-4 (SATAQ-4). *Psychological Assessment* 27: 54–67.
- Schellewald, Andreas. 2021. Communicative forms on TikTok: Perspectives from digital ethnography. *International Journal of Communication* 15: 21.

- Slade, Peter David. 1994. What is body image? *Behaviour Research and Therapy* 32: 497–502. [[CrossRef](#)]
- Tiggemann, Marika, and Isabella Anderberg. 2020. Social media is not real: The effect of 'Instagram vs reality' images on women's social comparison and body image. *New Media & Society* 22: 2183–99.
- Tiggemann, Marika, Susannah Hayden, Zoe Brown, and Jolanda Veldhuis. 2018. The effect of Instagram "likes" on women's social comparison and body dissatisfaction. *Body Image* 26: 90–97. [[CrossRef](#)]
- Valkenburg, Patti M., Jochen Peter, and Alexander P. Schouten. 2006. Friend networking sites and their relationship to adolescents' well-being and social self-esteem. *Cyber Psychology & Behavior* 9: 584–90.
- Valkenburg, Patti, Ine Beyens, J. Loes Pouwels, Irene I. van Driel, and Loes Keijsers. 2021. Social media use and adolescents' self-esteem: Heading for a person-specific media effects paradigm. *Journal of Communication* 71: 56–78. [[CrossRef](#)]
- Verduyn, Philippe, Nino Gugushvili, Karlijn Massar, Karin Täht, and Ethan Kross. 2020. Social comparison on social networking sites. *Current Opinion in Psychology* 36: 32–37. [[PubMed](#)]
- Wakefield, Lane T., and Gregg Bennett. 2018. Sports fan experience: Electronic word-of-mouth in ephemeral social media. *Sport Management Review* 21: 147–59.
- Wills, Thomas Ashby. 1987. Downward comparison as a coping mechanism. In *Coping with Negative Life Events*. Boston: Springer, pp. 243–68.

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.