Individual and personality factors that explain selfie behaviors
by Christopher Vardeman and Harsha Gangadharbatla

Abstract
Among the artifacts of the increasingly digital and social media-saturated world we live in is the rise and proliferation of selfie phenomenon. This study is designed to provide empirical evidence in support of, and to quantify the effect size of, the personality and individual-level factors frequently mentioned in literature as the drivers of selfie behaviors. Results indicate that all of the variables considered in this study — age, gender, time spent on social media, narcissism, extraversion, and impression management — predict and explain 60 percent of the variance in selfie behaviors. Implications are drawn and future avenues are discussed.

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Introduction

Selfies are photographic self-portraits commonly taken using a smartphone’s front-facing camera, often with the intention of posting them on social media. Sometimes these images feature only the photographer, while many others also include friends and family. Over 35 million selfies have been uploaded to Instagram to date, 74 percent of all photographs on the Snapchat app are selfies, and the average Millennial is projected to take a total of 25,000 selfies during his or her lifetime (Smith, 2020). Taking and posting these images has become so popular that the Oxford English Dictionary chose “selfie” as its word of the year in 2013 (Cruz and Thornham, 2015). Furthermore, there have recently been a number of articles in popular press reporting on deaths that have resulted from selfie-taking (see Daly, 2019). People have fallen off of cliffs, been struck by express trains, drowned in fast-moving waters, and been mauled by zoo animals in their quest for the ultimate selfie. In sum, over 250 people died from taking selfies between 2011 and 2017 (Bansal, et al., 2018), with additional fatalities since (Brown, 2019). Individuals have also committed suicide on account of being unable to take a perfect selfie (Balakrishnan and Griffiths, 2018). Selfie-related deaths and the negative consequences of taking selfies have become so widespread that they have been deemed a “worldwide public health problem” (Doyle, 2019).

Although a considerable number of studies about Instagram, Snapchat, and other social networking sites (SNS) have
been published since these platforms were introduced to the public (e.g., Alhabash and Ma, 2017; Boulianne, 2015; Ting, et al., 2015), social scientific research focusing on the motivating factors behind people’s decisions to take and share selfies with their online social networks is just starting to emerge. As a result, there is a considerable discrepancy between how widespread the selfie phenomenon is — including the extreme and sometimes fatal lengths to which some people will go to take a selfie — and what is empirically known about it. The current study investigates the role of individual-level and personality factors in explaining behaviors around this phenomenon by analyzing responses to a survey that was administered to a sample of Internet users residing within the United States via the platforms Qualtrics and Amazon Mechanical Turk. Factors considered in this survey include age, gender, and time spent on social media, as well as personality traits such as narcissism, extraversion, and desire for impression management. Understanding the factors that influence selfies has numerous implications and is a much-needed step toward addressing both the positive and negative consequences of this behavior.

Literature review

Before reviewing literature on selfies and the potential factors that influence selfie behaviors, it is important to briefly discuss social media and its users, as selfies frequently occur within the context of these platforms (Çadrc and Güngör, 2019). In this way, selfies are inextricably linked to social media. SNS have an ever-growing history, with roots in the discussion forums and text-based bulletin boards of the 1990s. It was not until the public opening of Facebook in 2006 that SNS started to become widespread and popular across generations. After that time, anyone over the age of 13 with a valid e-mail address could create an account (Brown, 2008). Prior to this, Facebook was accessible exclusively to college students, while then-champion MySpace — a customizable platform that enabled users to design personal Web pages linked directly to those of their friends — was accessed almost entirely by users in their teens and 20s (Cuthbertson, et al. 2015).

The number of worldwide SNS users is currently estimated at 2.82 billion (Clement, 2019), with users’ average friend count calculated to be around 155 (OmniCore, 2021). The majority of these friends are approximately the same age and live close to one another (Caers, et al., 2013). Friends lists on SNS are often larger than an individual’s in-person social network and typically include distant friends and acquaintances with whom the SNS user does not have frequent contact (Lewis and West, 2009; Wang, et al., 2010). SNS users’ social attractiveness — how much others view a person as likable — is maximized at 300 friends (Tong, et al., 2008). Not unexpectedly, socially reserved SNS users often have shorter friends lists (Orr, et al., 2009), while individuals possessing narcissistic traits aim to amass as many online acquaintances as possible (Buffardi and Campbell, 2008). Extraversion and openness to experience also positively predict SNS use (Correa, et al., 2010).

Selfies

Selfies arrived in popular culture with lightning speed. Colloquial use of the word “selfie” increased 17,000 percent between 2012 and 2015 (Barry, et al., 2017). Big data analyses show that selfies comprise almost one-third of all photos taken by people between the ages of 18 and 24, and that 40 percent of adults between 18 and 35 share at least one selfie per week (Diefenbach and Christoforakos, 2017). Many people use SNS platforms for a variety of factors like need to belong (Gangadharbatla, 2008) and to express aspects of their lives and personal identities, a behavior Caers, et al. (2013) term me-marketing. More specifically, this describes SNS users’ desire to brand themselves (and to gather reciprocal information about their friends lists), to emphasize parts of their lives that might not otherwise be visible online, and to recast prosaic activities as novel and exciting. While it should not be discounted that many SNS users are passive “lurkers” who refrain from online self-expression for various reasons (e.g., Brock, 2015), many active SNS users consider how they are presenting themselves, both via the words they use and the images they post (Peluchette and Karl, 2010), and selfies are an effective gadget in the SNS toolkit. Further, habitual SNS use and perceived relative advantage (i.e., the extent to which SNS are regarded as superior to older, superseded technologies) also predict selfie-posting intention and satisfaction (Huang, 2018). If increased social media use is linked to individuals’ desire for me-marketing (Buffardi and Campbell, 2008), it should also logically be linked to selfie behaviors.

Cruz and Thornham (2015) theorize that the selfie is not merely a photographic fad, but — due to their speed, level of intimacy, and capacity to accurately represent their photographers — a better form of visual communication. They contend that understanding the social underpinnings in contemporary society necessitates an understanding of the technological, and vice versa, and that selfies should be recognized for their wider, sociocultural properties. Despite
the central importance of me-marketing, however, people all over the world tend to compose and frame their selfies in similar ways (Veum and Undrum, 2018).

Wagner, et al. (2016) found a negative relationship between individuals’ actual body size and the number of selfies taken by them. However, they failed to find any relationship between the frequency of selfies posted to Instagram and actual body size or individuals’ dissatisfaction with their body image. Using focus group data, Nguyen and Barbour (2017) conclude that individuals consider selfies as authentic expressions of identity on social media. In the following sections, we examine more closely research on various factors that influence selfie behaviors.

**Demographics**

While selfies are a worldwide phenomenon that encompass all ages, genders, ethnicities, and socioeconomic statuses, particular segments of the population are more likely to engage in selfie taking and sharing than others. Initial research suggests that teenage girls are most likely to, with peer comparison and self-presentation being their two most salient motivations (Chua and Chang, 2016). Multiple studies note that selfies are most popular among teenagers and young adults, with older SNS users taking and sharing fewer selfies than their younger counterparts (Dhir, et al., 2016; Senft and Baym, 2015). Döring, et al. (2016) found that selfies on Instagram reflect traditional gender stereotypes and are often more stereotypical than advertisements printed in magazines, while Nguyen (2014) found that females between the ages of 18 and 29 primarily share selfies on Instagram to receive likes — passive, quantifiable votes of approval from other SNS users on a person’s friend list — and often delete posted selfies that receive negative comments or perform at a level they consider to be insufficient. Nearly all studies concerned with gender differences in SNS conclude that females are significantly more selfie-oriented than males (Qiu, et al., 2015). Likewise, the amount of time spent on social media is generally considered to be predictive of levels of SNS engagement and interactivity (e.g., Hughes, et al., 2012; Ryan and Xenos, 2011), which should logically extend to individuals’ selfie-taking and sharing behaviors.

**Narcissism**

Personality type is a strong predictor of SNS use, and is thought to map onto selfie behaviors by association (McCain, et al., 2016). Conventional wisdom has frequently tied selfies to narcissism, and the first wave of empirical research on selfies has focused primarily on this trait (Fox and Rooney, 2015; Weiser, 2015). Sorokowski, et al. (2015) found that while females post more selfies than males overall, narcissistic traits predict selfie posting more for males than for females. Fox and Rooney (2015) add that self-objectification predicts editing, filtering, and manipulating selfies prior to posting. In an examination of three separate dimensions of narcissism, Weiser (2015) found that males within the United States scored higher on all three dimensions, but — consistent with Sorokowski, et al. (2015) — females reported that they post selfies more often than males do. By contrast, a convenience sample of Singaporean schoolgirls reported that they view selfies as a means by which to measure how their friends conceptualize beauty, and that the number of likes they receive is a fair representation of approval (Chua and Chang, 2016). Thus, selfies that are manipulated to enhance or improve appearance can be interpreted not as narcissistic, but as seeking approval and desiring conformity.

In an attempt to address this discrepancy and develop a more unified model of selfie motivations, Etgar and Amichai-Hamburger (2017) suggest that self-approval, belongingness, and documentation (i.e., creating an online record or lasting account of one’s experiences) should be considered the primary impetuses underlying SNS users’ selfie behaviors, with personality traits informing these motivators to varying degrees. In a similar study by Kim and Chock (2017), however, belongingness and selfie behaviors were not found to be associated, although narcissism again predicted how often selfies are taken and the extent to which they were manipulated prior to being shared on SNS.

**Extraversion**

The findings outlined thus far suggest that narcissism has a demonstrable influence on selfie sharing, but that it should not be accepted as the fundamental motivation for doing so. The discrepancy between males’ higher narcissism scores and females’ higher frequency of selfie posting suggests that other factors, such as extraversion and self-esteem, may also play an important role in these SNS behaviors. This relationship was explored by Sorokowska, et al. (2016), who likewise measured narcissism, but also introduced survey items dedicated to extraversion and social exhibitionism, an individual’s propensity for showing off or calling attention to oneself in social situations. They found that both constructs positively correlated with number of selfies for both males and females.

In an investigation of selfies and the Big Five Personality Inventory traits (i.e., extraversion, agreeableness, openness
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to experience, conscientiousness, and neuroticism; for a review, see John, et al., 2008), Choi, et al. (2017) found that extraversion positively predicts observing others’ selfies and commenting on them, but the authors did not speak to how extraversion relates to individuals’ own selfie-taking and sharing habits. Guo, et al. (2018) reported that extraversion is positively associated with number of selfies taken by Chinese high school seniors, though an interaction effect with gender reversed the directionality of this relationship. Thus, while extraversion appears to play a role in selfie behaviors, the specific nature of its influence has yet to be definitively pinned down.

Impression and narrative management

A considerable amount of how and why people use SNS can be explained by impression management, the means by which people deliberately contemplate and shape how they are perceived or would like to be perceived by others via selective sharing of both photographic and textual information. The adage that a picture is worth a thousand words is particularly relevant to the management of self-image on SNS, as photographs provide the quickest and most detailed glimpses into other people’s lives. Zhao, et al. (2008) found that, based on content analyses of 63 Facebook accounts, undergraduate students “show rather than tell” [1], choosing to present aspects of their lives implicitly through visuals rather than explicitly through text. On Facebook, the easiest and most conspicuous way to share a photo of oneself is to post a profile picture, a central and predominant image that is typically visible to both Facebook users and nonusers. These photos are usually stationary, posed, appropriate for all audiences, and tend to include only the subject or user of interest (Hum, et al., 2011). Neither these criteria nor overall number of profile pictures that people post is predicted by gender; that is, males and females use the profile picture function the same way. This speaks to Back, et al.’s (2010) theoretical position that people using SNS conform to the extended real-life hypothesis, which asserts that individuals’ online selves are extensions of their real-life, off-line selves. In Back, et al.’s study, SNS users completed personality assessments, then were asked to describe how they perceived the personality dimensions of other participants’ profile pictures. Participants accurately pinpointed the personality traits of those they saw in these profile pictures, consistent with Back, et al.’s hypothesis.

Belk (1988) argues that a person's possessions are inseparably tied to his or her identity, a concept he referred to as the extended self. Sheth and Solomon (2014) have updated this idea to encompass life in the Internet age, arguing for a digital extended self that is defined by the artifacts a person puts online. Nowhere is this better applied than in the context of selfies, which are direct digital reflections of their creators. Shipley (2015) advances this argument by adding that selfies have now been embraced by the general public to the point where they have become functional, visual equivalents of memoirs or autobiographies. By placing oneself at the center of a photograph or series of photographs, a SNS user becomes the central character of his or her own serialized narrative, with installments or episodes delivered at intervals to the users on their friends lists. Together, these series of photographs act as mediators for SNS users personal brand formation, as well as for self-presentation and impression management (Çadrc and Güngör, 2019).

Impression management on SNS can be thought to have three components: self-expression, self-discovery, and self-documentation. In opposition to Sorokowski, et al. (2015) and Weiser (2015), Kwon and Kwon (2015) assert that basing selfies on narcissism is an oversimplification of a practice that primarily facilitates self-expression. A series of qualitative interviews with young adults in South Korea indicated that these SNS users employ selfies as a form of non-verbal communication with friends or acquaintances with whom they have limited contact. This entails informing the receiving party of their current physical appearance, relationship status if the selfie is taken with a significant other or romantic partner, or recent events in the photographer’s life if the selfie is taken in a specific location or at a social function. Thus, similar to the views presented by the adolescents who Chua and Chang (2016) interviewed, these young adults view selfies in a modest light — a spontaneous, indirect way of informing others of one’s actions without necessarily showing off or burdening the other party with direct communication. Many respondents agreed that they found it much more interesting to view what their friends were doing than to read about it, praising the virtues of a photograph’s superior ability to convey emotion. Participants also reported that selfies aid in self-discovery by allowing them to see themselves from an outsider’s perspective and compare the impression they have of their own appearance with the likes and comments they receive from their SNS friends lists. This feedback, in turn, helped them feel connected to their peers. As such, the authors argue that selfie sharing should be viewed as a social activity. This feeling of connectedness was just as important to these participants as feeling attractive, and often helped them feel more confident about the ways in which they were expressing themselves. Overall, successful impression management via selfies on SNS appears to facilitate both increased self-esteem (Pounders, et al., 2016) and stronger feelings of empowerment (Kedzior and Allen, 2016).

Hypotheses
The above review of literature introduces a diverse, but somewhat inconsistent and inconclusive body of findings pertaining to the individual-level personality and motivational factors behind selfie sharing on SNS. The current study is designed to consolidate these disparate findings in order to move toward a more comprehensive and nuanced understanding of why selfies are taken and posted on SNS. More specifically, this involves an examination of demographics such as age and gender along with personality factors such as narcissism, extraversion, time spent on social media, and impression management in predicting selfie behaviors. For the purposes of this study, we conceptualize selfie behaviors as a vector that incorporates frequency of posting, whether or not users applied filters or effects to their selfies before posting and how long it took for them to do so, how many versions of a selfie an SNS user takes before acquiring one that they deem worthy of posting, and favorable attitudes toward selfies overall. Based on our literature review, we propose the following hypotheses:

\[ H1 \]: Age negatively predicts selfie behaviors, such that younger SNS users are more likely to engage in them than older SNS users.

\[ H2 \]: Females are more likely to engage in selfie behaviors than males.

\[ H3 \]: Time spent on social media positively predicts selfie behaviors.

\[ H4 \]: Individuals’ level of narcissism positively predicts selfie behaviors.

\[ H5 \]: Individuals’ level of extraversion positively predicts selfie behaviors.

\[ H6 \]: Individuals who desire self-expression, self-discovery, and self-documentation (termed impression management) on SNS exhibit selfie behaviors more than individuals who do not.

These constructs and their potential impacts on selfie behaviors are presented in Figure 1.
Individual and personality factors that explain selfie behaviors of the selfies they take, how many they actually share with friends and followers on social media. However, this item practice of taking selfies is: good/bad, useful/useless, positive/negative you take before you get one that is good enough to post? user takes before acquiring one that they deem worthy of posting (you generally spend applying filters or modifying the image before sharing it? effects to their selfies before posting and how long it took for them to do so (e.g., I really like to be the center of attention vs. It makes me uncomfortable to be the center of attention, or I think I am a special person vs. I am no better nor worse than most people). For each item, the narcissistic statement is scored a 1 and the other is scored a 0. The participant’s cumulative score (0–40, with degree of narcissism increasing with numerical score) was used to assess the overall severity of their narcissistic traits. This measure has a high degree of internal consistency, α = 0.91.

Extraversion. Participants also completed the Eysenck Personality Questionnaire — Brief Version (EPQ-BV), a social psychological measure designed to identify respondents’ position on the introversion-extraversion spectrum (Sato, 2005). Items are structured on a 1–5 Likert scale and ask questions like, Do you enjoy meeting new people? and Do you like plenty of action and excitement around you? Respondents marked 1 (strongly disagree) through 5 (strongly agree). Some items are reverse keyed (i.e., Do you tend to keep in the background on social occasions? is reverse keyed, such that a response of 5 would correspond to the lowest degree of extraversion) to encourage thorough reading and understanding of items, and to discourage simply marking the same response for each item. Numerical responses were again summed to determine the participant’s position on this spectrum, with higher scores representing extraversion and lower scores representing introversion. All reverse keyed items were converted back to a consistent metric before overall scores were computed. This measure also has a high degree of internal consistency, α = 0.93.

Impression management. Impression management — defined here as an aggregate of self-expression, self-discovery, and self-documentation motivators — was assessed via a composite of three separate, 1–5 Likert scale questions: I think selfies are an effective way of expressing myself, Selfies help me discover things about myself that I was unaware of before, and Selfies are a helpful way for me to document my experiences. As with the EPQ-BV, respondents marked 1 (strongly disagree) through 5 (strongly agree) for each item. Composite scores were calculated by summing the responses for the individual items. This composite measure also yielded a high degree of internal consistency, α = 0.81.

Selfie behaviors and demographics. Participants also completed a questionnaire constructed by the authors of the present study to assess selfie behaviors directly. Selfie behaviors are conceptualized here as a four-pronged construct that incorporates frequency of posting (e.g., How often do you take selfies?), whether or not users applied filters or effects to their selfies before posting and how long it took for them to do so (e.g., When you take selfies, how long do you generally spend applying filters or modifying the image before sharing it?), how many versions of a selfie an SNS user takes before acquiring one that they deem worthy of posting (e.g., In general, how many versions of a selfie do you take before you get one that is good enough to post?), and attitudes toward selfies overall (e.g., In general, the practice of taking selfies is: good/bad, useful/useless, positive/negative). Participants were also prompted to indicate, of the selfies they take, how many they actually share with friends and followers on social media. However, this item was not included in our analyses, given our focus on shared selfies versus those that are taken but not disseminated.
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For frequency of posting, responses were coded based on how often participants report engaging in this behavior (i.e., 
*I have never taken a selfie* was scored 0, while *Daily* was scored 8). For application of filters, *I don’t share selfies on 
social media* was scored 0, while *I spend more than an hour applying filters* was given the uppermost score of 7. For 
number of selfie versions taken before posting, participants selected an appropriate number from a drop-down menu of 
numeric values ranging individually from 0 to more than 10, on average. Finally, for attitudes toward selfies overall, 
scores were summed (*α* = 0.87 for the three-item attitude measure, again demonstrating a high degree of internal 
consistency) such that good/useful/positive attitudes toward selfies yielded higher values, while bad/useless/negative 
attitudes yielded lower values. Participants were also asked to provide age, gender, and ethnicity, as well as to indicate 
how many hours they spend on social media in a typical day. This information assisted in identifying covariates that 
may also influence selfie behaviors.

Results

A total of 710 Amazon Turk users attempted to take the survey, but after employing data cleaning methods such as 
removing straight-liners, speeders, and people who were not paying attention based on the attention-testing questions 
in the survey, 418 were deemed to be valid and of verifiably high quality. All responses with missing values were also 
 omitted. Participants in this sample ranged from 19–73 years of age (*M* = 38.4, *SD* = 12.5), with 51 percent identifying 
as female. All participants resided within the United States at the time when data were collected. There was no 
 conspicuous pattern or clustering to participants’ locations, suggesting this sample may approach national 
representativeness. All analyses pertaining to ethnicity failed to reach significance (i.e., ethnicity was uniformly 
unsuccessful in predicting selfie behaviors) and were therefore excluded.

To test *H1–H6*, we fit an OLS regression model:

\[ Y_i = \beta_0 + \beta_1 \ldots \beta_6 + \epsilon \]

where \( Y_i \) is the vector of selfie behaviors, \( \beta_0 \) is the intercept, \( \beta_1 \) through \( \beta_6 \) denote the predictors for each respective 
hypothesis, and \( \epsilon \) is the error term. Results indicated that these predictors together have a highly significant collective 
effect and explain 60 percent of the variance in the overall model, \( R^2 = .60, F(6, 412) = 102.35, p < .001 \).

Specifically, age significantly predicted selfie behaviors (\( t = -2.77, p = .006 \)) such that younger participants responded 
that they more frequently took selfies, spent more time modifying and adding filters, took more versions of selfies, and 
had more favorable attitudes toward selfies. Gender also significantly predicted these behaviors (\( t = -4.86, p < .001 \)), 
with females engaging more than males, as did amount of time spent on social media (\( t = 4.72, p < .001 \)). Thus, *H1*, 
*H2*, and *H3* were all supported.

To investigate the personality variables of interest, participants’ overall scores on the *NPI, EPQ*, and impression 
management scales were entered as predictors. Narcissism was found to be a highly significant predictor of selfie 
behaviors (\( t = 6.95, p < .001 \)), with participants who scored higher on the *NPI-40* exhibiting more selfie behaviors 
overall. Additionally, impression management defined as an aggregate of self-expression, self-discovery, and self-
documentation motivators contributed robust predictive power to the model (\( t = 14.40, p < .001 \)). Extraversion was 
also found to significantly predict selfie behaviors (\( t = -2.41, p = .016 \)), though the results indicated that participants 
who scored higher in introversion exhibited selfie behaviors more than participants who scored higher in extraversion. 
Thus, *H4* and *H6* were also supported, but *H5* produced significant effects in the opposite direction from what was 
hypothesized. The full OLS model is presented in Table 1.
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Discussion and conclusion

This study reintroduced factors that had been previously investigated in relation to selfie sharing and SNS use but had yielded inconsistent and contradictory results (e.g., narcissism, extraversion), and situated them within a parsimonious framework to explain selfie behaviors. Specifically, demographic and personality variables were examined as predictors of how often SNS users take selfies, how much time they spend applying filters and modifying the images that they take, how many versions of selfies they typically take before capturing an image they are satisfied with, and favorable or unfavorable attitudes toward selfies.

Age, gender, & time on social media

Overall, our results substantiate previous findings that age and gender are indispensable when considering selfie behaviors (e.g., Chua and Chang, 2016; Sorokowski, et al., 2015). Specifically, younger female respondents reported engaging in these behaviors significantly more often than their older male counterparts. Though our survey was limited to respondents aged 18 years and older, it nonetheless consisted predominantly of individuals under 40, thereby reinforcing the conventional wisdom that Millennials are substantially more selfie-oriented than older generations. The current sample cannot be extrapolated to include frequency of selfie behaviors among adolescent SNS users, though an extensive investigation of Generation Z’s online activity is fertile ground for future studies. Plots of overall, aggregated selfie behaviors as a function of age have been provided in Figures 2 (females) and 3 (males) and reflect the trends described.

Perhaps not surprisingly, amount of time spent on social media also predicted engagement in selfie behaviors. One may reasonably assume that individuals who are more immersed in social media environments are also more disposed to take selfies and have positive opinions of them. Our data point strongly to the validity of this relationship, while also buttressing the notion that younger individuals spend more time on social media than do older individuals. In keeping with previous findings, however (e.g., Ryan and Xenos, 2011), the correlation between gender and time spent on social media is tenuous and should not be emphasized with regard to broader Internet or SNS use.

Table 1

<table>
<thead>
<tr>
<th>Predictor</th>
<th>b</th>
<th>95% CI</th>
<th>SE</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-0.05</td>
<td>[-0.08, -0.01]</td>
<td>0.017</td>
<td>-2.77**</td>
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<tr>
<td>Gender</td>
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<td>[-2.71, -1.15]</td>
<td>0.396</td>
<td>-4.86***</td>
</tr>
<tr>
<td>Time</td>
<td>0.62</td>
<td>[0.36, 0.87]</td>
<td>0.131</td>
<td>4.72***</td>
</tr>
<tr>
<td>Narcissism</td>
<td>0.20</td>
<td>[0.14, 0.25]</td>
<td>0.028</td>
<td>6.95***</td>
</tr>
<tr>
<td>Extraversion</td>
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<td>[-0.10, -0.01]</td>
<td>0.024</td>
<td>-2.41*</td>
</tr>
<tr>
<td>Impression Mgmt.</td>
<td>1.05</td>
<td>[0.91, 1.20]</td>
<td>0.073</td>
<td>14.40***</td>
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<tr>
<td>(Intercept)</td>
<td>2.50</td>
<td>[0.18, 4.81]</td>
<td>1.179</td>
<td>2.12*</td>
</tr>
</tbody>
</table>

\[ R^2 = .60*** \]

Note. 95% CI indicates the lower and upper limits of the confidence intervals for \( b \). * indicates \( p < .05 \). ** indicates \( p < .01 \). *** indicates \( p < .001 \).
**Figure 2:** Aggregated frequency of selfie behaviors for females across age.
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**Figure 3:** Aggregated frequency of selfie behaviors for males across age.

### Narcissism

Given that one might naturally expect narcissistic individuals to be preoccupied with self-image and its photographic manifestations, narcissism is the most commonly investigated personality trait in selfie research to date. However, it is also one of the most commonly disputed. Weiser (2015) was the first to explore this potential relationship, with Sorokowski, *et al.* (2015) and Sorokowska, *et al.* (2016) subsequently publishing related findings. The overarching trend across these papers was that narcissism in males influenced selfie posting significantly more than narcissism in females, but that females reported posting more selfies regardless of how they scored on a narcissism scale. Barry, *et al.* (2017), however, found a lack of association between narcissism and selfie posting and argued that narcissism is not a viable explanation for selfie behaviors.

The results of the present study qualify these findings. Females in our sample reported engaging in selfie behaviors significantly more than males, but there was no observable relationship between gender and overall narcissism score. However, narcissism score independent of gender was a strong predictor of selfie behaviors. Accordingly, we conclude that, counter to the findings of Barry, *et al.* (2017), there is a strongly positive association between narcissism and selfie behaviors, but we cannot speak to Weiser (2015), Sorokowski, *et al.* (2015), and Sorokowska, *et al.*’s (2016) assertions that narcissism is a gendered construct when it comes to engaging in these behaviors. It is worth noting that age and narcissism had a strong negative association in our sample ($r = -0.35, p < .001$), suggesting that younger individuals’ notably higher rates of SNS use may foster narcissistic attitudes. Though our survey data preclude causal inference, this remains a salient topic that merits investigation.

### Extraversion

The proposed relationship between extraversion and selfie behaviors feels similarly intuitive to that of narcissism’s relationship with these behaviors. At face value, one assumes that people who engage in more outgoing social behaviors will also be more likely to share details about themselves on SNS, including selfies. Counter to this assumption, our data showed that introversion rather than extraversion was a significant predictor of selfie behaviors...
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Güngör, 2019; Shipley, 2015). From fresh angles and perspectives, and to construct and maintain serialized, self-branding narratives (Çadrc and one’s appearance via the “disembodied” technology afforded by smartphone cameras that enable us to see ourselves behaviors appear to largely be a function of the desire to cultivate perceptions of oneself, discover new aspects of one’s appearance via the “disembodied” technology afforded by smartphone cameras that enable us to see ourselves from fresh angles and perspectives, and to construct and maintain serialized, self-branding narratives (Çadrc and Günçör, 2019; Shipley, 2015).

The majority of work pertaining to impression management and selfies has been either theoretical (Caers, et al., 2013) or qualitative (Zhao, et al., 2008). Thus, a major contribution of the present study is introducing robust quantitative data to support the notion that impression management and purposeful narrative-building predict selfie behaviors as much as, if not more, than other personality or demographic factors. While self-expression and self-discovery (Kwon and Kwon, 2015) and self-documentation (Etgar and Amichai-Hamburger, 2017) have been proposed as salient motivators to take and post selfies, a scale to measure these specific latent constructs has not, to our knowledge, previously been constructed to investigate these relationships.

**Impression management**

Perhaps the most intriguing findings of the present study pertain to the scale for impression management. Assessed independently, the desire for self-expression, self-discovery, and self-documentation all significantly predicted selfie behaviors; considered as a composite measure, the relationship further intensified. The magnitude of this coefficient indicates that these intrinsic, impression management-related motivations drive selfie behaviors substantially more than was previously thought. Narcissism score, extraversion score, and even age and gender notwithstanding, selfie behaviors appear to largely be a function of the desire to cultivate perceptions of oneself, discover new aspects of one’s appearance via the “disembodied” technology afforded by smartphone cameras that enable us to see ourselves from fresh angles and perspectives, and to construct and maintain serialized, self-branding narratives (Çadrc and Güncör, 2019; Shipley, 2015).

The scope of the present study’s variables was also limited. While narcissism and extraversion are among the most commonly investigated personality factors in selfie studies, the global practice of taking and sharing selfies has become so prevalent that researchers have been forced to concede that these factors only explain a portion of the phenomenon. As mentioned previously, investigating a younger (i.e., more all-inclusive) sample of SNS users alongside participants who are over 18, more precisely measuring extraversion and how it relates to the factors of interest, and constructing a more comprehensive and detailed impression management scale that draws on self-expression, self-discovery, and self-documentation across several items are all limitations to be addressed moving forward. Future studies should also be mindful of interpersonal-level motivations underlying the sharing of selfies. The current study focused on demographic and individual-level motivators, which are essential for understanding selfie behaviors, but do not speak to the interactive nature of SNS.

Furthermore, any online sample recruited via Amazon Mechanical Turk runs the risk of being unrepresentative of the broader population of social media users. Although the present sample had a roughly even split for gender, an appreciably wide age range, diversity of ethnicity, and no noticeable geographic clustering within the United States, it remains possible that these 418 participants reported different selfie behaviors and attitudes toward selfies than an ostensibly similar sample of individuals might. Future studies can best mitigate potential sampling biases by drawing from either a larger pool of random respondents or by employing purposive sampling techniques to obtain information about specific sub-samples of interest.
Implications

As noted in this paper’s introduction, selfie research in communication and social psychology is still in its early stages. Each empirical investigation to date has offered a compelling but different interpretation of why SNS users take and share selfies. A strength of the present study was its willingness to identify frequently recurring variables from prior studies (e.g., gender, narcissism, extraversion), ask novel questions about how they relate to more granular selfie behaviors, and consider them within a simpler and — ideally — more readily interpretable framework. Specifically, conceptualizing selfie behaviors as an aggregate measure helps to streamline and consolidate the various components that make up the process of taking and sharing selfies on SNS, thereby enabling more straightforward associations to emerge between these behaviors and the relevant predictors in our model.

Among these selfie behaviors is the novel construct of selfie versions, or how many times a social media user retakes a nearly identical image in order to share the “best” one. Selfie versions are a naturalistically observable facet of selfie culture that have thus far gone unmentioned and unmeasured in the psychological and communications literature. While selfie-enhancing behaviors such as editing, cropping, and manipulating have been discussed in various capacities (Chae, 2017; Fox and Rooney, 2015; Kim and Chock, 2017; McLean, et al., 2015), no other study has addressed these enhancing and manipulating behaviors alongside SNS users’ propensity for capturing multiple versions of the same basic image. Given that the average Millennial is expected to take 25,000 selfies during his or her lifetime (Smith, 2020) and that it is unlikely that this constitutes 25,000 temporally discrete selfie-taking contexts, we maintain based upon our significant results that the construct of selfie versions is highly pertinent within the selfie behavior framework and merits further examination.

Although technological trends are often ephemeral, selfie culture is still on the rise and appears to be propelled by a more timeless, autobiographical impulse. Given the global reach of SNS and the frequency with which people of all walks of life take and share selfies, understanding the underlying factors contributing to this behavior will subsequently help researchers understand how people are engaging with, and becoming socialized within, an increasingly media-saturated world. Additionally, this understanding will help illuminate the psychological processes that motivate certain individuals to partake in risky selfie-taking behaviors that can lead to self-harm or even death. This study helps move scholarly understanding of selfie behaviors in this direction. In particular, narcissism may be seen as low-hanging fruit when examining the behavioral mechanisms that drive selfie behaviors, and our highly significant findings regarding this trait suggest that future research on selfies should be mindful of narcissism and include it as a predictor, but also focus on other facets of personality and culture in order to provide a more well-rounded, nuanced explanation of this phenomenon. Specific emphasis on generational differences may prove insightful, as might a more thorough investigation into impression and self-narrative management. Given the robust magnitude of the impression management coefficient in this study, we speculate that the desire to take the perfect selfie may be linked to a complementary desire to me-market (Caers, et al., 2013) — a desire potentially so strong that it, in turn, may predict individuals’ propensity to risk their lives in order to cultivate an engaging and aesthetically pleasing social media presence.

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Note


References
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