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Associations Between Social Media and Mood

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Abstract

Since its emergence, social media has evolved quickly and to become more widespread year by year (Pew Research Center, 2021). Along with the steady increase of social media use, there has also been a steady increase in depression in the United States, especially in those aged 12-17 (Mental Health America, 2022). This purpose of this study was to examine the relationship between social media and mental health by replicating a study conducted by Shensa and colleagues (2017) that investigated the relationship between social media use and depression in U.S. young adults, but also to include measures of fear of missing out (FOMO) and social media purpose as additional variables. Participants completed an online survey containing five different questionnaires measuring social media daily usage and frequency, social media purpose, social media disorder symptoms, depression symptoms, and fear of missing out symptoms. Pearson's correlations were conducted to analyze the associations between variables. First, there were significant positive associations between social media disordered use, depression symptoms, and fear of missing out symptoms. Next, when focusing on the top three most used platforms among participants (Instagram, Snapchat, and TikTok), minutes spent per day on all platforms were found to be significantly related to social media disorder symptoms, while minutes spent per day on Snapchat and TikTok were also found to be significantly corelated with fear of missing out. Future research should further explore the relationships among depression, social media use, and fear of missing out to better understand how the variables relate to one another and whether any mediational relationships are present.

Associations between Social Media and Mood

Social Media and Mental Health

Social media is a relatively new and quickly changing area of study. Millions of people are posting to social media every second of every day, contributing to the impact that social media has across the world. Much of the U.S. population has integrated social media into part of its everyday routine, making it a substantial and influential factor in most people's lives (Pew Research Center, 2021). People can use social media to feel as a part of a community online and interact with others, but people can also use social media to compare themselves to others and get bullied online (Anderson, 2020). This leads to the question: can the pros of social media outweigh the cons, or should one try and use it as sparingly as possible?

According to Aichner and colleagues (2021), social media was formally defined as early as 1996, when Wellman and colleagues (1996, p. 216) stated that, "when computer networks link people as well as machines, they become social networks, which we call computer-supported social networks." More recently, social media has been described as, "any online resource that is designed to facilitate engagement between individuals," (Bishop, 2019, p. 61). Social media began with online communication in the 1980s and 1990s, including emailing and instant messaging. This led to the creation of the first social media sites, such as SixDegrees, Friendster, and MySpace, in the late 1990s and early 2000s (Shah, 2016). The success of these sites soon led to the creation of other social media platforms that are still some of the most frequently used social media sites, such as Facebook and Twitter. During the 2010s, several new platforms emerged, including Snapchat, Instagram, Pinterest, Vine, and many others (Shah, 2016).

These sites allow people to stay connected with friends and family, stay up to date in current events around the world, share information to audiences, consume entertainment, and

make new connections. As of 2022, social media has become a part of most people's daily routines—in fact, around 60-70% of social media users in the U.S. make it a priority to check these sites every day (Pew Research Center, 2021).

Along with people's primary use for social media changing, it has been shown that peoples' usage on these sites is steadily increasing as well (Pew Research Center, 2021). New platforms are regularly released, and more users are joining these sites. In 2005, only 5% of American adults claimed that they used at least one social media platform, compared to 72% of adults in 2021. The demographic groups bringing this percentage down consisted of mainly older adults, males, those with a high school education or less, and those that live in rural areas (Pew Research Center, 2021). This shows just how quickly social media has become incorporated into people's lives. Social media has also become more accessible across demographic groups. One example of this is that social media started off as mostly popular with younger age groups (18-29), and while that is still the age group that primarily uses it the most, older generations have steadily been using more social media throughout the years. Within the group of adults that are 65 years or older, in 2021, 45% of them have reported using at least one social media site (Pew Research Center, 2021). This somewhat newly found enthusiasm with social media raises the subject of possible positive or negative effects that this has in daily users.

Not only has there been a steady increase of social media use, but there has also been a steady increase in depression in the United States, especially in youth, aged 12-17 (Mental Health America, 2022). Social media can be used problematically and this, in turn, can lead to negative psychological effects in those who do (Meshi & Ellithorpe, 2021). This ultimately brings up the question: to what extent has social media been a contributing factor in the rise of depression in the U.S. among the youth population? It has been shown that teenage girls are

almost three times as likely than teenage boys to experience depression (Geiger & Davis, 2020). Relating this to social media use, it also has been shown that 78% of women use at least one social media site in 2021, compared to 66% of men (Pew Research Center, 2021). This gender difference is also found in adolescents, aged 13-18, with teenage girls spending significantly more time on social media and online than teenage boys (Twenge & Martin, 2020). Determining this possible association between increased social media use and depressive symptoms is crucial to the mental health of youth in the U.S. Additionally, understanding the circumstances under which social media use is harmful may also help researchers understand how social media can be used in a healthier way.

Supporting Literature

Several studies have attempted to investigate the effects of social media on mental health. Many studies have found that problematic social media usage (PSMU), or even just social media usage in general has a positive correlation with depression, anxiety, poor sleep quality, and more (Demirci et al., 2015; Meshi & Ellithorpe, 2021). A possible limitation is that most of these studies rely primarily on self-report of time spent using social media, which disregards the variation of how people may use social media and how different types of social media use may be associated with mental health impacts. There has been research suggesting that social media can be beneficial to mental health in some instances, such as fostering social connectivity, social involvement, information attainment, and access to entertainment (Kahn et al., 2014). As such, understanding the correlates of PSMU that can lead to negative health ramifications and the implications of these effects is an important endeavor.

Demirci et al. (2015) investigated the relationship between social media addiction, sleep quality, depression, and anxiety in college students. In this study, participants completed self-

report scales to measure internet addiction, sleep quality, severity of depression, and frequency of anxiety symptoms. Participants were divided into three different groups: smartphone non-users, low smartphone use, and high smartphone use. Results indicated that depression, anxiety, and daytime dysfunction scores were higher in the high smartphone use group versus the low smartphone use group and non-user group. There were significant correlations between smartphone addiction scores and depression and anxiety levels, sleep quality, sleep disturbance, and daytime dysfunction. This study helps provide evidence that those who tend to overuse their phones are at a higher risk for depression, anxiety, and lowered sleep quality.

Other studies have begun to consider whether mindfulness, while using social media, can moderate negative effects on the users. Most studies focus on PSMU and do not take into consideration users who use mindfulness as a barrier when using social media. A study conducted by Jones et al. (2022) took mindfulness into account while surveying participants. Participants completed the Five Factor Mindfulness Questionnaire (FFMQ) to measure their five facets of mindfulness (Baer et al., 2006). They also were asked to completed questionaries to determine their social media engagement and depressive symptoms. Researchers hypothesized that increased social media engagement would be associated with decreased mindfulness and increased depression. The results of this study partly supported their initial hypothesis, in that mindful awareness mediated the relationship between social media engagement and depression. These results suggest that social media does not always have a negative effect and that practicing using social media in a mindful manner may help reduce the negative effects shown in those with PSMU.

Mindfulness is not the only potential protective factor to consider in understanding the relationship between social media use and mental health. Meshi and Ellithorpe (2021)

investigated how social support in-person and on social media would mediate the relationship between PSMU and poorer mental health. Some social media users find online communities to fit in with and feel accepted in ways that they may not be able experience in other contexts. In this study, participants completed an online survey that included questions about their social support, social media use, and their mental health. Participants were asked to complete a social media addiction scale, a scale that measured perceived social support in real-life and online, the Patient-Reported Outcomes Measurement Information System (PROMIS) depression scale, PROMIS anxiety scale, and PROMIS social isolation scale (Andreassen et al., 2012; Hahn et al., 2014; Pilkonis et al., 2011; Zimet et al., 1988). The results showed that PSMU was significantly associated with lower real-life social support and more social support from online. They also saw that increased social support in real-life was significantly correlated with reduced depression, anxiety, and social isolation, while social support online did not have any positive or negative effects.

Another factor influencing social media usage is the COVID-19 pandemic. This worldwide pandemic required and encouraged social interaction to be primarily through a screen. The workforce became remote for most, schools were taught online, and many people were isolated for months. People relied on social media to receive news regarding the pandemic, to access entertainment, and for social interaction. Since the pandemic started, 90% of American adults claimed that the internet has been either essential or important for them during the pandemic, and 72% of parents reported their children spending more time online. This increase in internet time and social media acted as a temporary way to replace in-person interaction, as 17% of Americans reported digital interactions being just as good as in-person interactions (McClain et al., 2021). The pandemic also sparked a new term— “doomscrolling”—which

described the constant exposure to negative online news, such as pandemic-related stories, that contribute to the harm of the user's mental health (Ytre-Arne & Moe, 2021). Daily exposure to pandemic-related social media was shown to be associated with several negative outcomes, such as an increase in psychopathy, depression, and PTSD symptoms (Price et al., 2022). It was also found that those with a history of childhood trauma experienced more of a negative impact on their mental health from this daily exposure.

Another phenomenon that may be exacerbated by social media use is "Fear of Missing Out" (FOMO). "Fear of Missing Out" can be described as "a persuasive apprehension that others might be having rewarding experiences from which one is absent," (Przybylski et al., 2013, p.1841). Rozgonjuk et al. (2020) investigated the correlations between FOMO symptoms, smartphone use, and the impact of social media on daily-life and productivity in German participants. Participants completed an online survey that included the German Short Smartphone Use Disorder Scale (SNUDs), FOMO scale, and a questionnaire measuring how social media affected participants' productivity (Duke & Montag, 2017; Kwon et al., 2013; Przybylski et al., 2013). The results indicated that FOMO symptoms were correlated with impacts on productivity and daily-life, where users high in FOMO symptoms reported themselves as being less productive. These variables were also associated with social media use disorders. This study shows support that excessive social media is associated with FOMO symptoms, adding another possibly damaging factor to the mix.

Taken together, these results indicate that PSMU is associated with depressive symptoms, FOMO symptoms, lowered sleep quality, PTSD symptoms, and anxiety symptoms in participants (Demirci et al., 2015; Shensa et al., 2017). Research has also shown that there are certain mediators that can decrease the result of these negative effects, such as mindfulness when

using social media (Jones et al., 2022). This previous research is important to build off to provide structure for future research in this field of social media as it is constantly evolving. Due to the nature of social media, it is crucial to deliver up-to-date research to provide accurate results of these possible effects on users.

The Present Study

This current study is a replication with an extension of a study conducted by Shensa et al., (2017). Shensa and colleagues investigated the correlation between PSMU and depressive symptoms in almost 2000 participants across the United States, and predicted that PSMU would be associated with higher rates of depression within participants. Testing this hypothesis, they sent out an online survey examining participants' depression symptoms, PSMU, and overall social media usage. Social media usage and socio-demographic characteristics were used as covariates in this study. Participants completed a four-item PROMIS depression scale to assess depressive symptoms (Cella et al., 2010). Next, participants were given the Bergen Facebook Addiction Scale (BFAS) to measure PSMU (Andreassen et al., 2012). Researchers replaced the term "Facebook" with "social media" to incorporate all types of social media. Then, participants completed a questionnaire about their social media use in terms of time and frequency.

Results indicated a positive association of PSMU and depressive symptoms in participants—PSMU was correlated with an 11% increase in depression symptoms. Frequency of social media use, measured as site visits per week, was also associated with depressive symptoms. Researchers noted that time spent on social media did not have a direct association with depression symptoms, like frequency of site visits did. These results help to confirm the concern about the negative effects of social media, but also indicate that the relationship is not completely a straightforward relationship between time spent and negative consequences.

For the current study, FOMO symptoms and primary social media use on each platform were assessed. As previous research has indicated, PSMU is associated with negative psychological consequences, but many of these studies did not consider how participants use different social media platforms (for example, whether they are simply consuming social media, reposting other people's posts, or creating their own content), and how that may or may not contribute to their PSMU (Jones et al., 2022; Meshi & Ellithorpe, 2021). In other words, the purpose of the current study was to explore correlations among participants' social media usage (time and frequency), purposes of social media, PSMU, depressive symptoms, and FOMO symptoms.

Hypotheses

Based on the original study by Shensa et al., (2017) and much of the supporting literature, it was hypothesized that higher levels of PSMU would be associated with higher levels of depressive and FOMO symptoms. It was also predicted that higher social media usage in general (time and frequency) would be linked to higher levels of depression and FOMO symptoms as well, but that the strength of these relationships may differ based on how social media is being used.

Method

Participants

This study consisted of a total of 212 participants, including 186 women, 25 men, and 1 participant that identified as non-binary. The ages of participants ranged from 17 to 43 (M = 19.60, Mdn = 19.00, SD = 3.35). The sample of participants self-identified as 93.9% White, 4.7% American Indian or Alaska Native, 3.3% Asian, 2.8% African American, 0.9% Native Hawaiian, and 1 participant that identified as other for their race. There were 179 participants that identified

as heterosexual or “straight”, 28 as bisexual, 4 as homosexual, and 1 that identified as other for their sexual orientation. Looking at political affiliation, this sample had 36.8% who identified as Republican, 19.8% as Democrat, 13.2% as Independent, 25% as no political affiliation, and 4.7% as other. This sample had 41.5% of participants that reported being in a relationship, 37.7% that were single and not dating, 15.1% who were single and dating, 2.8% that were married, 1.9% that were cohabiting, and 1 participant that reported other as their relationship status.

Materials

Participants were recruited through the University of North Dakota’s (UND) SONA Undergraduate research system and through word of mouth via social media. They used Qualtrics Survey software to complete the questionnaire. Firstly, participants were given a consent sheet where they were required to agree to the terms before continuing onto the survey. The consent sheet went over the risks involved, benefits, time commitment, and confidentiality of the study. Next, they were asked numerous basic demographic questions. Participants then completed five questionnaires that were administered in a random order.

Social Media Daily Usage and Frequency

The first questionnaire was intended to report their daily usage on social media, within the past week. The platforms that were listed included: Instagram, Snapchat, Facebook, TikTok, Twitter, YouTube, Reddit, LinkedIn, Tumblr, YikYak, Twitch and a section to specify any others. This questionnaire used a 5-point scale, ranging from less than 10 minutes to more than 3 hours, to report their average daily usage. Participants were then asked to report their weekly average of visits per site for the same platforms. This used a 7-point scale, ranging from less than once a week, to 5 or more times a day to report their weekly frequency. This can be found in Appendix A.

Social Media Purpose

The second questionnaire aimed to determine participants' main goal when using each individual social media platform. Participants were asked to choose all the following statements that applied to them while using each listed platform, if applicable. The social media platforms listed were Instagram, Snapchat, Facebook, TikTok, Twitter, YouTube, Reddit, LinkedIn, Tumblr, YikYak, and Twitch. The primary uses that were listed included: staying connected with family and friends, filling spare time (entertainment), creating original content and posting it, keeping up with news, work-related networking, meeting new people and/or communities, finding information, finding new ideas or inspiration, gaming, N/A (Don't use the site), Other (please specify). These reasons for using social media were derived from work conducted by Kemp (2021) which indicated that these were the most common motivations for using social media. This questionnaire can be found in Appendix B.

Social Media Disorder Scale

The third questionnaire was the social media disorder (SMD) scale, developed by Van Den Eijinden et al. (2016). This scale uses a 5-point Likert-type scale (1 as strongly disagree and 5 as strongly agree) to indicate participants' position on the following statements. The statements consisted of one statement to represent the nine criteria for a SMD: preoccupation, tolerance, withdrawal, displacement, escape, problems, deception, displacement, and conflict. This nine-item scale is derived from the larger 27-item SMD scale developed by the same researchers. The 9-item scale has been shown to have good reliability and validity comparable to the original scale. This scale can be found in Appendix C.

Patient Health Questionnaire

The fourth questionnaire was a Patient Health Questionnaire (PHQ), that was developed by Spitzer et al. (1999) to assess patients for depression. This 9-item scale uses a response scale (0 as not at all and 3 as nearly every day) for participants to rate their frequency of depressive symptoms. This scale can be found in Appendix D.

Fear of Missing Out (FOMO) Scale

The last questionnaire was a self-report measure of "Fear of Missing Out" (FOMO) developed by Przybylski et al. (2013). This is a 10-item scale using a five-point Likert-type scale, ranging from not at all true of me to extremely true of me. These 10 items are statements that reflect fears and worries that people generally have while being out of touch with events or conversations happening. This scale is shown in Appendix E.

Procedure

Participants first read and filled out a consent sheet and a demographic questionnaire. Participants were told that researchers were looking at how social media affects mood. All participants were given five different questionaries to complete in a random order. They were asked to use a Likert-type scale to rate how much they agreed with each statement listed. These scores for each statement were added up for each participant to give them a score for each separate questionnaire. These were then able to operationalize social media usage, PSMU, depressive symptoms, and FOMO symptoms.

Results

Data Preparation

Participants that did not have a 100% completion rating for the survey were excluded from the results analyses. Participants reported their primary uses for each platform and these results can be seen in table 1. These results were noted and compared, but not analyzed. Next,

composite variables were computed for each variable—FOMO symptoms, depressive symptoms, and SMD symptoms. The FOMO symptom variable was obtained by computing the mean of each participant's score from the 10-item scale (α = .896). Higher scores on this scale indicate more frequent FOMO symptoms. Scores for this composite variable ranged from 1.00 to 4.90 (*M* = 2.56, *Mdn* = 2.60, *SD* = 0.85). Next, the depressive symptoms variable was the mean of each PHQ 9-item scale, where scores signify more frequent depressive symptoms (α = .881). These composite scores ranged from 1.00 to 3.89 (*M* = 1.83, *Mdn* = 1.67, *SD* = 0.62). Lastly, the SMD symptom variable was computed by calculating the mean of the 9-item SMD scale of each participant, with higher scores indicating more frequent SMD symptoms (α = .832). Composite scores for this variable ranged from 1.00 to 4.00 (*M* = 1.93, *Mdn* = 1.89, *SD* = 0.68). The data for all three scales was normally distributed, as each scale was within an absolute value of 2 or less for skewness and kurtosis.

Next, relationships between social media use (examined as minutes spent per day and number of visits per day) and the composite variables created for FOMO, depressive, and SMD symptoms were examined. Tables 2 and 3 contain descriptive information about how often participants visit each site and how many minutes are spent per day on each site. The same three social media platforms were highest in both frequency of visits and time spent per day. The three most commonly used platforms (based on the highest in number of minutes spent per day as well as number of visits per day) were the focus of subsequent correlational analyses. These top sites included Instagram (with 7.1% of participants using it more than 3 hours a day and 28.8% of participants using it 5 or more times a day), Snapchat (with 21.7% of participants reported using this platform more than 3 hours a day and 66.5% of participants reported opening it 5 or more

times a day), and TikTok (with 29.2% of participants reporting using it more than 3 hours a day and 37.7% of participants visiting 5 or more times a day).

Correlations Among Outcomes

Pearson's correlations were conducted among the three outcomes of interest (FOMO, depressive symptoms, and SMD). First, FOMO symptoms were significantly associated with an increase in depressive symptoms in participants, $r(210) = .402$, $p < .001$; $r^2 = .162$. The correlation between FOMO symptoms and SMD symptoms was also found to be significant, $r(210) = .542$, $p < .001$; $r^2 = .294$. Lastly, the relationship between depressive symptoms and SMD symptoms was also found to be significant, $r(210) = .339$, $p < .001$; $r^2 = .115$. These values can be seen in Table 4. Of particular note is the large correlation between FOMO and SMD, indicating a strong, positive relationship between these two variables.

Correlations Among Frequency of Use and Outcomes

Pearson's correlations were used to examine the relationships between minutes per day of use for the top 3 social media sites with FOMO symptoms, depressive symptoms, and SMD symptoms. Firstly, minutes per day on Instagram were significantly correlated with minutes per day spent on Snapchat, $r(209) = .265$, $p < .001$; $r^2 = .070$. Minutes per day on Snapchat were also significantly related to minutes per day spent on TikTok, $r(208) = .365$, $p < .001$, $r^2 = .133$. However, the correlation between minutes per day on Instagram was not significantly correlated with minutes per day on TikTok.

Next, when examining the relationships between minutes per day on these platforms with FOMO, depressive, and SMD symptoms, five significant correlations emerged. Minutes per day on Instagram was significantly associated with SMD symptoms, $r(210) = .232$, $p < .001$, $r^2 = .054$, but was not significantly correlated with FOMO symptoms or depressive symptoms.

Minutes spent per day on Snapchat was significantly correlated with FOMO symptoms, $r(209) = .200$, $p < .001$, $r^2 = 0.040$ and SMD symptoms, $r(209) = .264$, $p < .001$, $r^2 = .071$, but not depressive symptoms. Minutes per day spent on TikTok was significantly correlated with FOMO symptoms, $r(208) = .244$, $p < .001$, $r^2 = .061$ and SMD symptoms, $r(208) = .330$, $p < .001$, $r^2 = .109$, but not depressive symptoms. These correlations are illustrated in Table 5.

Discussion

In this study multiple significant correlations were detected between among the variables of interest (in relation to each other) and social media platforms. The variables of interest, FOMO, depressive symptoms, and SMD symptoms were all found to be significantly correlated with one another. Minutes of use per day for Snapchat was significantly correlated with minutes of use per day for Instagram and TikTok, but the relationship between minutes of use per day for Instagram and TikTok was not statistically significant. Next, looking at the outcomes of interest, minutes per day on Instagram was significantly related to SMD symptoms in participants. Minutes per day on Snapchat and TikTok were also significantly associated with SMD symptoms, as well as FOMO symptoms (notably, Instagram use was not correlated with FOMO symptoms). These relationships indicate that participants who reported more minutes per day on these platforms typically had higher levels of FOMO and/or SMD symptoms. However, no significant correlations were detected between depressive symptoms and minutes per day on these platforms, even though depressive symptoms were correlated with both FOMO and SMD.

The first hypothesis—that FOMO, depressive symptoms, and SMD would be related to one another—was supported. Higher levels of each of these variables was associated with higher levels of the others. The second hypothesis predicted that higher social media use, measured by time and frequency, would be related to higher levels of depressive and FOMO symptoms. This

hypothesis was partially supported. When looking at the top three platforms, two of the three (Snapchat and TikTok) were found to be correlated with higher FOMO symptoms, and all three of the platforms (Snapchat, TikTok, and Instagram) were correlated with higher SMD symptoms. However, there were no significant relationships detected between depressive symptoms and minutes per day for the top three platforms. One possible reason for this could be that the PHQ used to assess depressive symptoms could be outdated, as it was developed in 1999 (Spitzer et al., 1999). The questionnaire used could be updated to better measure depressive symptoms in participants. Also, this study relied on self-report measures from participants for frequency and time they were spending on each platform, and it may be hard for participants to estimate that accurately.

Although most hypotheses ended up being supported, there were some limitations to this study that could be improved for future research on the topic. A large majority of participants consisted of women, with only 25 men and 1 participant identifying as non-binary in the study. Also, most participants self-identified as White, 93.9% of participants, with not much representation from other races. Looking at the demographics again, participants were mostly all colleges students attending the University of North Dakota, with the mean age being 19.60. This sample of participants applies to a specific group of people, making it harder to be generalizable to the public.

Another limitation to the study was that the only type of measure used to collect data was self-report measures. This includes self-reports of estimated minutes per day and visits per week on each platform. This type of self-report for minutes and visits may be hard for participants to accurately estimate, especially since they are based off memory of the past week. This may not be a measure that many people pay close attention to, making it harder for them to make accurate

estimates. Self-reports also may be biased or unreliable, as participants may exaggerate certain factors, or may be embarrassed about certain topics and moderate their responses with what they think is socially appropriate.

Lastly, another limitation was that there were newer social media platforms that were unable to be included in the study. New platforms have gained popularity in the following months that were not relevant at the time of the study creation. This also includes not as popular platforms possibly having been left out, due to no knowledge of the sites. There was an "other" section for participants to report social media platforms that were not included in the study list and their uses within that platform. Although, there was only one section for other platforms, possibly excluding participants from reporting more than one. Future studies should consider including these newer platforms, such as BeReal, into their research or finding a way to track participants' usage on all platforms that they use.

Future studies should seek to have a larger and more diverse sample, including more men and a variety of different ages. This diversity should be prioritized when recruiting participants to ensure results that are more generalizable to the public. Another recommendation for future research should consider tracking social media use with something other than participant self-reports. This would ensure more accurate data on the frequency that participants are using each platform. It also may be beneficial to consider a longitudinal study, by tracking participant social media use over time, rather than just relying on one self-report. This would attempt to track usage patterns over time, rather than just relying on one week of participants' usage. Lastly, for future research it would be helpful to run mediation analyses to further explore the relationships between variables and determine a possible mediator. This would be helpful, specifically due to the large correlations between composite variables, to determine how they interact and what

could be causing it. These recommendations would help to ensure the external and construct validity of the study to make the results more generalizable to the public and to ensure that the study is successfully measuring accurate representations for each variable.

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Table 1

Reasons for Using Different Social Media Applications, as Reported by Participants

	Staying Connected	Entertainment	Creating Content	News	Networking	Meeting	Other	Don't Use
Instagram	**84.0%**	**73.1%**	37.3%	30.7%	3.3%	22.2%	0.5%	8.0%
	(n = 178)	**(n = 155)**	(n = 79)	(n = 65)	(n = 7)	(n = 47)	(n = 1)	(n = 17)
Snapchat	**93.9%**	**60.8%**	17.9%	15.6%	4.2%	32.1%	0.0%	6.1%
	(n = 199)	**(n = 129)**	(n = 38)	(n = 33)	(n = 9)	(n = 68)	(n = 0)	(n = 13)
Facebook	**65.6%**	**24.5%**	4.7%	22.2%	10.8%	5.7%	5.2%	25.0%
	(n = 139)	**(n = 52)**	(n = 10)	(n = 47)	(n = 23)	(n = 12)	(n = 11)	(n = 53)
TikTok	25.0%	**84.4%**	18.9%	**25.5%**	0.5%	14.2%	1.4%	14.6%
	(n = 53)	**(n = 179)**	(n = 40)	**(n = 54)**	(n = 1)	(n = 30)	(n = 3)	(n = 31)
Twitter	7.1%	**16.0%**	1.4%	**24.5%**	1.9%	1.9%	0.5%	66.0%
	(n = 15)	**(n = 34)**	(n = 3)	**(n = 52)**	(n = 4)	(n = 4)	(n = 1)	(n = 140)
YouTube	0.5%	**69.8%**	0.5%	**16.5%**	3.8%	3.3%	7.5%	20.8%
	(n = 1)	**(n = 148)**	(n = 1)	**(n = 35)**	(n = 8)	(n = 7)	(n = 16)	(n = 44)

Reddit	0.5%	**9.4%**	0.9%	**6.1%**	0.5%	3.3%	0.9%	86.8%
	(n = 1)	**(n = 20)**	(n = 2)	**(n = 13)**	(n = 1)	(n = 7)	(n = 2)	(n = 184)
LinkedIn	0.9%	0.0%	0.0%	0.0%	**10.4%**	**3.8%**	0.5%	88.7%
	(n = 2)	(n = 0)	(n = 0)	(n = 0)	**(n = 22)**	**(n = 8)**	(n = 1)	(n = 188)
Tumblr	0.5%	**4.2%**	0.5%	**0.9%**	0.5%	0.5%	0.5%	94.8%
	(n = 1)	**(n = 9)**	(n =1)	**(n = 2)**	(n = 1)	(n = 1)	(n = 1)	(n = 201)
YikYak	6.1%	**42.5%**	11.8%	**26.9%**	0.5%	5.2%	1.4%	48.1%
	(n = 13)	**(n = 90)**	(n = 25)	**(n = 57)**	(n = 1)	(n = 11)	(n = 3)	(n = 102)
Twitch	**1.4%**	**4.2%**	0.0%	0.0%	0.5%	0.5%	1.4%	93.4%
	(n = 3)	**(n = 9)**	(n = 0)	(n = 0)	(n = 1)	(n = 1)	(n =3)	(n = 198)

Note. Percentages may add to up over 100%, as participants were instructed to select all that apply when determining their platform uses. The top two uses for each platform are bolded in each row, disregarding the N/A (Don't use the site) option. The primary uses that were listed on top included: staying connected with family and friends, filling spare time (entertainment), creating original content and posting it, keeping up with news, work-related networking, meeting new people and/or communities, other uses, and N/A (Don't use the site). The most common responses across all platforms were, staying connected with family and friends, filling spare time (entertainment), and keeping up with the news.

Table 2

Participant Reports of Time Spent Using Each Platform Per Day

	Less than 10 min	10 to 30 min	30 min to an hour	An hour to 2 hours	More than 3 hours
Instagram	15.1%	20.8%	**34.4%**	22.6%	7.1%
	(n = 32)	(n = 44)	**(n = 73)**	(n = 48)	(n =15)
Snapchat	8.0%	9.9%	19.3%	**40.8%**	21.7%
	(n = 17)	(n = 21)	(n = 41)	**(n = 86)**	(n = 46)
Facebook	**54.7%**	25.0%	13.2%	5.2%	0.0%
	(n = 116)	(n = 53)	(n = 28)	(n = 11)	(n = 0)
TikTok	16.5%	4.7%	17.5%	**31.3%**	29.2%
	(n = 35)	(n = 10)	(n = 37)	**(n =66)**	(n = 62)
Twitter	**84.4%**	6.1%	2.4%	4.7%	0.5%
	(n = 179)	(n = 13)	(n = 5)	(n = 10)	(n = 1)
YouTube	**93.4%**	1.9%	1.9%	0.9%	0.0%
	(n = 198)	(n = 4)	(n = 4)	(n = 2)	(n = 0)
Reddit	**93.4%**	1.9%	1.9%	0.9%	0.0%

	(n = 198)	(n = 4)	(n = 4)	(n = 2)	(n = 0)
LinkedIn	**96.2%**	1.4%	0.0%	0.0%	0.0%
	(n = 204)	(n = 3)	(n = 0)	(n = 0)	(n = 0)
Tumblr	**94.8%**	1.4%	0.9%	0.0%	0.0%
	(n = 201)	(n = 3)	(n = 2)	(n = 0)	(n = 0)
YikYak	**65.6%**	20.3	8.0%	2.8%	0.5%
	(n = 139)	(n = 43)	(n = 17)	(n = 6)	(n = 1)
Twitch	**95.3%**	0.5%	1.4%	0.5%	0.0%
	(n = 202)	(n = 1)	(n = 3)	(n = 1)	(n = 0)
Other	**23.6%**	3.8%	1.9%	1.4%	0.9%
	(n = 50)	(n = 8)	(n = 4)	(n = 3)	(n = 2)

Note. Participants were asked to report, in the last week, how many minutes to hours they spent on each platform separately. The most common response for each platform is bolded in each row. The two platforms with the highest most reported answer, an hour to 2 hours, were Snapchat and TikTok. Most platforms had the most common answer reported as being less than 10 minutes a day, besides Instagram, Snapchat and TikTok.

Table 3

Frequency of Visits to Each Platform as Reported by Participants

	Less than once a week	1-2 days a week	3-6 days a week	Once a day	2-4 times a day	5 or more times a day	N/A (Don't use app)
Instagram	3.8%	2.8%	7.1%	14.6%	**35.4%**	28.8%	7.5%
	(n = 8)	(n = 6)	(n = 15)	(n = 31)	**(n = 75)**	(n = 61)	(n = 16)
Snapchat	0.0%	1.4%	1.9%	5.2%	19.3%	**66.5%**	5.7%
	(n = 0)	(n = 3)	(n = 4)	(n = 11)	(n = 41)	**(n = 141)**	(n = 12)
Facebook	14.6%	11.8%	13.2%	13.2%	11.8%	7.5%	**27.4%**
	(n = 31)	(n = 25)	(n = 28)	(n = 28)	(n = 25)	(n = 16)	**(n = 58)**
TikTok	2.8%	1.9%	5.7%	8.5%	29.2%	**37.7%**	14.2%
	(n = 6)	(n = 4)	(n = 12)	(n = 18)	(n = 62)	**(n = 80)**	(n = 30)
Twitter	11.8%	7.1%	1.9%	4.7%	3.8%	2.8%	**67.5%**
	(n = 25)	(n = 15)	(n = 4)	(n = 10)	(n = 8)	(n = 6)	**(n = 143)**
YouTube	20.8%	16.5%	12.7%	9.0%	11.8%	6.1%	**23.1%**
	(n = 44)	(n = 35)	(n = 27)	(n = 19)	(n = 25)	(n = 13)	**(n = 49)**

YikYak	9.0%	13.2%	8.0%	9.4%	9.4%	2.4%	**48.6%**
	(n = 19)	(n = 28)	(n = 17)	(n = 20)	(n = 20)	(n = 5)	**(n = 103)**
Reddit	5.7%	1.9%	0.5%	1.4%	1.4%	0.9%	**88.2%**
	(n = 12)	(n = 4)	(n = 1)	(n = 3)	(n = 3)	(n = 2)	**(n = 187)**
Twitch	4.2%	0.9%	0.0%	0.0%	0.0%	0.0%	**94.8%**
	(n = 9)	(n = 0)	(n = 0)	(n = 0)	(n = 0)	(n = 0)	**(n = 201)**
LinkedIn	8.5%	0.9%	0.5%	0.0%	0.0%	0.0%	**90.1%**
	(n = 18)	(n = 2)	(n = 1)	(n = 0)	(n = 0)	(n = 0)	**(n = 191)**
Tumblr	1.9%	1.4%	0.5%	0.5%	0.0%	0.0%	**94.8%**
	(n = 4)	(n = 3)	(n = 1)	(n = 1)	(n = 0)	(n = 0)	**(n = 201)**
Other	0.5%	0.9%	0.5%	0.9%	1.4%	1.9%	**33.5%**
	(n = 1)	(n = 2)	(n = 1)	(n = 2)	(n = 3)	(n = 4)	**(n = 71)**

Note. Participants were asked to report how many times they visited each platform separately in the last week. The most reported answer for each platform is bolded in each row. Snapchat and TikTok both had the highest option, 5 or more times a day, also being the most reported in participants. Instagram also had 35.4% of participants, which was the most reported for that platform, report using Instagram 2-4 times a day. The rest of the platform's most reported option was N/A, indicating that they do not use the platform.

Table 4

Correlations Among Measures of Interest

	FOMO Symptoms	Depressive Symptoms
Depressive Symptoms	$r = .402$	---
	$n = 212$	---
SMD Symptoms	$r = .542$	$r = .339$
	$n = 212$	$n = 212$

Note. Pearson correlations among FOMO ("fear of missing out"), depressive symptoms, and social media disordered use (SMD) symptoms. All these relationships were found to be significant and related to one another ($p < .001$).

Table 5

Correlations Among Most Frequently Used Platforms (Based on Minutes Used Per Day) With Outcomes of Interest.

	FOMO Symptoms	Depressive Symptoms	SMD Symptoms
Instagram	$r(210) = .097$	$r(210) = -.099$	**$r(210) = .232$**
	$p = .160$	$p = .151$	**$p < .001$**
Snapchat	**$r(209) = .200$**	$r(209) = -.040$	**$r(209) = .264$**
	$p = .003$	$p = .560$	**$p < .001$**
TikTok	**$r(208) = .244$**	$r(208) = .128$	**$r(208) = .330$**
	$p < .001$	$p = .065$	**$p < .001$**

Note. The top 3 most frequently used platforms (based on minutes per day) were chosen to examine the relationship between the three composite variables—FOMO ("fear of missing out"), depressive symptoms, and social media disordered use (SMD) symptoms. The Pearson Correlation value (along with degrees of freedom) is reported first for each relationship, followed by the significance value. There were 5 significant relationships shown, which are all bolded in the table. Minutes per day on Instagram was significantly associated with SMD symptoms. Next, minutes per day on Snapchat was significantly correlated with FOMO and SMD symptoms. Lastly, minutes per day on TikTok was significantly related to FOMO and SMD symptoms as well. None of the top 3 platforms were significantly related to depressive symptoms.

Appendix A

Social Media Usage and Frequency Questionnaire

Participants were asked to report, in the last week, on average how many minutes per day they spend on the following social media networks. They were given the options: less than 10 minutes, 10 to 30 minutes, 30 minutes to an hour, an hour to two hours, and more than 3 hours. They were then asked to report, in the last week, how many visits per week they average for the same social media networks. They were given the options: I don't use this platform, less than once a week, 1-2 days a week, 3-6 days a week, once a day, 2-4 times a day, and 5 or more times a day.

1. Instagram
2. Snapchat
3. Facebook
4. TikTok
5. Twitter
6. YouTube
7. YikYak
8. Reddit
9. Twitch
10. LinkedIn
11. Tumblr
12. Other (please specify)

Appendix B

Social Media Primary Usage Questionnaire

Participants were given the following social media platforms: Instagram, Snapchat, Facebook, TikTok, Twitter, YouTube, YikYak, Reddit, Twitch, LinkedIn, Tumblr. They were then asked to select all the following statements that apply to them in how they use each site. They were also asked to please specify any other uses for these sites.

1. Staying connected with family and friends
2. Filling spare time (entertainment)
3. Creating original content and posting it
4. Keeping up with news
5. Work-related networking
6. Meeting new people and/or communities
7. Finding information
8. Finding new ideas or inspiration
9. Gaming
10. N/A (don’t use the app)
11. Other (please specify)

Appendix C

Social Media Disorder Scale

Participants were told to think of the last 12 months and use the Likert-type scale (1 as strongly disagree and 5 as strongly agree) to express how strongly they agree with each statement based on their general experiences. They were also asked to treat each item separate from every other item.

1. I regularly found that I can't think of anything else but the moment that you will be able to use social media again.
2. I regularly felt dissatisfied because I wanted to spend more time on social media.
3. I often felt bad when I could not use social media.
4. I tried to spend less time on social media but failed.
5. I regularly neglected other activities (e.g., hobbies, sports) because I wanted to use social media.
6. I regularly had arguments with others because of my social media use.
7. I regularly lied to my parents or friends about the amount of time I spend on social media.
8. I often used social media to escape from negative feelings.
9. I had serious conflict with my parents or friends because of my social media use.

Appendix D

Patient Health Questionnaire for Depression

Participants were asked to rate (0 as not at all and 3 as nearly every day) over the last 2 weeks, how often they have been bothered by any of the following problems.

1. Little interest or pleasure in doing things?
2. Feeling down, depressed, or hopeless?
3. Trouble falling or staying asleep, or sleeping too much?
4. Feeling tired or having little energy?
5. Poor appetite or overeating?
6. Feeling bad about yourself – or that you are a failure or have let yourself or your family down?
7. Trouble concentrating on things, such as reading the newspaper or watching television?
8. Moving or speaking so slowly that other people could have noticed? Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual?
9. Thoughts that you would be better off dead, or of hurting yourself in some way?

Appendix E

Fear of Missing Out scale

Participants were asked to use a Likert-type scale (1 as not at all true of me and 5 as extremely true of me) to indicate how true each following statement was of their general experiences. They were also asked to treat each item separately.

1. I fear others have more rewarding experiences than me.
2. I fear my friends have more rewarding experiences than me.
3. I get worried when I find out my friends are having fun without me.
4. I get anxious when I don't know what my friends are up to.
5. It is important that I understand my friends "in jokes".
6. Sometimes, I wonder if I spend too much time keeping up with what is going on.
7. It bothers me when I miss an opportunity to meet up with friends.
8. When I have a good time, it is important for me to post about it online.
9. When I miss out on a planned get-together it bothers me.
10. When I go on vacation, I continue to keep tabs on what my friends are doing.