

# The Relationship between Body Image and Usage of TikTok Beauty Filters

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## Abstract

The aim of this study was to investigate the correlations between the time spent on TikTok and use of beauty filters, satisfaction with self-image and use of filters, and people's perceptions of filters and use of filters. Data was collected through a Qualtrics survey including questions about TikTok and filter usage, a self-esteem scale, and perceptions of filters. To partake in the survey, participants were required to be within the ages of 18 and 25. Data collection began on June 16, 2022 and ended on June 21, 2022. Incomplete surveys and responses that did not fit our criteria were discarded. After the data was collected and cleaned, 139 responses were statistically analyzed. Results show that time spent on TikTok correlates with usage of filters, but satisfaction with self-image and perceptions of filters do not. Limitations of the study include a small participant population. The study provides insights into the complex relationship between filter use and satisfaction with self-image and highlights the need for future research to further explore the factors affecting filter use and impact of filter use on users' self-image and well-being by testing whether the participants' use of filters include posting content to TikTok or simply browsing.

## Keywords

Body Image, TikTok, Social Media, Filter, Self-Esteem, Self-Image

## 1. Introduction

In 2022, social media has become an integral part of individuals' everyday lives that it is hard to imagine life without it. One of the most popular social media platforms is TikTok. The platform is particularly popular amongst younger audiences, specifically those in generation Z and millennials (Herrman, 2019). TikTok differs from other social media platforms as it features short videos,

which range from a few seconds to three minutes. When creating a TikTok video, one can film using their own sound, add music, or put a completely unique sound over their footage. TikTok also makes it easy to add effects to a video, changing the speed, adding a greenscreen, or even changing the users' features by way of a filter (Herrman, 2019).

There are thousands of filters featured on TikTok, and they are constantly multiplying as they can be created and added by users around the world. Most TikTok filters are what are known as "beauty filters," which are photo-editing tools that change a user's appearance, usually to put them more in line with society's standards: smooth out their skin, enhance their lips and eyes, contour their nose, sharpen their jawline and cheekbones, and so on (Eshiet, 2020). These beauty filters are extremely popular amongst younger audiences; however previous studies show that there is a connection between these TikTok "beauty filters" and users' dislike of their appearances (Eshiet, 2020). To this end, there are numerous studies that link beauty filters on TikTok with body dysmorphia amongst young users, some so extreme that they would consider getting plastic surgery to look like their filtered counterparts (Eshiet, 2020). To further investigate this issue, the present study aims to explore the relationships between the time spent on TikTok and use of filters, satisfaction with self-image and use of filters, and people's perceptions of filters and use of filters, using data collected through a survey including questions about TikTok filters use and a self-esteem scale. Specifically, we hypothesize that individuals who spend more time on TikTok use beautifying filters more frequently; people who are unsatisfied with their self-image are more likely to use filters; and people who use filters will believe they are harmless.

It is crucial to understand the implications of social media filters on user's self-perception, as it may have long-lasting and potentially damaging consequences. Therefore, this research seeks to shed light on the relationship between self-esteem and the usage of TikTok filters, highlighting the social and ethical responsibility of companies designing these filters.

## 2. Literature Review

### 2.1. TikTok Popularity & Filters

The social media platform TikTok was established in September of 2016 and ever since its founding it has maintained and increased in widespread popularity across the globe, reporting over 800 million users monthly back at the end of 2020 (Montag et al., 2021). Existing literature acknowledges that presently there is very little research that explores the long term psychological and behavioral effects of a consistent TikTok presence on users (Montag et al., 2021). Since the platform is particularly popular amongst younger audiences, specifically those in generation Z and millennials, there is a strong push to determine harmful effects this specific platform has on such a vulnerable demographic (Herrman, 2019).

Another piece of literature zeroed in specifically on the impacted demograph-

ic, young, appearance-focused, women, to look at the ways social media use impacted their body-image related constructs (Maes & Vandenbosch, 2022). The study, however, yielded very few solid conclusions or connections that could be drawn between the data, further indicating the difficult nature of social media, specifically TikTok, when it comes to performing studies (Maes & Vandenbosch, 2022). While results from this study are still inconclusive when it comes to definitive impacts social media can have on a young woman's body image, there is still data from existing studies that indicate there is a correlation between social media usage and feelings about body image (Veldhuis et al., 2020). However, unlike our study, which assumed TikTok filters and looking at oneself would have negative impacts, the study found that taking selfies and looking at oneself online, even with filters can have positive or negative impacts on one's body image, depending on outside factors such as self esteem (Veldhuis et al., 2020). The Veldhuis study, similar to our study, did not focus on individuals that were focused on body image, or individuals who gravitate towards that kind of content, which they acknowledge if this approach had been taken when collecting the sample, the results may have had a different effect (Veldhuis et al., 2020).

## 2.2. Social Media Usage and Body Image

Prior literature has found that social media usage, particularly in young women, can lead to negative self body perception. For example, Minadeo and Pope (2022) is arguing that the majority of weight-related content on TikTok promotes weight loss and thinness, and that this content is particularly problematic because it is predominantly consumed and created by young people. They suggest that health professionals should be aware of this trend and develop strategies to counter the negative effects that may arise from this messaging. Specifically, the author is concerned that the focus on weight loss without considering lifestyle factors can lead to unhealthy perceptions and behaviors related to food, weight, and body image (Minadeo & Pope, 2022).

More recent research has similar findings. According to Mink and Szymanski's study in 2022, frequent and persistent use of TikTok can be detrimental to females' body image. The negative impacts brought by TikTok use may be more prone to women who are more willing to accept judgements and exposed to more critique, as well as women with higher levels of commercial media literacy (Mink & Szymanski, 2022).

The existing literature offered insights into the effects of social media use on people's body image. However, previous research did not specifically investigate the influence of filter use, which is a more specific topic than social media usage. Based on the literature reviewed, the present study aims to examine the relationships between the time spent on TikTok and use of filters, satisfaction with self-image and use of filters, and people's perceptions of filters and use of filters. Based on the previous findings, we hypothesize that people who spend more time on TikTok utilize beautifying filters more frequently; people who are dissa-

tified with their self-image are more inclined to use filters; people who utilize filters will assume they are harmless.

### 3. Methods

#### 3.1. Data Collection

A Qualtrics survey was created and then distributed by group members through various platforms. To partake in the survey, participants were required to be within the ages of 18 and 25. Participants that did not fall within this category were not able to consent to the survey and thus were not included in the data. Participants were found by using purposive and snowball sampling, with techniques such as researchers posting the survey to their social media platforms and asking their followers to participate. Data collection began on June 16, 2022 and ended on June 21, 2022. Incomplete surveys and responses that did not fit our criteria were discarded. After the data was collected and cleaned, 139 responses were statistically analyzed.

Out of the 139 participants, 25.9% were male, 72.7% were female, and 1.44% preferred not to say. Sex was only one of the demographic questions that was implemented. In terms of race, the majority of participants identified as either white (48.9%) or Asian (42.5%). Additionally the majority of participants were straight (82.73%) with 17.27% identifying as gay, bisexual, queer, or other. These initial questions are important, even if they do not impact the results because they give insight into the demographics of the study participants. It is important to have a grasp of the participants being analyzed in these types of studies so that the data can be looked at and analyzed through a lens of intersectionality.

Among the 139 participants, 120 of them had at least one TikTok account, which consisted of 86.3% of the study participants. However, the results from people who did not have TikTok accounts would still be taken in to account since they could still yield valuable insights from their experiences from other social media platforms.

#### 3.2. Measures

##### *Time spent on the TikTok (TSoT)*

The time spent on the TikTok scale was adapted from a study by [Zhu and Xiong \(2022\)](#) to measure, on average, how many hours participants spend on TikTok each day. Based on the operational definition provided by [Zhu and Xiong \(2022\)](#), time spent on TikTok measures the amount of time spent on TikTok in time intervals consisting of how many hours participants spend on TikTok each day. Participants were measured using a 6-point interval scale. Answer choices within this scale included “None”, “Less than 30 minutes”, “30 minutes to 1 hour”, “2 hours - 3 hours”, “4 hours - 5 hours”, and “6 or more hours” ( $M = 2.85$ ,  $SD = 1.15$ ).

##### *Self-Image (SI)*

The self image scale was adapted from a study by [Leone et al. \(2014\)](#) to meas-

ure participants' average self-image satisfaction. Based on the operational definition provided by Leone et al. (2014), our survey measured self-image using a 16-item body image satisfaction scale and asked participants to rank how much they agree on the statements about self-image satisfaction on a 5-point Likert scale. Examples of statements within the scale include "I am comfortable with my body," "I am unattractive," "My body makes me feel confident," "People find me physically unattractive," and "My body makes me feel insecure." Since some of the questions were positive and some were negative, the scores for the negative ones were reverse coded during the data analysis process. The 5-point Likert scale included options "Not at all", "a little", "a moderate amount", "a lot", and "a great deal". The possible scores ranged from 0 to 80 ( $M = 48.03$ ,  $SD = 4.80$ , Cronbach's  $\alpha = 0.187$ ).

#### *Use of Filters (UoF)*

The use of filters was adapted from a study by Varman et al. (2021) to measure participants' use of appearance modifying filters. Based on the operational definition provided by Varman et al. (2021), the current study measured use of filters by asking participants whether they have used cosmetically enhancing TikTok filters, with an explanation that "have used" does not have to mean they have posted the photos. Furthermore, the study measured whether the participants had used specific TikTok filters including Light Makeup, Hazel Eyes, Lashes, Tanned Cute, Pupa, Cute Makeup x Paige, and Smokey Eyes. All of the options within the scale include "yes" and "no". Among the 139 respondents, 51.80% of them have used filters and 48.20% of them have not used filters; 41.73% of them have used Light Makeup filter; 30.22% of them have used Hazel Eyes filter; 32.37% of them have used Lashes filter; 13.67% of them have used Tanned Cute filter; 14.39% of them have used Pupa filter; 20.86% of them have used Cute Makeup x Paige; 12.95% of them have used Smokey Eyes filter. ( $M = 19.25$ ,  $SD = 2.91$ , Cronbach's  $\alpha = 0.863$ ).

#### *Perceptions of Filters (PoF)*

The perception of filters was adapted from a Consumer Reports Survey on Social Media Usage. Based on the operational definition provided by Consumer Reports Survey Research Department (Social Media: A Nationally Representative Multi-Mode Survey, 2021) the current study measured participants opinions on the harmfulness of appearance modifying filters by asking them how much they agreed with the statement that beauty filters on TikTok are harmless using a 5-Point Likert scale which included the options "strongly disagree", "disagree", "indifferent", "agree", and "strongly agree". Among the 139 respondents, combining the 32.4% who disagree and 20.1% who strongly disagree, a total of 52.5% believe that TikTok filters are harmful. 27.3% were indifferent to the statement, and 20.1% believed they were harmless with 15.8% who agreed with the statement and 4.3% who strongly agreed ( $M = 2.52$ ,  $SD = 1.112$ ).

## 4. Results

Hypothesis 1 (H1): People who spend more time on TikTok use beautifying

filters more frequently.

H1 predicted a positive relationship between the time spent on TikTok and use of filters. However, the Pearson correlation parametric statistic test supported a negative relationship between two variables. Using the SPSS statistical software suite, the study found a statistically significant ( $p < 0.001$ ) and negative correlation between time spent on the TikTok) and use of filters. However, the correlation is weak,  $r(139) = -0.337$ .

Hypothesis 2 (H2): People who lack self-image satisfaction are more likely to rely on filters.

H2 predicted a positive relationship between the dissatisfaction with self-image and use of filters. However, H2 was not supported since the Pearson correlation parametric statistic test proved that there was not a statistically significant relationship between self-image and use of filters ( $p = 0.835$ ).

Hypothesis 3 (H3): People who use filters will believe filters are harmless.

H3 predicted a positive relationship between use of filters and the level of agreement on the perception that filters are harmless. H3 was also not supported as an independent sample t-test revealed that there is not a significant relationship between the use of filters and participants' perceptions of filters ( $p = 0.052$ ).

## 5. Discussion

The purpose of this study was to investigate the correlations between the time spent on TikTok and use of filters (H1), satisfaction with self-image and use of filters (H2), and people's perceptions of filters and use of filters (H3). However, due to the limitations of this current study, only H1 produced statistically significant results out of the three hypotheses. In addition, the findings might not be generalized since the participant population (139 usable) is limited.

H1 predicted a positive relationship between the time spent on TikTok and usage of filters. We developed this hypothesis based on existing literature on related topics by [Chae \(2016\)](#). Their study found a positive relationship between the amount of selfies one takes and the likelihood to edit their selfies ([Chae, 2016](#)). Thus, we hypothesized that time spent on TikTok is positively correlated to usage of filters. However, the existing literature did not corroborate what our data showed, which yielded a statistically significant result of a very weak negative correlation. Therefore, our results refuted the existing research. One possible explanation for this disparity is that TikTok users are less concerned with editing their own content because using TikTok is often more spontaneous and focused on consuming content from other people rather than on a perfectly produced self-image.

H2 predicted that satisfaction with self-image would be related to the likelihood of relying on filters. While there was no significant relationship between these variables, this finding agreed with the findings in previous literature that also showed there was no relationship between body dissatisfaction and social media use ([Vall-Roqué et al., 2021](#)). However, the study by [Vall-Roqué et al.](#)

(2021) did find that lower body-image scores predicted a higher use of appearance-focused social media in a short term, even if this impact is not directly related to the use of filters. This finding suggests that future research should explore the potential indirect effects of filter use on users' self-image and well-being. Their acknowledgement that common use of social media might be too broad to be studied about the body-image's impact, but their results and the current study's results are similar even after we narrowed down social media use to filter use. It is possible that the sample size of the present study may have contributed to these non-significant findings. However, the lack of significance in H2 suggests that body image satisfaction and beliefs about filters' harmlessness may not be strong predictors of filter usage on TikTok.

H3 predicted that the belief that filters are harmless would be related to the use of filters. While there was no significant relationship between these variables, 52.5% of respondents believed filters were harmful. The previous literature showed that filter use can be problematic since filter use can result in emotional influence caused by the discrepancies between the real self and the ideal self (Alsaggaf, 2021). In Alsaggaf's study, it showed that filter use can cause both positive and negative impact toward one's self-confidence. Even though our data refuted what Alsaggaf found, it is notable that the  $p$ -value for H3 was 0.052, which is only 0.002 off from being statistically significant. If this study was done with a larger sample size, there is a chance the  $p$ -value would have been statistically significant due to the increased accuracy of data. This finding raises important questions about the impact of filter use on users' well-being and highlights the need for further research in this area. It is possible that the limited sample size of this study impacted the statistical significance of this finding. Future research could use a larger sample size to further explore the relationship between filter use and beliefs in filters' harmlessness.

In summary, this study provides insights into the relationship between time spent on TikTok and filter use, satisfaction with self-image and filter use, and people's perceptions of filters and filter use. The findings suggest that these relationships may be more complex than previously assumed and contribute to the ongoing discourse around the impact of social media on users' mental well-being. Future research could build on these findings by exploring the factors that influence filter use and the potential indirect effects of filter use on users' self-image and well-being.

## 6. Limitations & Future Research

The current study had some shortcomings that should be addressed in future research. First, the sample size was small, which limits the conclusions that can be reached. The use of non-random snowball and purposive sampling may have brought bias to the results. Future research should aim for a larger and more diverse sample size that is reflective of the greater community and should use random sampling to eliminate bias. Second, the survey design could be enhanced to incorporate questions that are more pertinent to the research topic,



such as actual TikTok usage and the type of content that viewers consume. The current study did not test whether the participants' use of filters included posting content to TikTok or simply browsing. The distinction between the two forms of use is crucial to the future study. As a result, if respondents are only seeing the content, the future research may yield different results. Third, because of the nature of the survey, the study cannot prove causality between factors. Fourth, employing a broader and more reliable scale, such as a 7-point or 10-point Likert scale with more items, could improve the measure of self-image. Finally, it is crucial to emphasize that the survey participants are not an appropriate reflection of the greater community because most of the participants were female, white or Asian, and many were Boston University students. Future research should attempt to include a more diverse sample of people to improve the accuracy and generalizability of the results.

## 7. Conclusion

In summary, evidence in previous research confirmed the correlation between social media use and satisfaction with self-image. As a popular trend on multiple social media platforms, beautifying filters can modify people's appearance in cameras. Filters were shown to impact people's opinions on their self-image and beauty standards in the existing literature. However, the number of related research papers on TikTok, as a relatively new platform, is much fewer than papers on other platforms such as Instagram. Therefore, we focused our research topic on TikTok filter usage. To confirm the relationship between time spent on TikTok and filter use, the relationship between self-image and filter use, and the relationship between filter use and people's perceptions of filters, we surveyed college students who use social media. Through an analysis of data using the Pearson correlation parametric statistic test, we found a statistically significant result of a very weak negative correlation between time spent on TikTok and filter use. Similarly, no significant relationship was found between dissatisfaction with self-image and usage of filters, which agreed with previous research. Using an independent sample t-test, we found no significant relationship between filter usage and the perception that filters are harmless. However, the  $p$ -value for this hypothesis is 0.052, which is nearly an ideal result, less than 0.05, where the result can be considered statistically significant. A larger sample size and more randomized sampling methods may be required in future research.

## Conflicts of Interest

The authors declare no conflicts of interest regarding the publication of this paper.

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