

2022

## What's your Snapscore? Correlations to Personality, Narcissism, and Anxiety

Samantha Chambers

*Shenandoah University*, [samantha.chambers@su.edu](mailto:samantha.chambers@su.edu)

Scott P. King

*Shenandoah University*, [sking4@su.edu](mailto:sking4@su.edu)

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### Recommended Citation

Chambers, Samantha and King, Scott P. (2022) "What's your Snapscore? Correlations to Personality, Narcissism, and Anxiety," *Modern Psychological Studies*: Vol. 28: No. 1, Article 10.

Available at: <https://scholar.utc.edu/mps/vol28/iss1/10>

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### **Abstract**

Snapchat is a popular social media network, but considerably less researched than other more established platforms. The purpose of this study was to examine how the amount of Snapchat use is correlated to personality, narcissism, and anxiety. We hypothesized there would be positive correlations between Snapchat usage and narcissism, extroversion, and anxiety. Using data from a convenience sample of participants recruited from Amazon Mechanical Turk, Pearson's correlations and t-test analysis provided insight on these connections. There were significant positive correlations between Snapchat usage and narcissism, anxiety, and extraversion, but t-test analyses revealed that the users with low Snapscores had higher narcissism, anxiety, and extraversion.

*Keywords:* Snapchat, social media use, personality, narcissism, anxiety

### **What's your Snapscore? Correlations to Personality, Narcissism, and Anxiety**

Snapchat is a social media platform that has grown in popularity since its creation in 2011; from 2014 to October 2020, daily active Snapchat users have risen from 46 million to 249 million (Clement, 2020). However, there is still very limited research that exists for the platform due to its more recent release as compared to other networks. Snapchat also differs from other social media networks in its audience, privacy, and the expiration of posts. Snapchat users typically have smaller friend networks as compared to other social media platforms because it is less likely for users to add people they do not know (Utz, Muscanell, & Khalid, 2015). Snapchat users can also specifically control the audience down to each individual person who can see what they post with modes such as direct messaging, group chats, private stories, and public stories. A user is informed if any other user takes a screenshot of their posts which adds another level of privacy. The posts on Snapchat expire, and once they expire other users do not have access to see the post again. Snapchat has a Discover page on the app that shows users news articles and videos, giving users another mode of media viewing. Snapchat also has a feature known as a Snapscore. A Snapscore is a point total that every user has that is “determined by a super-secret, special equation that combines the number of Snaps you’ve sent and received, the Stories you’ve posted, and a couple other factors” (Snapchat Support, n.d.). This point total can be used to see how active Snapchat users really are.

The content that users send in Snapchat, according to Utz et al. (2015, p. 143), includes the following: “funny things (98.7%), myself (85.7%), what I’m up to (85.7%), events (59.7%), food (58.4%), people (57.1%), animals (53.2%), drunk photos (53.2%), beautiful things (32.5%), joke sexting (19.0%), legally questionable activities (14.3%), and sexting (13.0%)”. The same

authors found that procrastination and distraction was the most popular reason for using Snapchat, followed by keeping in touch with friends and seeing what others are up to (p. 143). Alhabash and Ma (2017) found that, in a sample of college students, participants spent most time daily on Instagram, Snapchat, Facebook, and Twitter, respectively, and of these four platforms, Snapchat had the highest mean use motivations for self-documentation, social interaction, entertainment, passing time, medium appeal, and convenience.

Phua et al. (2017) examined social capital across Facebook, Twitter, Instagram, and Snapchat, and found that Snapchat was the highest for bonding social capital and lowest for bridging social capital. The study defined social capital as “sum of resources that accrue to an individual or a group by virtue of possessing a durable network of more or less institutionalized relationships of mutual acquaintance and recognition”, and “bridging social capital refers to weak, distant relationships between individuals that make available opportunities for information sharing, while bonding social capital applies to strong relationships providing emotional kinship, trust, and social support” (Phua et al., 2017, p. 116).

In recent years, social media users' narcissism has been a popular topic for research. In a meta-analysis involving over 12,000 participants, McCain and Campbell (2018) found that grandiose narcissism was positively correlated to time spent on social media, especially Facebook and Twitter. Although 65% of the studies included in the meta-analysis focused exclusively on Facebook, other social media platforms were included as well. 35% of the studies included in the meta-analysis used the NPI-16, which was the chosen method to measure narcissism in the current study. However, the researchers warned that they “caution against

generalizing the results of this meta-analysis to social media sites other than Facebook and Twitter” (McCain & Campbell, 2018, p. 314).

Barry et al. (2019) focused on Instagram, hypothesizing that posting selfies, something also common in Snapchat, can be conceived as attention seeking behavior. However, they found that narcissism was unrelated to posting selfies, contrary to previous findings, and propose that selfies may just be becoming so commonplace that it is more of a social adaptation than a sign of narcissism (Barry et al., 2019).

Social media use seems to be related to user anxiety levels as well. Steers et al. (2016) found that in a mostly female college sample, Facebook use was positively correlated with anxiety, arguing that daily usage can influence state anxiety and otherwise stable personality traits. Sherlock and Wagstaff (2019, p. 485) focused on Instagram and found similar results: “average time on Instagram correlated positively with trait anxiety”

With these sometimes conflicting findings in mind from more popular social media platforms, we investigated if Snapchat usage would be correlated positively with narcissism and anxiety, and explored its associations with the Big-Five personality traits. We hypothesized that there would be positive correlations between Snapchat usage and narcissism, anxiety, and extroversion. To measure Snapchat usage, we asked users to report their usage in hours per week, but we also wanted to take advantage of the Snapscore feature, hopefully providing a measure of how actively users participate in the app, as opposed to merely lurking and passively viewing others' content.

## **Method**

### **Participants**

Participants consisted of a convenience sample recruited from Amazon Mechanical Turk. Amazon Mechanical Turk is an online crowdsourcing platform in which participants can complete tasks for monetary compensation. For this particular study, participants were compensated with sixty cents after completion of the survey. Participants had to be at least 18 years of age, speak English, and live in the United States. Only those who had a Snapchat account were allowed to participate in the study. A total of 218 responses were recorded. However, due to some unforeseen data integrity issues (e.g., incomplete questionnaires, inactive Snapchat users, bogus answers) the sample was reduced to 136. The sample consisted of 80 men (58.8%); 55 women (40.4%), and one participant who selected “prefer not to answer”. 90 participants (66.2%) were not students; 19 participants (14%) were college students; and 27 participants (19.9%) were graduate students. The mean age of the participants was 31.23 years with a standard deviation of 7.35; ages ranged from 18 to 64 years.

### **Instruments**

We constructed our survey in Qualtrics, an online survey platform. The survey had a total of 38 questions, consisting of informed consent, demographic information, Snapchat questions, the NPI-16, the TIPI, and the GAD-7.

### ***Demographic Information***

Demographic questions included: “What is your age in years?”, “Are you a currently a student?”, and “Select your preferred gender identity (select however many apply)”. Options for student status included not a student, college student, graduate student, and high school student. Options for preferred gender identity included female, male,

genderqueer/androgynous, genderfluid, intersex, transgender, transsexual, FTM (female-to-male), MTF (male-to-female), and prefer not to answer.

### ***Snapchat Usage Questions***

Three Snapchat questions were included: “What is your Snapscore?”, “What date did you create your Snapchat?”, and “About how many hours do you use Snapchat per week?”. These questions were chosen in an attempt to get the best idea of the usage of Snapchat by the participants.

### ***NPI-16***

The NPI-16, or Narcissistic Personality Inventory, is a questionnaire designed to measure narcissism, and consists of 16 items. Ames, Rose, Anderson (2005) created this measure from the 40-item NPI-40 to replace a larger inventory with a smaller one, and they found that the NPI-16 had “notable face, internal, discriminant, and predictive validity and that it can serve as an alternative measure of narcissism when situations do not allow the use of longer inventories” (p. 440).

### ***TIPI***

The TIPI, or Ten Item Personality Inventory, is a questionnaire designed to measure the Big Five Personality traits, and consists of 10 items. Gosling, Rentfrow, and Swann, Jr. (2003) created this measure for the intention of it being used for “situations where very short measures are needed, personality is not the primary topic of interest, or researchers can tolerate the somewhat diminished psychometric properties associated with very brief measures” (p. 504). Again, we chose the TIPI for its brief nature not wanting respondent fatigue caused by a longer survey. Gosling, Rentfrow, and Swann, Jr. (2003) found the TIPI to have

adequate levels of “convergence with widely used Big-Five measures in self, observer, and peer reports, test-retest reliability, patterns of predicted external correlates, and convergence between self and observer ratings” (p. 504).

### **GAD-7**

The GAD-7 is a questionnaire designed to assess and screen for Generalized Anxiety Disorder, and consists of 7 items. Our intention by using this measure was not to measure Generalized Anxiety Disorder in participants, but to get data on symptoms of anxiety or worry in a general sense. Spitzer, Kroenke, Williams, and Löwe (2006) created the 7-item anxiety scale because there was no existing brief measure to assess for generalized anxiety disorder; they found that the GAD-7 had “good reliability, as well as criterion, construct, factorial, and procedural validity” (p. 1092).

### **Procedure**

After constructing the questionnaire in Qualtrics, we uploaded the study to Amazon Mechanical Turk, and collected data during the month of March, 2020. Data were then transferred to SPSS for analysis.

## **Results**

### **Correlational Analyses**

For the correlational analyses, we decided to use the measure of reported hours of Snapchat usage per week rather than Snapscores because of data integrity issues discussed later, so t-tests were performed using the Snapscore measure. There were several significant correlations found during analysis. Pearson’s correlation coefficients were computed to assess the relationship between hours per week spent on Snapchat and narcissism, anxiety,

extraversion, agreeableness, conscientiousness, emotional stability, and openness scores (see Table 1 for full correlation matrix).

### ***Narcissism***

There was a weak to moderate positive correlation between Snapchat usage and narcissism,  $r(128) = .29, p = .001$ . Increases in Snapchat usage in hours per week were correlated with increases of narcissism.

### ***Anxiety***

There was a moderate to strong positive correlation between Snapchat usage and anxiety,  $r(130) = .31, p < .001$ . Increases in Snapchat usage in hours per week were correlated with increases of anxiety.

### ***Big Five Personality Traits***

There was a weak to moderate positive correlation between Snapchat usage and extraversion,  $r(133) = .21, p = .011$ . Increases in Snapchat usage in hours per week were correlated with increases of extraversion. Additionally, there were weak to moderate negative correlations between Snapchat usage and agreeableness,  $r(134) = -.21, p = .012$  and between Snapchat usage and conscientiousness,  $r(134) = -.23, p = .007$ . Other significant correlations between narcissism, anxiety, and personality traits can be seen in Figure 1. There were not significant correlations between hours per week on Snapchat and emotional stability or openness.

Hours/ week	NPI	GAD	Extraver sion	Agreeable ness	Conscient iousness	Emotional stability	Openness
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<b>Hours/week</b>	1	.293**	.305**	.218*	-.214*	-.229**	-.111	1.138
<b>NPI</b>	.293**	1	.261**	.460**	-.375**	-.125	.025	-.094
<b>GAD</b>	.305**	.261**	1	.059	-.482**	-.618**	-.624**	-.396**
<b>Extraversion</b>	.218*	.460**	.059	1	-.154	-.014	.197*	.124
<b>Agreeableness</b>	-.214*	-.375**	-.482**	-.154	1	.426**	.367**	.399**
<b>Conscientiousness</b>	-.229**	-.125	-.618**	-.014	.426**	1	.664**	.500**
<b>Emotional stability</b>	-.111	.025	-.624**	.197*	.367**	.664**	1	.418**
<b>Openness</b>	-.138	-.094	-.396**	.124	.399**	.500**	.418**	1

Figure 1: Pearson's Correlation Table

### T-Test Analyses

Then, because of the questionability of the accuracy of the Snapscores reported, the Snapscores that each participant reported were separated into a low Snapscore group or a high Snapscore group to perform t-tests. There were a few significant differences found after analysis. The low Snapscore group ( $M = 7.65$ ;  $SD = 3.76$ ) had significantly higher narcissism scores than the high Snapscore group ( $M = 5.10$ ;  $SD = 4.01$ );  $t(128) = 3.73$ ,  $p < .001$ ,  $d = .66$ . The low Snapscore group ( $M = 9.33$ ;  $SD = 6.33$ ) had significantly higher anxiety scores than the high Snapscore group ( $M = 5.25$ ;  $SD = 5.42$ );  $t(130) = 3.99$ ,  $p < .001$ ,  $d = .69$ . The low Snapscore group ( $M = 4.08$ ;  $SD = 1.21$ ) had significantly higher extraversion scores than the high Snapscore group ( $M = 3.25$ ;  $SD = 1.58$ );  $t(125.73) = 3.13$ ,  $p = .002$ ,  $d = .59$ . Finally, the low Snapscore group ( $M = 6.88$ ;  $SD = 8.46$ ) had significantly higher reported hours per week of Snapchat usage than the high Snapscore group ( $M = 3.56$ ;  $SD = 3.50$ );  $t(89.33) = 2.99$ ,  $p = .004$ ,  $d = .51$ . To summarize,

users with lower Snapscores showed significantly higher narcissism, anxiety, and extraversion, as well as higher reported hours of weekly snapchat usage.

The low Snapscore group's scores were not significantly different than the high Snapscore group in agreeableness, conscientiousness, emotional stability, or openness.

### **Discussion**

The results of the correlational analyses matched the hypotheses made at the beginning of the study; however, the t-test analyses showed the opposite. In other words, the correlational analyses showed significant positive correlations between Snapchat usage and narcissism, anxiety, and extraversion, but the t-test revealed that the users with low Snapscores had higher narcissism, anxiety, and extraversion. Also, the t-test revealed that those with lower reported Snapscores also reported higher amounts of weekly usage in hours. The contradicting results of Snapchat usage and Snapscores in this study show the necessity for further research in this area and merit an examination of the construct validities of each of these two measures of Snapchat use.

Reported weekly Snapchat usage in hours and Snapscores seemed to be the opposite of what was expected. Higher Snapchat usage should have yielded higher Snapscores, however, the t-test revealed the opposite with significant higher hours of usage in those with low reported Snapcores. This highlights the issue of participant self-reporting bias that can be present in various studies relating to social media. First, there could have been an inconsistency in self-reported Snapchat usage and actual Snapchat usage in a large number of participants used in the study. Also, a large number of the Snapcores reported seemed to be unnaturally low. 18.4% of the sample had reported scores of 15 and below and 30.9% of the sample had

reported scores of 50 and below. For comparison, the highest Snapscore reported was 158,704, and from the researchers' personal experience, Snapscores of active users tend to be at least in the thousands and "low" Snapscores would be at the least in the hundreds and not 50 and below. Participant reporting bias could have been an issue with this study in that participants may not have known what their Snapscore was or may have confused it with another number such as a Snapstreak with another user (a Snapstreak is the number of consecutive days two users send each other at least one snap).

The t-test results of low Snapscore users reporting higher narcissism, anxiety, extraversion, and hours of weekly usage could illustrate Snapchat users just lurking rather than actively communicating with others. Watching other users' stories and viewing news on Snapchat's Discover page do not raise a Snapscore. So, users that are simply lurking rather than actively communicating with others could be an explanation for these results, but this would require further investigation.

The idea of the collection of Snapscores was to have a concrete number to measure active Snapchat usage, however, this may have been flawed in the possible lack of knowledge to what one's Snapscore is (e.g., not knowing where to find it). In future research, asking participants to upload screenshots of their profile screen could strengthen the construct validity of self-reported Snapscores, assuming privacy could be assured.

Certain devices, such as iPhones and iPads, now track screen time automatically for every app used, so uploading a screenshot of that could improve the accuracy of the collection of data of hours spent on the app. These methods, or a variation, could show a more accurate representation of actual social media usage, therefore, increasing the accuracy of the results.

Another limitation of this study is the fact that a convenience sample was used. The study was only open to those who have an account with Amazon Mechanical Turk, which may not necessarily be representative of the population. On the other hand, our sample was mostly men and not college students, providing a different perspective than most previous research (Alhabash, 2017; Barry, 2019; Phua, 2017; Steers, 2016). Looking to future research, a sample more representative of the population would give better insight, as well as including adolescents younger than 18, since Snapchat is popular among that age group.

If more data were collected among Snapchat users younger than 18, that knowledge would be helpful for parents, school systems, and therapists for education regarding connections between social media use, emotional states, and personality traits, especially in light of decreased face-to-face social contact among peers during the COVID-19 pandemic.

It should be noted that these results are only correlational and not causal. Temporal precedence could not be determined between our variables of interest and Snapchat use. Future research could use experimental methods to determine if increased Snapchat usage causes increased narcissism, anxiety, and extraversion, or if higher levels of narcissism, anxiety, or extraversion cause increased activity in Snapchat.

Our results build on existing research on social media by examining Snapchat, which has not been heavily researched due to its recent release and lower popularity. Snapchat is unique from other social media networks in its audience, expiration of posts, bonding social capital, use motivations, and privacy. These results also mirror and contradict previous findings, further illustrating the need for further research. Nevertheless, the results of this study contribute to

knowledge surrounding narcissism, anxiety, and personality traits, and point to the need for improved construct validity when measuring social media usage.

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