

Motivation for Selfie-Posting Mediates the Relationship Between Narcissism and Empathy

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Recent times are associated with an unprecedented increase and predicted growth in social media use that can have profound implications for psychosocial behavior. We investigated how a popular social media activity (i.e., selfie-posting) is related with maladaptive personality traits (i.e., narcissism) and a prosocial capacity (i.e., empathy) in the non-clinical population. While social media use can feed narcissistic traits by allowing self-promotion and attention-seeking, such a use can also decrease our empathy. We examined if empathy is predicted by trait narcissism in the context of attention-seeking motivation for selfie-posting. We studied both grandiose and vulnerable narcissistic traits as they differ in strategic use of social media. Previous studies suggest narcissism is positively related with selfie-posting and negatively with empathy, but the relationship between selfie-posting and empathy has largely been unexamined. Using mediation models,

we tested whether attention-seeking motivation for selfie-posting provides a mechanism for narcissistic traits to relate with empathy. Results show both grandiose and vulnerable narcissism are positively associated with selfie-posting, but this relationship is stronger for grandiose narcissism. Attention-seeking motivation for selfie-posting mediates the relationship between grandiose narcissism and empathy, but not between vulnerable narcissism and empathy. Our results advance previous findings to a less understood social media activity (selfie-posting), for users of both Facebook and Instagram, and for both grandiose and vulnerable narcissistic traits. They also suggest that some social media use may be positively related with empathic behavior, and narcissistic traits may be malleable.

Keywords: narcissism; social media; empathy; grandiose; Facebook; Instagram

Social media are interactive Web 2.0 Internet-based technologies that rely heavily on user-generated content (Obar & Wildman, 2015). One of their biggest impacts on the modern life is through the creation of *social networking*—an online system that allows users to connect and communicate with other users by creating their online profiles on websites or phone applications (or apps), which are designed, provided and maintained by social networking services, such as Facebook, Instagram, or Snapchat. These services are mostly free of charge, easily available, and oftentimes accessed on smartphone devices several times during the day (Perrin & Anderson, 2019). The online platforms of social media have seen most of their

growth over the last decade with the advent and widespread use of smartphones and ‘smart devices.’ Brandt (2014) reported that just Android device users sent 20 billion text messages per day and checked their phone 100 billion times per day. While social media provides a new mode of connecting and socializing in the modern world that doesn’t require in-person presence, it has also been associated with maladaptive and pathologically addictive behaviors (Anderson et al., 2017; Casale & Banchi, 2020; Kuss & Griffiths, 2011; Ryan, et al., 2014).

LITERATURE REVIEW

The use of social networking services has undergone an unprecedented proliferation in recent times with an estimate of 2.95 billion users and 77% of Internet users globally in 2019 along with an estimate to cross 3.43 billion users by 2023 (von Abrams, 2019). Not surprisingly, recent times have also seen a growth in number of research studies that examine the relationship between the growing use of social media and how it affects human behavior. This has resulted in an emergence of new research areas, for example, *cyberpsychology*, which studies the psychological factors involved in the use of modern technology (e.g., social media) and how such factors affect human communication and interaction (Attrill, 2015).

Social Media and Selfie-Posting

The extensive use of social media can modify how human beings, in general, communicate and socialize. It can also affect particular behaviors and psychological functions that are active under specific circumstances, such as during online social interactions (e.g., when admiring and ‘liking’ someone’s *selfie* uploaded on social media; selfie is a photograph that one has taken of oneself) or in isolation (e.g., experiencing increase in self-importance or -admiration based on the number of ‘likes’ received on one’s selfies uploaded on social media). In the present study, we examined social and personality related implications of using social media. We focused on how a particular use of social media, selfie posting, is related to the ways in which people think about themselves with respect to others and their capacity to engage in prosocial behavior.

We studied selfie posting as a particular use of social media as it is one of the most popular recent uses of social media (Coulthard & Ogden, 2018) and its effect on human

behavior is not well understood. Kim, Lee, Sung, and Choi (2016) reported an increase in the popularity of posting selfies along with the growing popularity of social networking sites. Just between the years 2012 and 2013 the number of selfies rose by 17,000% (Laird, 2013), and approximately 93 million selfies were sent per day in 2014 by users of Android devices alone (Brandt, 2014). In the current study, we examined how a particular and popular, yet understudied use of social media (i.e., selfie posting) is associated with a personality trait (i.e., narcissism) and a related psychosocial capacity (i.e., empathy).

Narcissism, Social Media, and Selfie-Posting

Narcissism is a major area of interest in the psychological study of personality and behavior. Individuals who are termed as “narcissists” generally score higher on inventories of narcissistic personality that typically measure constructs such as attention and praise seeking along with feelings of superiority (McCain & Campbell, 2018). Individuals who choose more narcissistic statements on the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1998) are more likely to seek attention; have unrealistic expectations from others; become angry when threatened or questioned; take more resources for themselves; and value money, fame, and one’s image over the well-being of others (Campbell et al., 2005; Kasser & Ryan, 1996; Morf & Rhodewalt, 2001; Twenge, 2013). Narcissism has been considered as one of the consequential traits of modern times, and some researchers have referred to its increase in the population as a “narcissism epidemic” (Errasti et al., 2017; Twenge & Campbell, 2009; but also see Wetzel et al., 2017). In a 2008 study, it was found that trait narcissism had been increasing in the Western society with a 30% rise in the previous 30 years (Twenge et al., 2008). We considered narcissism as a continuum of a personality trait, or simply *trait narcissism*, which is studied in the general or subclinical population and is separate from the clinical narcissistic personality disorder (Sedikides et al., 2004).

From a social perspective, narcissistic individuals tend to be attuned to reactions of others, but only when perceived as relevant and advantageous to themselves (American Psychiatric Association, 2012). This focus of narcissistic individuals on other’s behaviors in terms of attention- and praise-seeking makes them prone to the use of social media, especially selfie posting. Social media allows self-promotion and to present oneself in more socially desirable ways (Blachnio et al., 2016). This can provide new and easy avenues for

narcissistic traits to be present and manifest in society. Blachino et al. (2016), for example, found narcissism to be a significant predictor of Facebook usage, with higher levels of narcissism predicting higher levels of Facebook usage and personal importance.

Selfie-posting could be an easy and effective tool for narcissists to achieve their narcissistic goals. Posting selfies is currently one of the most popular uses of social media (Coulthard & Ogden, 2018). Kapidzic (2013) found narcissism to be a significant predictor of the motivation for selecting profile pictures on Facebook that emphasizes one's attractiveness and personality, which was true for both men and women. Instagram, a photo-sharing social networking site, is another extremely popular tool for self-promotion, which is commonly used for posting selfies. Individuals higher in narcissism tend to post more selfies, update their profile picture more often, and spend more time on Instagram compared to others (Moon et al., 2016). Based on the aforementioned findings, we conclude that frequent and excessive selfie-posting may indicate an inflated sense of self, self-entitlement, and feelings of superiority—the key characteristics of narcissism. However, the interaction of narcissism and social media could differ depending upon the type of narcissism.

Grandiose Versus Vulnerable Narcissism

There are two types of narcissism, grandiose and vulnerable. Although both types share core features, such as attention-seeking, conceit, arrogance, self-indulgence and disregard for others, a growing body of empirical research documents the differences between the two (Brown et al., 2016; Miller & Campbell, 2008; Rohmann et al., 2019). Grandiose narcissism is characterized by extroversion and patterns of arrogance, while vulnerable narcissism tends to be characterized by introversion and a sensitivity to remarks and criticism from others (Baskin-Sommers et al., 2014). Grandiose narcissists tend to be more socially skilled while vulnerable narcissists are more likely to avoid social interactions if they do not receive enough positive feedback (Lamkin et al., 2014; Zondag, 2013).

Within the context of social media use, research indicates that vulnerable narcissists are particularly susceptible to the negative effects of social media (Casale et al., 2016). These negative effects include the inability to control social media usage, ruminating about social media while offline, and the tendency to use social networking to

regulate negative emotions (Casale et al., 2016). Whereas grandiose narcissism is characterized by an inflated sense of self-esteem, vulnerable narcissism tends to be characterized by fragile self-confidence (Konrath et al., 2009; Rohmann et al., 2019). Grandiose narcissists, more than vulnerable narcissists, may view social media as an environment to thrive and flourish. A meta-analysis found that grandiose narcissism is positively related to time spent on social media, frequency of status updates, number of friends/followers on social media, and the frequency of posting selfies (McCain & Campbell, 2018; Mehdizadeh, 2010). In sum, research indicates that grandiose narcissists use social media in a more strategic, self-promoting way than vulnerable narcissists.

One of the research goals of the present study was to determine how trait narcissism would be related with attention-seeking as a motivation for selfie posting, and not just the frequency of selfie posting. This goal was derived from the findings that show attention-seeking is a common and distinguishing characteristic of both grandiose and vulnerable narcissism (Miller & Campbell, 2008; Rohmann et al., 2019). Based on the above literature review, we formulated two hypotheses:

H₁: Both grandiose narcissism and vulnerable narcissism will be positively related with attention-seeking motivation for selfie posting.

H₂: Grandiose narcissism will be more strongly related with attention seeking motivation for selfie posting than vulnerable narcissism.

Narcissism, Selfie-Posting, and Empathy

While the association between narcissism and selfie-posting has been reported in a few studies (Kapidzic, 2013; Moon et al., 2016), it is a relatively new topic of research. Since both narcissism and selfie-posting are mostly operative in social contexts, in the present study, we examined how both these factors are associated with a psychosocial factor, namely, empathy. We chose empathy as our third and outcome variable because we wanted to understand how the relationship between narcissism and selfie-posting in the modern world of social networking is associated with and predictive of a factor that forms a basis of prosocial thinking and behavior. Below we discuss how narcissism and social media are related with empathy.

Empathy can be broadly defined as “the reactions that one person has to the observed experiences of another” (Davis, 2009), and therefore is “a psychological

phenomenon that at least temporarily unites the separate social entities of self and other” (Davis, 2009). The modern and largely accepted conception of empathy defines it as a multidimensional construct that has a cognitive component, which is involved in role-taking or ‘understanding’ what it is to be in someone else’s condition; and an affective component, which helps in ‘feeling other’s distress’ (Davis, 2009, 2018; Eisenberg et al., 2006; Hoffman, 2000, 2008; Preston & deWaal, 2002). Empathy has been described as “the bedrock of prosocial morality and the glue of society” (Hoffman, 2008, p. 449; see Baron-Cohen & Wheelwright, 2004; Chartrand & Bargh, 1999 for similar formulations), and as “a fundamental basis of social functioning, prosocial behavior, and interpersonal harmony” (Hepper, Hart, & Sedikides, 2014).

Social Media and Empathy. Empathy is a behavior that can be learned by observing or imitating others engaged in empathic behavior and by being conditioned to empathize (Hoffman, 2008). A frequent and excessive use of social media may limit (or could also increase) opportunities to see others engage in empathic behavior or be conditioned to behave in an empathic way. Therefore, social media use may change how people empathize, at least virtually. A constant bombardment of images and content on social media (as is also the case with other media, e.g., news channels) could encourage “empty empathy” (Kaplan, 2005) because it gives individuals little time to engage at a deeper level of empathic processing. One empathic response to a social media content is replaced by another fleeting response and so on, which may discourage people to engage in helping behavior (Kaplan, 2005). However, assuming some people can keep their social media consumption under check, exposure to social media content may also sensitize some people to others and encourage them to engage in more empathic processing (Kaplan, 2005). Theoretical rationale for social media use to discourage empathic behavior comes from Walther’s (2011) *cues-filtered out theory* in computer mediated communication. It proposes that online communication is deficient in terms of cues that are available in face-to-face communication that leads to a richer socio-emotional interaction, and therefore empathic processing is lower in online communication.

Over the last decade or so, when the use of social media was increasing dramatically, empathy was undergoing consistent decline and narcissistic traits were consistently rising (Konrath et al., 2011). Given that one of the uses of social media is self-

promotion (Bergman et al., 2011), it is possible that the rise in use of social media makes people more self-centered, thereby decreasing their empathy. In their study using a cross-temporal metanalysis, Konrath, et al. (2011) found that empathic concern and perspective taking (a cognitive aspect of empathy) in American college students had declined over a period of 10 years. Konrath et al. (2011) speculated that the increase in use of social media in everyday life is a likely cause of decline in empathy.

In a theoretical article examining the relationship between social media use and social disconnection, Konrath (2013) formulated an “empathy paradox,” which states that “as we are becoming more interdependent in a global sense, we are becoming less interdependent within our individual lives.” Konrath (2013) discussed several theoretical reasons why using the modern social media could promote lower empathy. These reasons included lack of sensory cues, anonymity, and informational alienation in social media settings, and detrimental effect of social media use in terms of emotional desensitization and taking away time that could otherwise be used in face-to-face communication. However, Caplan and Turner’s (2007) theoretical article argues that social media use can actually support or even enhance empathy because it makes the access to people in similar conditions easily affordable (Caplan & Turner, 2007).

Given the psychosocial relevance of empathy and the proliferation of social media, it is surprising that there are not many empirical studies of empathy in the context of social media. Those that have studied this relationship have found mixed results. Alloway et al. (2014) found that overall Facebook activities mostly positively correlated with the cognitive and affective empathy. However, a variable in their study, viewing and commenting on photos, which was closest to our second variable, that is, selfie posting, did not correlate with affective empathy. Carrier et al. (2015) studied how online activity is related with virtual empathy (i.e., empathy expressed through computer mediated communication) and real-world empathy. Their measure of online activity included using social networking sites but also playing online video games and browsing the Internet. They found that going online had very small negative effect on cognitive and affective real-world empathy, with significant negative effect only on cognitive empathy for females. However, their findings also showed that virtual empathy scores were significantly lower

than real world empathy scores, with this difference being larger for cognitive than affective empathy. This implied going online decreased virtual empathy.

The above findings do not present a clear picture of the relationship between social media and empathy. Most social media studies have not researched selfie-posting and have recruited participants who used either Facebook *or* Instagram, even though most social media users use both of these platforms (McCain & Campbell, 2018). We studied attention seeking motivation for selfie posting and empathy in users of both Facebook and Instagram. We chose Hollar's (2017) Empathy Gradient Questionnaire because it measures empathy on a gradient of "psycho-spatial proximity," that is, empathy that is measured based on the degree of how emotionally close or well-liked others are, such as, family, friend, peer, and distant others. In terms of previous scales, it measures affective empathy, and is close to the *empathic concern* dimension of Davis's (1980) empathy scale.

In absence of clear-cut findings of the relationship between selfie-posting and affective empathy for social media users that mostly use both Facebook and Instagram, our next hypothesis was exploratory, and based on the previous related findings (Alloway et al., 2014; Carrier, 2015; Konrath, 2013; Konrath et al., 2011).

H₃: Attention-seeking motivation for selfie-posting will be negatively correlated with empathy.

Social Media and Empathy. The prosocial and socially uniting effect of empathy is indirectly highlighted in the antagonistic relationship between narcissism, which has antisocial and egoistical characteristics, and empathy. Narcissists value or give importance to themselves over others (Miller & Campbell, 2008; Watson et al., 1984), and have been described as "socially glueless" (Hepper, Hart, & Sedikides, 2014). A lack or absence of empathy is considered a distinguishing characteristic of narcissistic personality disorder (American Psychiatric Association, 2012; Baskin-Sommers et al., 2014; Hepper, Hart, Meek et al., 2014; Ritter et al., 2011; Watson & Morris, 1991; Watson, et al., 1984). This lack of empathy in narcissists results in their highly antisocial behavior (Gurtman, 1992; Hepper, Hart, Meek et al., 2014; Wai & Tiliopoulos, 2012; Watson & Morris, 1991). Trait narcissism has also been consistently reported to have a negative relationship with empathy (Gurtman, 1992; Hepper, Hart, & Sedikides, 2014; Wai & Tiliopoulos, 2012; Watson et al., 1984; Watson & Morris, 1991).

A new consensus is emerging among researchers that narcissism is a matter of willingness or motivation and not a deficit or inability to engage in empathic processing (Ames & Kammrath, 2004; Baskin-Sommers et al., 2014; Stone, 1998). This has led some researchers to argue that narcissism is “malleable” and therefore its antisocial characteristics can be ameliorated (Ashton-James & Levordashka, 2013; Heppert, Hart, & Sedikides, 2014; Finkel et al., 2009). Hepper, Hart, and Sedikides (2014) showed that compared to taking a neutral perspective, instructions to take perspective of a victim of domestic violence resulted in higher self-reported empathy. Finkel et al., (2009) used experimental, longitudinal, and interaction-based research methods to show that under conditions of high communal (or prosocial) activation, the typical lack of relationship commitment in narcissists can be modified so that they can become more committed partners.

From both theoretical and practical implications, these are important findings that narcissists can also engage in empathic processing under specific conditions. However, it is not clear whether narcissists engage in empathic processing when using social media, especially selfie-posting. It has been argued that narcissists are flexible enough to engage in prosocial behavior if that will help them fulfill their egotistical goals (Morf et al., 2011). By that argument, narcissists may at least show, if not also experience, empathic distress on social media if it serves their goals. However, this strategic use of social media may differ across the two types of trait narcissism.

Grandiose narcissists tend to view social media as an environment to thrive and flourish. As compared to vulnerable narcissists, grandiose narcissists upload more selfies (Mehdizadeh, 2010) and self-report higher levels of empathy. Individuals higher in narcissism prefer to help others when people are watching (Konrath et al., 2016). Overall, research indicates that grandiose narcissists may be using social media in a more strategic, self-promoting way than vulnerable narcissists.

Our research interest in the present study was not in the direct relationship between trait narcissism and empathy per se, as their negative association has already been reported in some studies (Hepper, Hart, & Sedikides, 2014). We were rather interested in how these two variables are linked in the modern world in which social media is becoming extremely popular way of communicating, interacting, and socializing.

Specifically, we were interested in examining if selfie-posting is a mechanism that differentially associates grandiose versus vulnerable narcissism to empathy. Based on meta-analysis, McCain and Campbell (2018) highlight that previous studies that have examined the some of the relationships between these variables have mostly looked at grandiose than vulnerable narcissism, and recruited participants that used either Facebook or Instagram, but not both. The few studies that did examine both the traits or both the platforms, showed mixed results (McCain & Campbell, 2018). In the present study, we focused on both the types of trait narcissism, in participants who used Facebook or Instagram or both.

We used a correlational design and mediation modelling, to test the following hypothesis:

H₄: Attention-seeking motivation for selfie posting will more strongly mediate the relationship between grandiose narcissism and empathy, than between vulnerable narcissism and empathy.

METHODS

Participants

The sample consisted of 134 adults (105 females) between the ages of 18 and 72 years ($M = 29.20$ years, $SD = 13.65$ years). The racial/ethnic demographics include 79% Caucasian, 4% African American, 11% Hispanic/Latino, 8% Asian/Pacific Islander, and 2% others (see Table 1). The majority of participants had below a bachelor's degree (49%) or a bachelor's degree (36%) and reported themselves as belonging to middle class income status (53%). Participation eligibility for the survey required having either a Facebook or Instagram account, or both. Out of all the participants, 84.44% had both Facebook and Instagram account, 8.15% had only Facebook account, and 7.41% had only Instagram account. Participants were recruited online via the SONA online participants pool system posted on the Central Connecticut State University (CCSU) SONA website as well as through postings on Facebook and Instagram. Participants volunteered in the survey without receiving any monetary compensation and undergraduate students at CCSU received course credit as compensation for their time. The study was approved by CCSU's Institutional Review Board.

Design

The study examined attention-seeking motivation for posting selfies on social media as a mediator of the relationship between narcissism and empathy. We considered two mediation models that differed only in terms of the predictor—grandiose narcissism was the predictor in the first model and vulnerable narcissism in the other. For both the models, motivation for selfie posting was the mediating variable, and empathy was the outcome variable. Because individuals vary on both the narcissistic traits, participants took two trait narcissism surveys, one on grandiose narcissism and the other on vulnerable narcissism. The study used a correlational design. Self-reported online surveys measures were used to measure all the variables on all the participants.

Measures

Demographics. A survey was used to record the following measures of participants' demographics: age, gender, racial/ethnic background, education level, income, average social media use per day, and average selfies posted per month.

Grandiose Narcissism. The Grandiose Narcissism Scale (GNS) was used to assess trait grandiose narcissism (Gentile et al., 2013). The Grandiose Narcissism Scale is a 35-item measure (Cronbach $\alpha = .90$) of grandiose narcissism involving statements assessing feelings of superiority and manipulative behavior (e.g., “I have more going for me than most people” or “I can be pretty manipulative”). The 35-item questionnaire was ranked by a 6-point Likert Scale from 1 = strongly disagree to 6 = strongly agree. Higher scores indicate higher levels of trait grandiose narcissism.

Vulnerable Narcissism. The Hypersensitive Narcissism Scale (HSNS) was used to assess trait vulnerable narcissism (Hendin & Cheek, 1997). The Hypersensitive Narcissism Scale is a 12-item measure (Cronbach $\alpha = .70$) of vulnerable narcissism involving statements regarding narcissistic hypersensitivity and feelings of superiority (e.g., “I often interpret the remarks of others in a personal way” or “I dislike sharing the credit of an achievement with others”). The 12-item questionnaire was ranked on a 5-point Likert Scale from 1 = very uncharacteristic or untrue; strongly disagree to 5 very characteristic or true; strongly agree. Higher scores indicate higher levels of trait vulnerable narcissism.

Motivation for Selfie-Posting. The Selfie-Posting Motivations Measure was used to assess an individual's motivation for posting selfies (images of oneself) on social media, more specifically within the context of the social networking sites Facebook and Instagram (Sung et al., 2016). The 6-item attention seeking subscale (Cronbach $\alpha = .88$) was used to assess participants' motivation for posting selfies (e.g., "To attract attention", "To be acknowledged by others," "To gain self-confidence from others' reaction," "To have my existence reaffirmed by others," "To show off," and "To seek attention from the opposite sex"). Items were rated by participants on a 7-point Likert Scale based on how well the sentences applied to their motivation for selfie-posting, ranging from 1 = strongly disagree to 7 = strongly agree. Higher scores indicated higher attention-seeking motivation for selfie-posting.

Empathy. The Empathy Gradient Questionnaire (EGQ) was used to assess empathy on a "hypothesized gradient based on situation or psycho-spatial proximity" (Hollar, 2017). This approach towards measuring empathy is based on research by Mehrabian and Epstein (1972) and Krebs (1970) that shows that empathy varies inversely with "closeness distance", that is, how close or well liked someone is. Four out of the original five subscales were used for a total of 18 items (Cronbach $\alpha = .90$). The subscales included family empathy (e.g., "I often think about my siblings and cousins."), friend empathy (e.g., "I worry about what happens to my friends."), peer empathy (e.g., "I become distressed when a colleague is in trouble") and distant other empathy (e.g., "I worry about homeless people in this country."). The questionnaire was ranked on a 5-point Likert Scale based on how much the items relate to how much empathy participants feel in general, with 1 = very much disagree, to 5 = very much agree. Higher scores indicate higher levels of empathy.

Procedure

Following approval from the university's Institutional Review Board (IRB), the surveys were administered online through CCSU online participant pool or SONA system, or through posting study links on Facebook and Instagram. The surveys were anonymous, and participants provided informed consent before beginning their participating in the study. They then completed all measures of the study including demographics, Grandiose Narcissism Scale, Hypersensitive Narcissism Scale, Empathy Gradient Questionnaire,

and Selfie-Posting Motivations Measure. All participants were debriefed after completion of the survey, which took approximately 20 minutes.

RESULTS

The minimum and maximum scores on the following scales were as follows—Grandiose Narcissism Scale: minimum = 35, maximum = 210; Hypersensitive Narcissism Scale: minimum = 12, maximum = 60; Selfie Posting Motivations Measure: minimum = 6, maximum = 42; and Empathy Gradient Questionnaire: minimum = 18, maximum = 90. A higher score on each of these surveys indicated a higher level of the measured variable. None of the items required reverse coding. An average score based on all items for each measure was calculated so that for each participant, there were four average scores corresponding to the four survey measures.

Table 1

Demographic Characteristics of the Sample

Demographic	M or N (% or SD)
Age	29.20 years (13.65 years)
Gender	Female: 105 (78.4%) Male: 29 (21.6%)
Education	Below bachelor's degree: 66 (49.3%) Bachelor's degree: 48 (35.6%) Master's degree or higher: 20 (14.9%)
Facebook/Instagram Use Per Day	Less than 1 hour: 22 (16.4%) 1-2 hours: 74 (55.2%) 3-5 hours: 35 (26.1%) 6-8 hours: 3 (2.2%) More than 8 hours: 1 (0.7%)

A total of 173 participants completed the study. This study assessed motivation for selfie-posting on Instagram or Facebook, requiring participants to have at least one of these social media accounts for their data to be relevant for the study. Therefore, participants who reported not having a social media account ($n = 8$), their data was excluded from the analysis. Those participants who did not fill out the outcome variable measure, or those who did complete the survey for the outcome variable but did not complete at least half of the responses for any of the predictor variables had their data

excluded from the study. In total, using the above criteria for excluding data, incomplete data from a total of 31 participants were excluded from the analysis and the data analysis was performed on data received from 134 participants. See Table 1 for participant demographics.

Table 2
Correlations Among Study Variables, Means, and Standard Deviations

	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
5. Empathy	-			
6. Vulnerable Narcissism	.028	-		
7. Grandiose Narcissism	-.078	.398***	-	
8. Attention-Seeking Motivation for Selfie- Posting	.142	.407***	.510***	-
M	3.69	2.81	3.23	3.62
SD	.55	.52	.58	1.34

*** $p < .001$.

Correlations, means, and standard deviations are presented in Table 2. A positive correlation was found between grandiose narcissism ($M = 3.23$, $SD = .58$) and attention-seeking motivation for selfie posting ($M = 3.62$, $SD = 1.34$), $r(132) = .51$, $p < .001$. A positive correlation was also found between vulnerable narcissism ($M = 2.81$, $SD = .52$) and attention-seeking motivation for selfie posting $r(132) = .41$, $p < .001$. These findings support hypothesis 1 and 2, which predicted both grandiose and vulnerable narcissism to be positively associated with selfie-posting, with grandiose narcissism having a stronger association. We also found a positive correlation between vulnerable narcissism and grandiose narcissism $r(133) = .40$, $p = < .001$. A non-significant correlation (Table 2) was found between attention-seeking motivation for selfie posting and empathy ($M = 3.69$, $SD = .55$), $r(131) = .14$, $p = .102$. A non-significant correlation was found between grandiose narcissism and empathy $r(133) = -.08$, $p = .22$. A non-significant correlation was found between vulnerable narcissism and empathy $r(133) = .03$, $p = .743$.

We further conducted partial correlation analyses among the key variables while controlling for demographic variables of age and gender. The pattern of results remained the same. The partial correlations between grandiose narcissism and attention-seeking motivation for selfie-posting remained significant, $r(129) = .51$, ($p < .001$), as was the

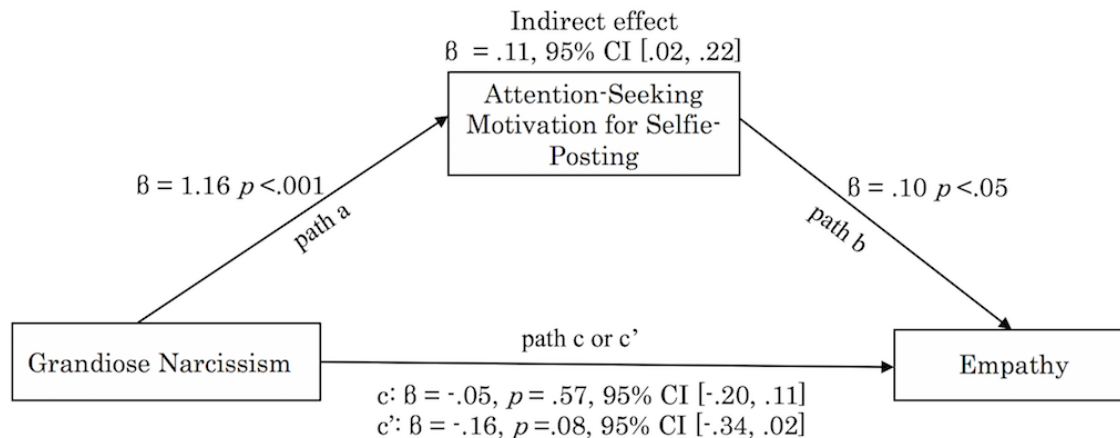


Figure 1: Mediation analysis for predictor grandiose narcissism; β represents unstandardized coefficients correlation between vulnerable narcissism and attention-seeking motivation for selfie-posting, $r(129) = .40$, ($p < .001$). The partial correlations between grandiose narcissism and vulnerable narcissism remained significant as well, $r(129) = .41$ ($p < .001$). Non-significant correlations were found between attention-seeking motivation for selfie-posting and empathy, $r(129) = .161$, $p = .066$, grandiose narcissism and empathy $r(129) = -.05$, $p = .569$, and vulnerable narcissism and empathy, $r(129) = -.01$, $p = .874$.

Mediation analyses were conducted using SPSS macro, PROCESS model 4, using 10,000 bootstrap samples for bias correction and to establish 95% confidence intervals (Hayes, 2017). Two mediation models were analyzed with respect to the two trait narcissism types: grandiose narcissism and vulnerable narcissism. In both the models, age and gender were used as covariates. Figure 1 represents the mediation model for the first predictor variable, grandiose narcissism, with empathy as the outcome variable, and the mediator being attention-seeking motivation for selfie-posting. With respect to 'path a' in this model, the predictor, grandiose narcissism, significantly predicted the mediator, attention-seeking motivation for selfie-posting, confirming hypothesis 1, $\beta = 1.16$, $p < .001$, where β represents unstandardized coefficient in the regression model. The results of the

regression analyses indicate that grandiose narcissism explained 28.31% of the variance, $F(3, 129) = 16.98, p < .001$. For path b, the mediator, attention-seeking motivation for

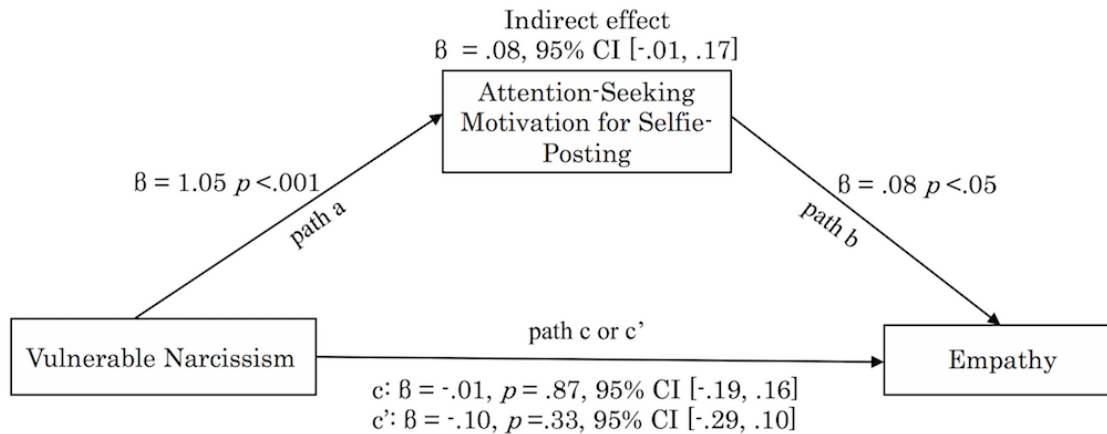


Figure 2: Mediation analysis for predictor vulnerable narcissism; β represents unstandardized coefficients

selfie-posting, significantly predicted the outcome empathy, $\beta = .10, p < .05$. The direct effect of grandiose narcissism on empathy (i.e., path c') was not significant, $\beta = -.16, p = .08, 95\% \text{ CI } [-.34, .02]$. The indirect effect of grandiose narcissism on empathy (i.e., path ab in the regression model) was significant, $\beta = .11, 95\% \text{ CI } [.02, .22]$. Attention-seeking motivation for selfie-posting on social media mediated the relationship between grandiose narcissism and empathy¹ (Figure 1).

A second mediation model analysis, similar to the first one, was conducted (Figure 2) with vulnerable narcissism as the predictor. Like in the first model, the total effect (path c) was not significant, $\beta = -.01, p = .87, 95\% \text{ CI } [-.19, .16]$. Vulnerable narcissism significantly predicted attention-seeking motivation for selfie-posting (path a), $\beta = 1.05, p < .001$. The results of the regression analyses indicate that vulnerable narcissism explained 18.93% of the variance, $F(3, 129) = 10.04, p < .001$. Attention-seeking motivation for selfie-posting predicted empathy (path b) but the positive direction of this relationship was the opposite to the predicted negative direction in hypothesis 3, $\beta = .08, p < .05$. The direct effect of vulnerable narcissism on empathy (path c') was not significant, $\beta = -.10, p = .33, 95\% \text{ CI } [-.29, .10]$. The indirect effect (path ab) of vulnerable narcissism on

¹ A non-significant correlation between the predictor and outcome variables, or a non-significant total effect, like we observed, is not considered a pre-condition to infer significant mediation (Darlington & Hayes, 2017; Hayes, 2009; Shrout & Bolger, 2002).

empathy via the mediating variable was also not significant as the confidence interval contained the zero point, $\beta = .08$, 95% CI [-.01, .17]. Hypothesis 4 was not supported as we hypothesized that attention-seeking motivation would mediate the relationship for both grandiose and vulnerable narcissism in relation to empathy, with the mediation stronger for grandiose narcissism. However, attention-seeking motivation for selfie-posting on social media did not mediate the relationship between vulnerable narcissism and empathy (Figure 2).

DISCUSSION

The proliferation of social media use in the modern world has changed the way people communicate and interact with each other (Attrill, 2015). The broad goal of the present study was to understand how using a modern and very popular application of social media, that is selfie-posting, could modify the relationship between maladaptive personality traits and an ability to engage in prosocial thinking and behavior. Understanding how these variables are interlinked has important implications for the psychological make-up and well-being of individuals who are parts of a society and therefore the welfare of the society itself.

Our first hypothesis predicted a positive relationship of both trait grandiose narcissism and trait vulnerable narcissism with attention-seeking motivation for selfie posting. Our results confirmed the hypothesis and are similar to the results from other studies that showed a positive relationship exists between narcissism and use of social media as a whole (Gnambs & Appel, 2018; Kapidzic, 2013; Taylor, 2014). Moreover, our results extend such findings to circumstances when (i) a less studied but popular social media activity, that is, selfie-posting, is used (ii) people use two of the most popular social media platforms, that is, Instagram and Facebook, and (iii) two of the common types of trait narcissism, grandiose and vulnerable, are comparatively studied. Moon et al. (2016) found that higher levels of narcissism are related to more frequent selfie posting on Instagram; we replicated that finding and found it to be true also for the users of Facebook, and those with trait vulnerable narcissism.

We found that grandiose narcissism is more strongly related with attention seeking motivation for selfie posting than vulnerable narcissism. This finding supported our

second hypothesis and extends McCain and Campbell's (2018) finding of a small to moderate positive relationship between grandiose narcissism and social media use. We found this relationship to be strong ($r = .51$). Our findings are significant as they further extend the general conclusions from McCain and Campbell (2018) to different circumstances as most of our participants (57%) were non-millennials (that is younger than 23 and older than 38), and most of them (84.44%) had both Facebook and Instagram accounts (8.15% had only Facebook accounts, and 7.41% only Instagram account). Interestingly, we also found that social media use was positively related with vulnerable narcissism and that this effect was of a moderate size ($r = .41$). Contrary to this finding, McCain and Campbell (2018) had concluded in their meta-analytic study that vulnerable narcissism is generally not found to be related with social media use, possibly because it is less studied with respect to social media use. They had encouraged researchers to study this relationship, which was done in the present study.

Our third hypothesis was exploratory and predicted that attention-seeking motivation for selfie posting would be negatively correlated with empathy. We did not find support for this hypothesis as the two variables were not correlated. With age and gender as covariates, this relationship was rather positive, but with a weak effect ($r = .161$) and a p value of .066. This finding is different from the predictions derived from Konrath's (2013) theoretical analysis or from Konrath et al.'s (2011) meta-analysis, both proposing that social media use would encourage decrease in empathy. Our null result is similar to Alloway et al.'s (2014) finding of a lack of correlation between viewing and commenting on photographs on Facebook and affective empathy. However, our null finding is different from Carrier et al. (2015) who found that going online had a very small but negative effect on affective real-world empathy; but this effect was even smaller for virtual affective empathy. One reason for this finding to be different than ours could be that the online activity in Carrier et al. also included playing online video games and browsing the Internet.

In our mediation model, we found that for both grandiose and vulnerable narcissism, trait narcissism positively predicted attention seeking motivation for selfie posting, which itself positively predicted empathy. Our fourth and main hypothesis was attention seeking motivation for selfie posting would more strongly mediate the

relationship between grandiose narcissism and empathy, than between vulnerable narcissism and empathy. We found support for this hypothesis in that attention-seeking motivation for selfie posting mediated the relationship between grandiose narcissism and empathy, but not between vulnerable narcissism and empathy. This is a more noticeable finding than previous ones, which found that the difference between similar mediating role of the use of social media for the two types of trait narcissism was in terms of degrees (McCain & Campbell, 2018; Vonk, et al., 2013) but not kind, as we have found. Our findings show that the motivation for selfie posting differentially affects how the two types of trait narcissism relate with empathy. This result supports previous findings that highlight major differences in the two types of narcissism; for example, grandiose narcissists, as compared to vulnerable narcissists, are more socially skilled, perceive social media as an environment to thrive and flourish, and upload more photographs of oneself and promote self-content (Brown et al., 2016; Mehdizadeh, 2010; Miller & Campbell, 2008; Rohmann et al., 2019).

The different mediating effect of selfie posting for the two narcissism traits could also arise from their different association with social goals: while grandiose narcissists have a tendency to exploit or manipulate others to obtain superiority over them, vulnerable narcissists have a limited desire to feel close or connected to others (Ojanen et al., 2012). The relationship between narcissism and empathy may strengthen in the context of the online world, as appearing more empathic online may have social advantages and further bolster narcissists' traits. As we reviewed above, in some contexts and with certain motives, more narcissistic individuals may engage in more pro-social behavior, for example, when others are watching (Konrath et al, 2016).

Our findings are specific to a particular use of social media, that is selfie-posting, and only for social networking platforms Facebook and Instagram. These findings cannot be generalized to everyday context or Internet use in general. The present study included participants from a variety of ages and educational levels, but the majority of the participants were reported as Caucasian. This may limit the generalizability of the findings, but only to a smaller extent because recent metaanalysis show that across different cultures selfie posting for narcissists remains higher than non-narcissists (McCain & Campbell, 2018). In that context, replication of our findings in different

cultures will advance our understanding of how social media use affect prosocial behavior. Our findings were obtained after controlling for gender, but most of our participants were females. Since different personality traits differently relate to gender, future studies should extend the current findings by studying if the results differ by gender.

Slater's (2007) theoretical conception of a reciprocal relationship between the types of media people select and consume and the effect that media has on them provides a theoretical explanation for our findings. Based on this conception, Slater (2007) proposed that "media-use variables should mediate or partially mediate (Baron & Kenny, 1986) the influences of individual-difference variables... on cognitive or behavioral outcomes." (p. 282). This argument fully applies to the current study as trait narcissism is an individual-difference variable and empathy is a cognitive and behavior outcome, whose relationship is mediated by selfie-posting. A recent empirical evidence for Slater's proposal came from Halpern et al. (2016) who studied the relationship between narcissism and selfie taking. As suggested by Slater, Halpern et al. (2016) used a cross-lagged design and found results supporting a reciprocal relationship between two effects that were tested by the following two hypothesis: the self-selection hypothesis, which stated that narcissists take selfies to maintain their positive self-views, and the media effect hypothesis, which stated that by taking more selfies users increase their levels of narcissism. If this finding can be generalized to our study, then trait grandiose narcissism makes people more likely to post selfies, which itself will enhances their grandiose narcissism. A similar reciprocal relationship can be conceived between selfie-posting and empathy; however, we are not aware of any study that has found evidence for such a reciprocal relationship.

The present study is the first to show that use of attention-seeking motivation for selfie posting by grandiose but not vulnerable narcissists predicts enhanced affective empathy. This finding is in contrast with previous findings and concerns about social media use having a deleterious effect on empathic skills. One possible explanation of the positive relationship or effect between selfie-posting and empathy comes from Walther's (1996) hyper-personal communication theory that argues that online communication provides optimal ways to present oneself that is generally not possible in face-to-face communication. The missing cues are filled in by recipients of the online message by using their idealized image of the presenter. This makes the communication hyper-personal

because users experience a deeper level of intimacy and engage in more self-disclosure than is possible in a face-to-face communication. The hyper-personal communication theory is empirically supported by findings that show online communication promotes self-disclosure, closeness, social connectedness, and higher quality relationship among friends (Valkenburg & Peter, 2007; Vossen & Valkenburg, 2016).

Our findings also suggest the possibility of an important aspect of narcissism that has both theoretical and practical implications—narcissism is malleable (Baskin-Sommers et al., 2014, Ashton-James & Levordashka, 2013; Finkel et al., 2009; Heppert, Hart, & Sedikides, 2014; Morf et al., 2011). Hepper, Hart and Sedikides (2014) showed that instructions to engage in perspective taking resulted in participants self-reporting higher empathy. If having empathic concern serves narcissistic goals, then individuals with narcissistic traits may engage in prosocial behavior. We found that only in case of grandiose but not vulnerable narcissism, selfie posting mediated the relationship between narcissism and empathy. An experimental empirical support for our findings of the difference between the two narcissism traits comes from Lannin et al., (2015). They showed that grandiose narcissists are more willing to help under low than high social pressure condition, but vulnerable narcissists were equally willing to help under the two conditions. They described anonymity and reduced accountability of behavior comprises low social pressure condition. By this description, social media is commonly used in a low social pressure condition, which makes it easier for grandiose but not vulnerable narcissist to engage in empathic or prosocial behavior. The above discussion underscores that social media can be used in socially beneficial ways, and this has vital implications for social media users and designers, teachers, parents and practitioners.

Limitations

Limitations of the current study include using a less commonly used “relationship proximity” based measure of affective empathy (Hollar, 2017). This may explain why in our study empathy did not correlate with trait narcissism or attention seeking motivation for selfie posting. Using more traditional measures of empathy can clarify if the lack of correlations in our findings is an artifact of the used measure. Another limitation is the use of self-reported measures for variables, such as trait narcissism and empathy, which are high on social desirability, and may encourage participants to either assess themselves

incorrectly or not report truthfully. Future studies should use less socially desirable ways to measure such variables. One way to do that is to operationalize the variables in an experimental design. Results from such a study will also allow causal inference, unlike our findings that provides correlational descriptions and mediation model-based mechanistic explanations. Our novel descriptive findings, however, can inform such future experimental studies.

Studies show that cognitive empathic processing precedes affective empathic processing (Batson & Ahmad, 2009; Hepper, Hart, Meet et al., 2014). Because we measured empathic concern, which is a part of affective empathy, it can be assumed that cognitive empathic processing must have preceded the affective processing. However, measuring cognitive and affective empathy separately, could further test if the sequential empathic processing generalizes to the context of selfie-posting.

Future Directions

Future research should further examine the motivations and advantages of posting selfies and appearing more empathic online. This can be done by examining other well researched, common, and related personality traits, for example, self-esteem. Future studies should also compare how different uses and aspects of social media (e.g., selfie posting, following or being followed by other people, number of friends and views, affective impact of likes and dislikes on one's selfie, commenting on other's photographs, instant messaging and texting, dating, etc.) relate with the two components of empathy. Findings from such studies could reveal whether the empathy-enhancing effect that Vossen and Valkenburg (2016) found also extends to other uses of social media, and if some of them could have a deleterious effect on one's empathy as described by Konrath (2013).

Implications

The findings of the present study pose several implications. First, with respect to the general population, our finding suggests that selfie posting may not have a detrimental effect on empathy and could even have a beneficial effect. This finding is encouraging from the perspective of societal well-being as it highlights the innocuous effect of social media and implies that it may actually be used to foster empathic skills and prosocial behavior. Second, our findings may help individuals in the general population who use social media to be aware of the importance of knowing their levels of trait

grandiose and vulnerable narcissism. They could then be accordingly informed that those with higher levels of trait grandiose narcissism have a higher likelihood to engage in selfie posting behavior for seeking attention, and that this behavior could make them experience higher empathic concern. Third, similar implications as described above apply to those higher in grandiose narcissism who engage in another very popular use of social media—dating and similar online activities. Such users could also be sensitized that their experience of higher levels of empathic concern and appearing more favorably and caring to others has some motivation in attention seeking and maintaining or enhancing grandiose self-views.

In conclusion, we found that for the general or non-clinical population, attention-seeking motivation for selfie posting mediates the relationship between trait grandiose narcissism and empathy, but not between trait vulnerable narcissism and empathy. In general, our finding suggests that social media habits could differentially modify how individuals engage in social cognition or prosocial behavior, depending upon their specific personality traits.

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