Trading "Likes" for Self-Love:

Analyzing the Relationship Between Social Media Use and Self-Compassion

Nicole Paige Mitchell

Honors Research Thesis

Department of Psychology, The University of Texas at Austin

Thesis Advisor: Kristin Neff, PhD

Graduate Student Mentor: Ashley Kuchar, PhD Candidate

December 2021

Acknowledgement

I would like to thank Dr. Kristin Neff, Ashley Kuchar, Dr. Theresa Jones, and Kylee Smith for their guidance throughout the process of writing my honors thesis. I want to thank Dr. Neff for pioneering research on self-compassion and helping me formulate my research idea and question. I want to thank Ashley for helping me and encouraging me every step of the way from the literature review to the final results. I'm so grateful to have had your assistance and I've learned so much from being your mentee. I would also like to thank Dr. Jones for being such a wonderful professor of honors instruction and for teaching me so much about research, scientific writing, and the process of applying to graduate school. I want to thank Kylee Smith for being a great teaching assistant of honors instruction and for helping me with my R script. Finally, I want to thank all of the lovely women in my honors cohort for your support and friendship. It was truly an honor, pun intended, to have had this opportunity to conduct research under the departmental honors program for psychology. This was a meaningful learning experience made enjoyable and inspiring through the help of those mentioned above.

Abstract

More than half of the world population uses social media, with adolescents and young adults aged 18-30 using social media the most. Although direct relationships between social media use and symptoms of psychopathology (e.g., depression, anxiety) have been well-demonstrated, the relationship it shares with some aspects from positive psychology, such as self-compassion, is relatively understudied. Self-compassion entails a non-judgmental, present moment awareness and an openness to one's own suffering. Whereas one's levels of psychopathology can capture their proclivity to languish, levels of self-compassion can represent one's aptness to flourish. The present study first explored the relationship between social media use and mental illness symptoms in an attempt to replicate prior research findings. The primary research goal, however, was to investigate whether social media use predicted levels of self-compassion in college students (N=182), controlling for the effects from various related secondary variables (e.g., the Fear of Missing Out, social media addiction). Multiple linear regression was used to explore these research objectives. The tendency for total social media use to negatively correlate with self-compassion did not reach significance. However, other correlations and linear models proved to be insightful. For example, of the five social media apps selected to be included in this study, TikTok use was found to be a significant negative predictor of self-compassion; as was anxiety/dependence to technology and the Fear of Missing Out. The findings from this study warrant further investigation on the effects of social media use on the human psyche. Future studies should continue to explore the effects of limiting social media use as well as using self-compassion as an intervention for compulsive social media use.

Keywords: positive psychology, social media, TikTok, self-compassion, FoMO

Analyzing the Relationship Between Social Media Use and Self-Compassion

Social media has only been around for about 20 years and yet more than 3 billion people use it worldwide (Pew Research Center, 2021). Through using social media apps like Instagram, Facebook, TikTok, Twitter, and Snapchat, people are able to meet and connect with others on a larger scale than ever before. Moreover, thousands of new jobs have been created, social justice initiatives are more easily promoted, and people are able to stay current on world news.

Although there are certainly benefits to the newly interconnected world we live in, there is also evidence that the mass-use of social media could result in considerable consequences for users, at both the individual and societal level. This is especially the case regarding the effects that social media use can have on the human psyche. Since the inception of social media apps, research has supported that their use can exacerbate poor mental health outcomes like anxiety (Vannucci et al., 2017), depression (Lin et al., 2016), and low self-esteem (Vogel et al., 2014).

When taking into account the many areas of psychological study, a tremendous amount of attention has been paid to psychopathology (i.e., the study of mental disorders) over the course of the field's history. The late 20th century ushered in a new subspecialty, however: positive psychology. Founded by Martin Seligman in 1998, positive psychology focuses on gratification, human potential, and how one can live life to the fullest (Seligman, 2002). Increasingly, studies have begun to use measures designed to capture variables from positive psychology as a means to gain a better understanding of the positive aspects of one's mind. In doing so, researchers can more adequately capture a well-rounded comprehension of a person's overall mental health, of their struggles *and* their flourishing. In social media literature, the research has mainly focused on psychopathology, so there is currently a lack of studies investigating the dynamic between social media and aspects of positive psychology like self-compassion.

Self-compassion involves a non-judgmental, present moment awareness and openness to one's own suffering. It fosters a need to alleviate the pain via self-kindness and an understanding that suffering is an innate aspect of the human condition (Neff, 2003a). Self-compassion entails three components: mindfulness as opposed to overidentification with the mind, self-kindness as opposed to self-criticism, and common humanity as opposed to self-isolation. Self-compassion has been linked to a wide variety of positive outcomes such as reduction in judgment towards both the self and others (Neff, 2016). Antithetically, social media use has been associated with increased social comparison and self-criticism (Feltman & Szymanski, 2018; Gilbert & Irons, 2009). Within self-compassion theory, self-worth is not contingent on outcomes such as "likes" on social media, but is rather inherent to the individual. This is one example that demonstrates the possible discordance between social media use and self-compassion.

In the present study, we sought to replicate prior findings on social media use and mental illness as well as examine whether social media use predicted self-compassion levels. We hypothesized that social media use would directly predict symptoms of psychopathology like depression, anxiety, and stress; and that social media use would inversely predict levels of mindfulness and self-compassion. We hypothesized that these models would be further explained by a selection of variables including self-esteem, the Fear of Missing Out (FoMO), anxiety/dependence to technology, social media affinity, social media fatigue, social media addiction, as well as demographic variables like age and gender. The goal of this study was to contribute to a more well-rounded foundation to research on the psychological effects of using social media. The findings from this study could inform future studies like intervention research aimed at limiting the amount of time one spends on social media apps and reducing the mental health symptoms that have been associated with their use, perhaps by way of self-compassion.

Social Media

Social media are digital social spaces, usually websites and/or mobile applications, where users can create and share content and engage in social networking (Miller et al., 2016). Among the most popular are social media apps like Instagram, Facebook, TikTok, Twitter, and Snapchat. Using social media has palpable benefits at both the societal and individual level. By way of social media, family members have been reunited, thousands of new jobs have been created, and communication mediums are more advanced and efficient than ever before, allowing millions of people to connect and interact virtually.

There are many reasons to use social media, and given its popularity, it's evident that many enjoy using social media for these various motives. Whiting and Williams (2013) found that people provide the following ten reasons for using social media, starting in order with the most frequently reported: social interaction (i.e., virtual socialization), information seeking (i.e., self-education), passing time, entertainment, relaxation, communicatory utility (i.e., users can engage in public discourse), convenience utility (i.e., usefulness to individuals, such as being able to advertise small businesses online), expression of opinion, information sharing, and lastly, surveillance/knowledge about others. Despite these rationales for spending time on social media, it has become increasingly apparent that the psychological costs may outweigh the benefits.

Since its inception, social media has garnered considerable research attention, especially concerning its association with mental health outcomes. Increased rates of social media use have been linked to higher levels of anxiety and depression (Lin et al., 2016; Vannucci et al., 2017; Keles et al., 2020), lower self-esteem (Vogel et al., 2014), and poorer sleep quality (Woods & Scott, 2016). Some studies suggest that susceptibility to mental illness and psychological distress (e.g., anxiety) may depend on the number of social media accounts an individual has (Barry et

al., 2017; Primack et al., 2017). Other findings suggest that the direct relationship between social media use and neuroticism may be explained by the persons' tendency to experience the Fear of Missing Out (FoMO; Baker et al., 2016), or whether they exhibit signs of being addicted to social media (Keles et al., 2020). However, the negative psychological effects of social media use have been found to be mitigated by various factors, such as higher levels of self-esteem. (Wang et al., 2018). Self-esteem, the Fear of Missing Out, and social media addiction are all explained in more detail in later sections.

While the majority of social media studies have focused on the association between social media use and poor mental health outcomes, one study by Hunt and colleagues (2018) examined the psychological effects of limiting social media use. They found that reducing social media use to about thirty minutes a day led to significant improvements in psychological well-being. Furthermore, a study by Charmaraman and colleagues (2021) found that children's (under 10) use of social media apps like Instagram or Snapchat significantly correlated with problematic digital behavior outcomes later in adolescence or young adulthood, but that parental restriction of smartphone use in childhood and a less frequent checking of social media mitigated some of the negative outcomes. Research has demonstrated that while increased use results in negative psychological outcomes, reduced social media use can moderate that effect and can even result in psychological improvements. As more and more information about the effects of social media use becomes known, an increasing amount of new research is defining novel phenomena related to the use of social media, such as that of social media affinity, social media addiction, and social media fatigue.

Social Media Affinity, Social Media Addiction, and Social Media Fatigue

Social Media Affinity. One's affinity towards social media generally refers to one's perception of social media as being useful and enjoyable (Gerlich et al., 2010). Given the immense popularity of social media, it is relatively safe to presume that millions (if not billions) of people enjoy using social media and therefore experience some degree of affinity towards it. Hoffman and Novak (2012) found that many people use social media due to basic needs for autonomy, competence and relatedness, intrinsic and external motivations, as well as perceptions of well-being. Children and adolescents who are growing up in this age of social media perceive its use as being a vital aspect of their life, and this has a transformative effect on how they interact with the people around them as well as technology in general (Akram & Kumar, 2017). Social media affinity has been found to be an important predictor of satisfaction and loyalty within a social media media network (Krishen et al., 2015). As such, one's affinity towards social media (or a lack thereof) is likely to influence how much time they spend using social media and the overall attitude they take towards their use. In other words, the more someone likes social media, the more they tend to use it.

Social Media Addiction. While some may own every social media app but choose to use them sparingly, others spend as much as half of their waking hours looking at their screens. Social media addiction has been operationalized as being a category of social media use that is so extreme it is a detriment to one's quality of life (Griffiths, 2012). An increasing amount of evidence supports the notion that addiction to social media is on the rise, especially among youth (Hogan & Strasburger, 2018; O'Keeffe et al., 2011). Sismek and colleagues (2019) found that the majority of university and high school students have at least a moderate level of addiction to social media. Addiction to social media has been found to result in potential psychological harm.

Social media addiction has been found to be strongly associated with reduced overall psychological well-being (Kuss & Griffiths, 2011). A study by Sriwilai and Charoensukmongkol (2016) found that those who are highly addicted to social media displayed lower levels of dispositional mindfulness. Hou and colleagues (2019) found that social media addiction was negatively correlated with students' mental health and academic performance (i.e., more social media addiction resulted in poorer mental health outcomes and academic performance), but that this relationship was mitigated by higher levels of self-esteem. They then staged two self-help interventions among a smaller sample of participants who demonstrated high rates of social media addiction, and results showed that the intervention was efficient in not only lessening the students' social media addiction but also improving their mental health and academic performance (Hou et al., 2019). For some, using social media more and more can result in a disposition for social media addiction. For others, it can result in social media fatigue.

Social Media Fatigue. Although many people today use social media to some degree, others refrain from using it altogether. This may be due to a mere disinterest in social media or a result of something called social media fatigue. Social media fatigue is when users become so overwhelmed with the amount of time they spend maintaining virtual connections with their friends and followers online, they pull back from social media altogether (Technopedia, 2011). Privacy concerns and self-confidence (or a lack thereof) appear to have the most predictive power for social media fatigue (Bright et al., 2014), and the experience of this phenomenon has been linked to higher levels of depression and anxiety (Dhir et al., 2018). Although social media fatigue is on the rise among social media users, the conscious decision that many make to remain involved in social networking reflects their belief that use provides outcomes more positive than the discontinuance of use (Logan et al., 2018).

Fear of Missing Out (FoMO)

Another factor that may play a role in the relationship between social media use and psychological well-being is the Fear of Missing Out (FoMO; Elhai et al., 2016; Dempsey et al., 2019). FoMO manifests as a fear or anxiety surrounding being "left out," a feeling that tends to be exacerbated by social media use (Reagle, 2015; Baker et al., 2016). Many social media users frequently update their profiles with information as to their current activities and whereabouts. People tend to idealize and romanticize their lives online (e.g., present their followers with a more 'perfect,' i.e., edited, version of their lives than is accurate), which can lead to furthered experiences of FoMO among their followers (Kross & Chandhok, 2020). This may result in people feeling insecure and ostracized should they perceive their own life as being uninteresting and uninviting when compared to those that they see on social media (Wang et al., 2019). Moreover, this level of transparency online could lead to people noticing that they are actively being left out in circumstances where they feel as though they should be included (i.e., a person seeing on Snapchat that their friends are hanging out and having a blast without them meanwhile they did not receive an invite). Where there used to be a sense of ambiguity as to what people were doing in their spare time, social media has created a way for personal business to become public information, where some choose to be very revealing and others choose higher privacy. For those who frequently experience the phenomenon of FoMO, social media networking sites are breeding groups for anxiety-provoking imagery that stirs up negative emotions like feelings of inadequacy or jealousy. However, the FoMO tends to result in psychological repercussions.

FoMO has been linked to several negative psychological outcomes. Baker et al. (2016) not only demonstrated a direct association between social media use and FoMO, but also found that experiencing high rates of FoMO led to a decrease in mindfulness and an increase in

depressive symptoms. Moreover, FoMO has been found to be a predictor of problematic social media use and social media addiction (Blackwell et al., 2017; Franchina et al., 2018). FoMO has also been found to be predicted by how emotionally invested an individual is in social media, and high levels of emotional investment are directly correlated with both depression and anxiety (Alsunni & Latif, 2020). For some, it's probable that using social media both soothes and exacerbates their FoMO (i.e., being on social media makes them simultaneously feel included and excluded), a positive feedback loop that could become problematic. While some variables like FoMO, social media addiction, and social media fatigue can exacerbate the negative effects associated with social media use, others appear to potentially be protective against these harms, such as high levels of self-esteem or mindfulness.

Self-Esteem

Self-esteem is a psychological construct that involves a self-evaluation of one's own worth and importance (Blascovich & Tomaka, 1991). Self-esteem typically results in feelings of satisfaction or dissatisfaction when one contrasts their perceived self-image to their ideal one or to that of another. Satisfaction with one's own self-image is frequently contingent on upward or downward comparison with the perceived self image of others (Silber & Tippet, 1965). Upward comparison entails comparing oneself to someone perceived as being better, whereas downward comparison involves comparing oneself to someone perceived as worse (Taylor & Lobel, 1989). One example of this particular concept with regards to social media use is that body image concerns have been found to be worsened by social media and the upward comparison that is frequently involved in its use as users compare their bodies to 'perfect' ones that they see online (Perloff, 2014; McComb & Mills, 2021).

One's levels of self-esteem can be seen as being either protective or harmful concerning its association with social media use. Having high self-esteem may be protective against the negative psychological effects of social media use, whereas low self-esteem may exacerbate these negative effects as well as feed into higher rates of use. Vogel and colleagues (2014) found that social media users who engage in upward social comparison tend to be more insecure and reported lower self-evaluations than those who engaged in downward comparison. Nevertheless, excessive downward comparison can result in an inflated sense of self-esteem, which can also result in negative implications for the person, such as an inclination towards narcissistic tendencies (Andreassen et al., 2017; Neff & Vonk, 2009). Since social media use largely involves social comparison, both upward and downward, it is likely difficult for users to engage with social media in a way that will not affect their self-esteem in one way or another.

As such, the relationship between social media use and self-esteem is somewhat paradoxical. On the one hand, social media use can boost one's self-esteem by the validation received through the "likes" they get on their posts or the number of followers they have. One study found a link between positive online self-presentation and higher self-esteem in adults entering college (Yang et al., 2017). For many others, however, engaging in upwards social comparison on social media can lead to feelings of insecurity and jealousy (Muise et al., 2009; Utz et al., 2015). In particular, addictive use of social media has been shown to correlate negatively with self-esteem (Hawi & Samaha, 2017). Thus, self-esteem is among the variables which could aid in explaining the relationship between social media use and poor mental health outcomes. Also among the factors that could help explain this association is one's capacity for practicing a positive psychological term known as mindfulness.

Mindfulness

Mindfulness is the non-judgemental consciousness that arises when one pays deliberate attention to the present moment (Kabat-Zinn, 2003, p. 145). Mindfulness is also commonly described as actively *being* in the moment as opposed to simply *doing*. Although practicing mindfulness may sound relatively straightforward, our brain is not wired to be mindful. Research shows that on average people are operating on autopilot (i.e., going through the motions of activities without giving them much thought) 46.7% of the time (Killingsworth & Gilbert, 2010). This is because most of the time our mind exists in its default mode, which generates our sense of "self" and projects it into both the past (which is associated with rumination & depression) and the future (associated with anxiety), thus resulting in the experience of not *being present, in the moment*. Evolutionarily, this is likely due to survival needs (Broyd et al., 2009; Marchetti et al., 2012), as humans once had to constantly worry for the sake of their own survival. In spite of this, humans can make habits out of means to cultivate present moment awareness, and thus reap the benefits of mindfulness (Shapiro et al., 2008) detailed below.

Mindfulness has been found to not only improve mental health and lead to a more positive overall mood in practicing individuals, but it improves one's perceived quality of life as well (Greeson, 2008). Mindfulness can be promoted by mindfulness-based meditation, which has been linked to improved emotional regulation, decreased reactivity and increased response flexibility (Davis & Hayes, 2011). Furthermore, Kabat-Zinn (1990) proposed that one's level of mindfulness is representative of their capacity to place their undivided attention on any given activity without being easily distracted by other things. As such, mindfulness can also be used as an incredibly useful tool for retaining focus and concentration, such as in academic settings (Leland, 2015), or when having to hold a pose or balance on one leg (Key et al., 2012).

Of the various positive psychological concepts, mindfulness is one that has been widely captured in a variety of social media studies. Mindfulness has been shown to have a negative relationship with social media use, especially when the use verges on addiction (Sriwilai & Charoensukmongkol, 2015). Other studies have shown that practicing mindfulness can moderate the mental health repercussions of compulsive social media use (Apaolaza et al., 2019; Poon & Jiang, 2020). Thus, while using social media may hinder one's mindfulness levels, practicing mindfulness can help alleviate the detriment associated with high rates of social media use. Interestingly, mindfulness is a core component of another positive psychological variable known as self-compassion.

Self-Compassion

Self-compassion involves a non-judgemental, present moment awareness and openness to one's own suffering, and manifests as treating oneself with the same love and care that we would give a friend enduring hardship (Neff, 2003a). According to Neff (2003a), self-compassion involves three components: mindfulness, self-kindness, and common humanity. Mindfulness involves deliberately fixating on being in the present moment and perceiving the feelings and sensations that arise without judgment. Self-kindness entails responding to the voice of the inner saboteur with forgiveness and kindness as opposed to self-criticism. Common humanity acknowledges that suffering is an inevitable aspect of the collective human experience. Self-compassion has been shown to be a healthier alternative conceptualization of the self when compared to evaluating self-esteem (Neff, 2003b; Neff, 2009). Research shows that people are far more likely to engage in self-criticism when they fail or make a mistake rather than be understanding, forgiving, and compassionate with themselves (Gilbert & Irons, 2009). A self-compassionate approach to a perceived failure, however, would be to forgive oneself in light

of the mistake or shortcoming, rather than resort to harsh self-criticisms. Thus, self-compassion has been proposed as being an antidote to self-criticism (McKay & Fanning, 1992), and has also been directly associated with a wide variety of other benefits.

Self-compassion has been linked to improved psychological well-being, positive mental health benefits, and adaptive functioning (Neff, 2004). Moreover, self-compassion has been shown to decrease anxiety and provides practitioners with useful tools for promoting emotional resilience in times of stress (Bluth & Neff, 2018; Ferrari et al., 2019; Neff & Germer, 2013). Additionally, self-compassion has been reported as having significantly inverse associations with both negative affect and neuroticism (MacBeth & Gumley, 2012; Neff et al., 2007).

To the best of our knowledge, there are only a handful of studies on self-compassion as it relates to social media use. A recent study by Keyte and colleagues (2020) found that higher rates of Instagram use were linked to higher levels of depression, anxiety, and stress whereas higher self-compassion was linked to lower levels of depression, anxiety, and stress; and self-compassion was found to be associated with less Instagram use. Slater and colleagues (2017) found that the negative impact of social media use on body image could be mitigated as a result of users seeing posts related to self-compassion on their timelines. Ultimately, the few studies that have examined the relationship between social media use and self-compassion have focused primarily on body image and most only regard Instagram use. Although this relationship is currently understudied, certain research associations may indicate the possible connection. For example, higher rates of social media use have been linked to both self-criticism and self-directed negative affect (Jackson & Luchner, 2018). These associations are an antithesis of what the practice of self-compassion entails, and as such it can be presumed that social media use is likely to have an inverse relationship with levels of self-compassion.

Conclusions

The majority of studies conducted on social media use has related it to mental illness. For example, prior research indicates a strong association between higher rates of social media use and symptoms of poor mental health (e.g., depression, anxiety, low self-esteem). Additional insight could be achieved if more research is conducted on social media's relationship with some aspects of positive psychology, a study of the mind focused on flourishing and fulfillment. Social media use and its inverse relationship with mindfulness, a concept from positive psychology, has been demonstrated. However, there are few studies conducted on social media use as it relates to other aspects from positive psychology such as self-compassion. Understanding the dynamic between self-compassion and social media use will provide a more comprehensive understanding of the effects that social media use may be having on the human psyche. This study investigated whether social media use predicted levels of self-compassion in college students, controlling for numerous related variables (i.e., mindfulness, self-esteem, the FoMO, anxiety and dependence on technology, social media affinity, social media fatigue, social media addiction). The addition of these secondary variables to our statistical models provided further insight to the research questions, all of which are detailed in the statistical analysis section.

Materials and Methods

Study Design Overview

The purpose of this study was to (1) replicate prior findings on social media use and mental illness symptoms like depression, anxiety, and stress (i.e., investigate whether use on specific social media apps predicts mental illness symptoms and vice versa); and (2) investigate the relationship between social media use and self-compassion in college students. Specifically, we were interested in whether time spent on the five social media apps predicted self-compassion levels when controlling for various relevant secondary variables. Correlations and multiple linear regressions were used to explore these objectives. Participants' levels of self-compassion, social media use, as well as other psychological and social media-related variables were assessed via a web-based survey through Qualtrics, an online survey generating software. The primary outcome variable, self-compassion, was measured using the Self-Compassion Scale (SCS; Neff, 2003b). Social media use was quantified using values participants' self-reported according to the Screen Time feature on their smartphones (i.e., their daily average screen time on the five selected apps).

Various secondary variables were also measured, including some psychological variables (i.e., mindfulness, self-esteem, depression, anxiety, stress) and some related to social media use (i.e., fear of missing out, dependence on technology, social media affinity, social media fatigue, social media addiction). For the psychological variables, the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003) was used to measure mindfulness, the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) was used to measure self-esteem, and the DASS-21 was used to measure depression, anxiety, and stress (DASS-21; Lovibond & Lovibond, 1995). For the social media use related variables, the Fear of Missing Out Scale (FoMOs; Przybylski et al., 2013) was used to measure FoMO, anxiety/dependence on technology was measured using a subscale of the

Media and Technology Usage and Attitudes Scale (MTUAS; Rosen et al., 2013), the Social Media Affinity Scale (SMA; Gerlich et al., 2010) was used to measure affinity for social media use, the Social Media Fatigue Scale (Bright et al., 2015) was used to measure social media fatigue, and finally, social media addiction was measured using the Bergen Social Media Addiction Scale (BSMAS; Andreassen et al. 2016). Each of these measures were in the Qualtrics survey (see Appendix A) alongside other questions (e.g., demographics, Screen Time inquiries).

Once data collection was complete, a correlation matrix was constructed to analyze the associations between all variables. Multiple regression analyses were then used to explore the specific relationships of interest, such as that between social media use and mental illness symptoms as well as that between social media use and self-compassion. In the first (i.e., replicatory) regression analyses, social media use was the outcome variable predicted by levels of depression, anxiety, and stress; and then mindfulness and self-esteem, respectively. Then, depression, anxiety, and stress were the outcome variables, predicted by the amount of time spent on the five social media apps sequentially. We also investigated mindfulness and self-esteem as outcome variables with the social media-related variables as possible predictors. The next analyses (i.e., the primary research inquiries) featured self-compassion as the outcome variable with time spent on the five social media apps selected for our study (i.e., Instagram, Facebook, Twitter, TikTok, and Snapchat) factored in individually as potential predictors; as well as self-compassion as the outcome variable with all the social media variables (e.g., the fear of missing out, anxiety/dependence on technology, social media affinity, social media fatigue, social media addiction, total social media use) as possible predictors. Self-compassion was added to the models featuring social media use as predicted by the psychological variables (e.g., mindfulness, self-esteem, depression, anxiety) to investigate whether adding self-compassion had an effect.

We hypothesized that social media use and self-compassion would be significantly inversely related. Time spent on the social media apps was hypothesized to directly predict mental illness symptoms and inversely predict self-compassion. We further hypothesized that controlling for the various secondary variables mentioned above would result in a furthered understanding of our answer to the research questions and objectives.

Participants

Participants (N=182, M = 20.3 years old, SD = 1.3 years) were recruited from a pool of college students enrolled in an educational psychology course at The University of Texas at Austin, where they were granted course credit for participating in research. They were given informed consent prior to taking the survey, which stated that the purpose of this study was to evaluate the relationship between social media use and various psychological and social media-related variables. 299 people took the survey in total, but 117 were removed from the final data set. 32 incomplete responses (e.g., completed less than half of the survey) as well as instances where instructions were clearly not followed (e.g., the participant reported screen time values that couldn't possibly be for a day's use or gave the same response to every item on each questionnaire) were removed. In addition, six participants who did not report screen time estimates and 98 who did not have Screen Time data (i.e., Android users and those with iPhones who did not have Screen Time enabled) were also removed. Finally, 10 outliers with abnormally high Screen Time levels were also removed. There were three participants who did not use social media at all. Thus, there was not enough data from those who do not use any social media, so we were unable to conduct any between group analyses, and these people were also removed from the final dataset. Consequently, we specified our total population of interest to be those who use social media. For more information on our participants' demographics, see Table 1.

Materials and Measures

Each of the measures below (excluding Screen Time) can be found in Appendix A.

Social Media Use: Screen Time

Social media use was quantified using data that participants estimated and self-reported based on values derived from the Screen Time feature on their Apple iPhones. Launched in 2018, this relatively novel feature was released as part of iOS 12. Designed in part as a parental control feature, any iPhone user can use Screen Time to view real-time values showing how much time they spend on their iPhones, as well as information on the nature of their use. According to the Apple website (2021), such information includes the times of the day someone is most active as well as which apps they use the most. Users can also set time limits for use on certain apps and schedule "downtime" (i.e., arranged times where only approved apps are available). Screen Time features a variety of information on the amount of time that a smartphone user spends on and engages with their “screens,” such as their daily screen time averages, most used apps, and pickups (i.e., the amount of times that a user picks up and looks at their smartphone).

For the purposes of this study, participants’ were instructed to estimate their daily average screen time in hours and minutes for each of the five social media apps selected to be included in this research (i.e., Instagram, Facebook, TikTok, Twitter, Snapchat). They were then instructed to self-report actual data as to their daily average screen time in hours and minutes for each of the five social media apps according to the values on their Screen Time. Instructions were provided as to how to find this information. Participants found their values for each of the apps by going to Settings > Screen Time > See All Activity > Under Most Used > Click App > Daily Average on their iPhones. They reported 5 of these values, one for each of the selected social media apps.

These specific apps (i.e., Instagram, Facebook, TikTok, Twitter, Snapchat) were chosen due to their similarities with one another and for control, as we did not want to include any apps that were too dissimilar in nature. Instagram, Facebook, TikTok, Twitter, and Snapchat were all chosen because they are among the most popular mobile social media apps. Moreover, they all have very similar qualities. For example, all involve "friends" or a "followers" and "following" dynamic, where users have the option to "add" other users as a means to essentially subscribe to their content (i.e., becoming "friends" with or "following" a user means their new content will appear on your home "feed"). They all feature a virtual messaging/private chat system, and largely entail social networking. Additionally, all operate on an algorithm designed to assess users interests (e.g., that underlying Instagram's "Explore" page, TikTok's "For You" page), present users with content based on these assessments, and therefore increase user engagement. Reddit and YouTube, two other very popular social media apps, were excluded from this study due to their dissimilarities with the others. Specifically, the vast majority of users on both Reddit and Youtube are relatively anonymous and primarily consume (i.e., they mostly view and discuss or comment on content on these platforms as opposed to post content themselves). As for the five apps selected for this study, however, public, personal interaction is highly prevalent.

Additional questions related to social media use were asked to further our understanding of our participants' proclivity for social media addiction, social media fatigue, social media affinity, as well as their attitudes towards social media and technology in general. The measures used are described in detail in the following pages. Participants were asked questions about the nature of their social media use, such as whether they use social media for personal or business reasons and how often they consume or produce (i.e., post) social media. Other questions about the nature of their use were featured in the survey but were not used in data analysis.

The Bergen Social Media Addiction Scale

The Bergen Social Media Addiction Scale was used to assess at-risk individuals for social media addiction on the internet (BSMAS; Andreassen et al. 2016). The scale contains 6 items. Example items include "You spend a lot of time thinking about social media or planning how to use it" or "You have tried to cut down on the use of social media without success." Participants indicated how frequently they relate with the statements on a 5-point Likert scale, with 1 suggesting that participants experience the feelings "very rarely" and 5 indicating that participants experience such feelings "very often." Total scores were calculated by taking the sum of all of the items. A higher score on the BSMAS suggests stronger addiction to social media, and a score of over 19 indicates an individual is at-risk of developing problematic social media use (Banyau et al., 2017). The Bergen Social Media Addiction Scale achieved high internal consistency, (α = 0.88; Duradoni et al., 2020).

Social Media Fatigue Scale

The Social Media Fatigue Scale was used to assess an individual's likelihood of withdrawing from social media because of feeling overwhelmed with the multifarious platforms, having too many friends and followers online and spending too much time online maintaining these connections (Bright et al., 2015). This scale contains 5 items. Example items include "I am frequently overwhelmed by the amount of information available on social media sites" and "When searching for information on social media sites, I frequently just give up because there is too much to deal with." Participants rated each statement on a 7-point Likert scale, with 1 being that they "strongly disagree" with the statement and 7 indicating that they "strongly agree" with the statement. Total scores were calculated by taking the mean of all of the items. Higher scores

indicate higher levels of social media fatigue. The Social Media Fatigue Scale achieved good reliability (α = 0.91, M = 4.14, SD = 1.39; Bright et al., 2015).

Social Media Affinity Scale

The Social Media Affinity Scale was used to assess an individual's inclination (or perhaps aversion) towards using social media (SMA; Gerlich et al., 2010). This scale contains 13 items. For the purposes of our questionnaire, the SMA Scale was adapted so that all mentions of 'social networking' were made to say 'social media' as a means to make the questionnaire more modern and relevant. Examples of items include "Social media is a great way for people to stay in touch with one another" and "Social media makes people waste too much time." Participants rated each statement on a 5-point Likert scale, with 1 being that they "strongly disagree" with the statement and 5 indicating that they "strongly agree" with the statement. Total scores were calculated by taking the sum of all of the items after reverse coding four of the items. Higher scores indicate a more positive attitude and inclination towards using social media, while lower scores indicate a more negative attitude and disinclination towards using social media. The Social Media Affinity Scale achieved strong internal reliability, (α = 0.77; Gerlich et al., 2010).

The Media and Technology Usage and Attitudes Scale: Anxiety/Dependence to Technology

The "Anxiety/Dependence" subscale of the Media and Technology Usage and Attitudes Scale was used to assess participants' overall dependence on technology and the internet as well as the anxiety experienced when participants do not have access to these things (MTUAS; Rosen et al., 2013). This subscale contains 3 items. Example items include "I get anxious when I don't have my cell phone" and "I am dependent on technology." Participants rated each statement on a 5-point Likert scale, with 1 suggesting that they "strongly disagree" with the statement and a 5 indicating that they "strongly agree" with the statement. Total scores were calculated by taking

the mean of all of the items. Higher scores on this scale indicate higher levels of dependence and anxiety surrounding technology and the internet. This scale demonstrated good internal consistency (α = 0.83; Rosen et al., 2013).

The Fear of Missing Out (FoMO) Scale

The Fear of Missing Out Scale (FoMO) was used to assess the fear that an individual associates with missing out on experiences (Przybylski et al., 2013). This scale contains 10 items. Example items include "I get anxious when I don't know what my friends are up to" and "I fear my friends have more rewarding experiences than me." Participants rated each statement on a 5-point Likert scale, with 1 suggesting that it is "not at all true of me" and 5 indicating that the statement is "extremely true of me." Total scores were calculated by taking the mean of all of the items. Higher scores indicate higher levels of the fear of missing out (FoMO). This scale demonstrated good internal consistency (α = .87; Perrone, 2016).

The Depression, Anxiety, and Stress Scale (DASS-21)

Items from the DASS-21 were included to replicate prior findings that demonstrated an inverse relationship between these symptoms of psychopathology and self-compassion (Marsh et al., 2018; Raes, 2010; Krieger et al., 2013) and a direct relationship between depression, anxiety, and stress, and social media use (Primack et al., 2017; Dhir et al., 2018; Betul et al., 2020). The DASS-21 was used to assess levels of depression, anxiety, and stress in an individual (DASS-21; Lovibond & Lovibond, 1995). The scale contains 21 items, 7 items for each subscale. Example items include "I was unable to become enthusiastic about anything" (depression), "I felt scared without any good reason" (anxiety), and "I found it difficult to relax" (stress). Participants indicated how much each statement applied to them over the past week. They rated each item on a 4-point Likert scale, with 0 meaning that it "did not apply to [them] at all" and 3 indicating

that the statement "applied to [them] very much, or most of the time." Scores for depression, anxiety, and stress, respectively, were calculated by summing the items and multiplying them by 2. The DASS-21 has been demonstrated to reliably measure depression (α = .94), anxiety (α = .87), and stress (α = .91) for undergraduate populations (Lovibond & Lovibond, 1995).

The Rosenberg Self-Esteem Scale

The Rosenberg Self-Esteem Scale was used to assess global self-worth by measuring for both positive and negative feelings about the self (RSE; Rosenberg, 1965). The scale contains 10 items. Example items include "I take a positive attitude toward myself" or "I feel I do not have much to be proud of." Participants indicated how strongly they agree or disagree with each statement on a 4-point Likert scale, with 0 suggesting that participants "strongly disagree" with the statement and 3 indicating that participants "strongly agree" with the statement. After reverse scoring for some items, total scores were calculated by taking the sum of all of the items. The scale ranges from 0-30, with 30 being the highest score possible. Scores between 15 and 25 are within a normal range, while scores below 15 suggest low levels of self-esteem (Crandal, 1973). The RSE demonstrates a Guttman scale coefficient of reproducibility of .92, suggesting great internal consistency. Test-retest reliability over a period of 2 weeks reveals correlations of .85 and .88, demonstrating superb internal stability (Rosenberg, 1979).

The Mindful Attention Awareness Scale

The Mindful Attention Awareness Scale was used to assess the capacity for mindfulness in individuals, specifically their aptitude for openness and present moment awareness (MAAS; Brown & Ryan, 2003). The scale contains 15 items. Example items include "I find it difficult to stay focused on what's happening in the present" or "I find myself preoccupied with the future or the past." Participants indicated how frequently they currently had each experience on a 6-point

Likert scale, with 1 suggesting that participants "almost always" have that experience and 6 indicating that participants "almost never" have that experience. Total scores were calculated by taking the mean of all of the items. According to a study by Brown and Ryan (2003), higher scores reflected higher levels of dispositional mindfulness. Average scores for undergraduate students in the research were 3.85, whereas zen meditators scored an average of 4.38. The scale achieved high internal consistency and test–retest reliability (Brown et al., 2011).

The Self-Compassion Scale

The Self-Compassion Scale was used to assess global levels of self-compassion (SCS; Neff, 2003b). The scale contains 26 items with 6 subscales representing the 3 positive and 3 negative components: mindfulness (e.g., "When something upsets me I try to keep my emotions in balance"), self-kindness (e.g., "I try to be loving towards myself when I'm feeling emotional pain"), common humanity (e.g., "When I'm down, I remind myself that there are lots of other people in the world feeling like I am"); over-identification (e.g., "When something upsets me I get carried away with my feelings"), self-judgment (e.g., "I'm disapproving and judgemental about my own flaws and inadequacies"), and isolation (e.g., "When I fail at something that's important to me, I tend to feel alone in my failure"). Participants indicated how often they behave in the stated manner on a 5-point Likert scale, with 1 suggesting that participants "almost never" behave in that way and 5 indicating that participants "almost always" behave in that way. After reverse scoring for the items from the negative subscales, total scores were calculated by taking the mean of each subscale and then computing a total mean of all six subscales. As an ad hoc rubric, you can consider scores 1.0-2.49 to be low, between 2.5-3.5 to be moderate, and 3.51-5.0 to be high levels of self-compassion (Neff, 2003a). This scale has good test-retest reliability (α = .93) and internal reliability (α = .92; Neff, 2003b).

Demographics

Demographic information such as age, academic class standing, gender, race/ethnicity, and socioeconomic status was also collected from participants (see Table 1).

Procedure

Participants responded to a web-based survey through Qualtrics. They were given informed consent, which stated that the purpose of this study was to evaluate the relationship between social media use and various psychological variables. They were then notified that they could withdraw from participation at any time. After being briefed and given informed consent, participants responded to the Self-Compassion Scale (SCS; Neff, 2003b), the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), the Rosenberg Self-Esteem Scale (RSE; Rosenberg, 1965) and the Fear of Missing Out Scale (FoMOs; Przybylski et al., 2013) first. These scales and the items within them were randomized in the survey. Participants were then asked whether or not they used social media. Participants who did use social media were asked to select from a list of social media platforms (Instagram, Facebook, TikTok, Twitter, Snapchat) the ones that they use on a regular basis. Without looking at their phone, these participants who did use social media were asked to provide estimates as to how much time they believe they spend on each of the five apps, on average, in a day.

Participants then responded to the anxiety/dependence to technology subscale of the Media and Technology Usage and Attitudes Scale (MTUAS; Rosen et al., 2013), the Social Media Affinity Scale (SMA; Gerlich et al., 2010), the Social Media Fatigue Scale (Bright et al., 2015) and the Bergen Social Media Addiction Scale (BSMAS; Andreassen et al. 2016). These scales and the items within them were also randomized in the survey.

Participants were then asked whether they had their Screen Time data enabled. Instructions as to how to find this information were provided, and those who had access to their Screen Time data were prompted to report their daily averages for each of the social media apps. Finally, demographic information was collected and participants were granted course credit for their participation. Only those who had Screen Time enabled were included in the final dataset.

Statistical Analysis

Data was downloaded directly from Qualtrics to a csv file/excel format and underwent data cleaning by the researchers. Part of this process was verifying the accuracy of the entries, and MCAR values (i.e., missing completely at random) were handled by imputation (i.e., taking the mean of the other values in that column). Incomplete responses (e.g., took less than half of the survey), instances were instructions were clearly not followed (e.g., the participant reported screen time values that couldn't possibly be for a day's use or gave the same response to every item on each questionnaire), participants who did not provide screen time estimates, those who did not have access to Screen Time data (i.e., Android users and those with iPhones who did not have Screen Time enabled), participants with abnormally high Screen Time rates, and those who did not use any social media at all were removed from the final dataset. Excel and RStudio were used to conduct all data analyses, all of which is detailed below.

The means and standard deviations for all of the numerical variables were calculated. After checking for assumptions (i.e., linearity, independence, homoscedasticity, multivariate normality, and multicollinearity), a correlation matrix of all psychological and social media variables was examined. We were most interested in how self-compassion scores related to the social media variables (e.g., social media addiction, social media fatigue) and how the social media variables related to the psychological and wellbeing variables (e.g., self-compassion,

mindfulness, self-esteem, depression, anxiety, stress). Multiple linear regressions were built and analyzed as a means to achieve a more well-rounded comprehension on how these variables associate with and predict one another, and interesting results were later achieved.

Given the exploratory nature of this study, several multiple linear regressions were conducted to better understand the connection between self-compassion and social media use (i.e., whether social media use predicts self-compassion and vice versa). Multiple regression analyses were also conducted to account for any potential influence resulting from the secondary variables (e.g., FoMO, social media affinity, self-esteem). This study had replicatory (i.e., social media use and its relationship with mental illness, mindfulness, and self-esteem) as well as primary and secondary analyses based on our various research questions:

Replicatory Research Inquiries. Does social media use predict mental illness symptoms (i.e., depression, anxiety, stress); and conversely, do levels of these mental illness symptoms predict social media use? Does social media use continue to predict aspects from positive psychology like levels of mindfulness and self-esteem? The first model featured social media use as predicted by depression, anxiety, and stress. The second model featured social media use as predicted by mindfulness and self-esteem. Then, the third model entailed depression as predicted by time spent on the five social media apps. The fourth model involved anxiety as predicted by time spent on the five social media apps. The fifth model featured stress as predicted by time spent on the five social media apps. Our sixth model featured mindfulness as predicted by the various social media related variables (i.e., total social media use, FoMO, anxiety/dependence on technology, social media affinity, social media fatigue, social media addiction), and finally, the seventh model for our replicatory inquiries featured self-esteem as predicted by the various social media related variables mentioned above.

Primary Research Questions. Does social media use predict self-compassion levels? Are social media-related variables predictive of self-compassion? Does self-compassion predict social media use when controlling for various psychological variables? Our eighth model, which sought to aid in answering the primary research question, featured self-compassion as predicted by individual time spent on the five social media apps. The ninth model involved self-compassion as predicted by the various social media related variables (i.e., total social media use, FoMO, anxiety/dependence on tech, social media affinity, social media fatigue, social media addiction). The tenth model featured total social media use as predicted by depression, anxiety, and stress controlling for self-compassion. The eleventh model featured social media use as predicted by mindfulness and self-esteem controlling for self-compassion. The latter two analyses (models ten and eleven) were built as a means to investigate whether adding self-compassion to these replicatory models had an effect on overall social media use.

Results

Correlations

A correlation matrix was generated to investigate the associations between the variables (see Table 2). There were significant correlations between many of the variables, resulting in some concern surrounding the potential for multicollinearity among the variables. A variance inflation factor (VIF) analysis was conducted and the resultant scores did not indicate the presence of any collinearity issues. Regarding the relationship between social media use and self-compassion, the tendency for total social media use to negatively correlate with self-compassion did not reach significance, $r(182) = -.07$, $p > 0.35$. Figure 1 illustrates this association between total social media on the five selected apps and self-compassion scores.

When investigating whether use on specific social media apps resulted in significant associations with self-compassion, an alternate correlation matrix was created (see Table 3). Tik Tok use was the only significant correlator with self-compassion among the five social media apps chosen for this study, $r(180) = -.19$, $p = .01$. Figure 2 illustrates this significant association between time spent on Tik Tok and self-compassion.

All other correlations between the many variables included in this study can be seen on Tables 2 and 3. Nevertheless, mere correlations only provide so much insight as to the ways in which these variables relate to and predict one another. Thus, further statistical investigation was prompted (all of which are detailed below). Using multiple linear regression analyses, more information concerning our data was revealed. Resultant data analysis included replicatory (i.e., social media use and its relationship with mental illness, mindfulness, and self-esteem) as well as primary (i.e., self-compassion as outcome variable) and secondary analyses (i.e., social media as outcome variable) based on our various research questions.

Multiple Linear Regressions

Replicatory Research Inquiries. Does social media use predict mental illness symptoms (i.e., depression, anxiety, stress); and conversely, do levels of these mental illness symptoms predict social media use? Does social media use continue to predict aspects from positive psychology like levels of mindfulness and self-esteem?

Multiple linear regression was used to investigate whether participants' levels of depression, anxiety, and stress predicted their overall social media use. The results of this regression indicated that neither depression ($t(178) = .50$, $p = .62$), anxiety ($t(178) = 1.19$, $p = .24$), nor stress ($t(178) = -0.14$, $p = .89$) significantly predicted total time spent on social media among our participants ($R^2 = .03$, $F(3,178) = 1.6$, $p = .19$). Multiple linear regression was also used to examine whether participants' levels of mindfulness and self-esteem predicted their overall social media use. The results of this regression indicated that neither mindfulness ($t(179) = -1.6$, $p = .10$) nor self-esteem ($t(179) = -0.64$, $p = .53$) significantly predicted total time spent on social media among our participants ($R^2 = .02$, $F(2,179) = 2.19$, $p = .11$; see Table 4).

Using multiple linear regression, we further investigated whether the amounts of time participants' spent on the five social media apps individually predicted their levels of depression. The results of this regression indicated that Instagram ($t(176) = -2.61$, $p = .01$), Facebook ($t(176) = 1.91$, $p = .05$), and TikTok ($t(176) = 2.45$, $p = .02$) significantly predicted depression levels among the participants ($R^2 = .10$, $F(5,176) = 3.98$, $p = .002$). According to this model, time spent on the five social media apps in aggregate explained roughly 10% of the variance in depression levels. We also investigated whether the amounts of time participants' spent on the five social media apps individually predicted their levels of anxiety. The results of this regression indicated that Instagram ($t(176) = -1.8$, $p = .07$), Twitter ($t(176) = 3.27$, $p = .001$), and Snapchat ($t(176) =$

1.8, p = .08) significantly predicted anxiety levels among the participants (R^2 = .12, F(5,176) = 4.7, p = .0005). According to this model, time spent on the five social media apps in aggregate explained roughly 12% of the variance in levels of anxiety. In addition, we used multiple linear regression to investigate whether the amounts of time participants' spent on the five social media apps individually predicted their levels of stress. The results of this regression indicated that Instagram (t(176) = -1.8, p = .07) and Twitter (t(176) = 1.71, p = .09) significantly predicted stress levels among the participants (R^2 = .07, F(5,176) = 2.53, p = .03). According to this model, time spent on the five social media apps in aggregate explained roughly 7% of the variance in levels of stress. See Table 5 to view these multiple regression analyses.

Multiple linear regression analysis was further used to investigate whether participants' levels of social media-related variables (i.e., total social media use, FoMO, anxiety/dependence on tech, social media affinity, social media fatigue, social media addiction) predicted their levels of mindfulness. The results of this regression indicated that FoMO (t(175) = -3.8, p = .0002), anxiety/dependence to technology (t(175) = -2.6, p = .01), and social media affinity (t(175) = 2.16, p = .03) significantly predicted participants' mindfulness rates (R^2 = .20, F(6,175) = 7.34, $p < 0.001$). According to this model, participants' responses to the social media related variables explained roughly 20% of the variance in levels of mindfulness. We also investigated whether participants' levels of social media-related variables (i.e., total social media use, FoMO, anxiety/dependence on tech, social media affinity, social media fatigue, social media addiction) predicted their levels of self-esteem. The results of this regression indicated that FoMO (t(175) = -3.7, p = .0003) significantly predicted participants' rates of self-esteem (R^2 = .12, F(6,175) = 3.90, $p = 0.001$). According to this model, participants' responses to the social media related variables explained roughly 12% of the variance in levels of self-esteem (see Table 6).

Primary Research Questions. Does social media use predict self-compassion levels? Are social media-related variables predictive of self-compassion? Does self-compassion predict social media use when controlling for various psychological variables?

A multiple linear regression analysis was used to investigate whether the amounts of time participants' spent on the five social media apps individually predicted their levels of self-compassion when controlling for gender. Of the five social media apps selected for this study, the results of this regression indicated that the specific use of TikTok ($t(175) = -2.04$, $p = .04$) significantly predicted levels of self-compassion among our participants ($R^2 = .07$, $F(6,175) = 2.22$, $p = .04$), suggesting that the more someone used Tik Tok, the less self-compassionate they tended to be. None of the other social media apps were found to be significantly associated with lower levels of self-compassion. According to this model, time spent on the five social media apps in aggregate explained roughly 7% of the variance in levels of self-compassion. For more information on this primary multiple linear regression, see Table 7.

Multiple linear regression was also used to investigate whether participants' levels of social media-related variables (i.e., total social media use, FoMO, anxiety/dependence on tech, social media affinity, social media fatigue, social media addiction) predicted their levels of self-compassion when controlling for age. The results of this regression indicated that the Fear of Missing Out ($t(174) = -4.03$, $p < 0.001$), anxiety/dependence to technology ($t(174) = -1.72$, $p = .09$), and social media affinity ($t(174) = 2.66$, $p = .009$) were significant predictors of self-compassion levels among our participants ($R^2 = .16$, $F(7,174) = 4.59$, $p < 0.001$). According to this model, responses to the social media-related variables mentioned above and participants' age explained roughly 16% of the variance in levels of self-compassion (see Table 8).

Multiple linear regression was also used to investigate whether participants' social media use was predicted by their levels of depression, anxiety, and stress, controlling for their levels of self-compassion. The results of this regression indicated that neither depression ($t(177) = .51$, $p = .61$), anxiety ($t(177) = 1.16$, $p = .25$), stress ($t(177) = -0.09$, $p = .93$), nor self-compassion ($t(177) = 0.14$, $p = .89$) significantly predicted total time spent on social media among our participants ($R^2 = .03$, $F(4,177) = 1.2$, $p = .31$). Multiple linear regression was further used to investigate whether participants' social media use was predicted by their levels of mindfulness and self-esteem, controlling for their levels of self-compassion. The results of this regression indicated that neither mindfulness ($t(178) = -1.65$, $p = 10$), self-esteem ($t(178) = -0.65$, $p = .52$), nor self-compassion ($t(178) = 0.27$, $p = .79$) significantly predicted time spent on social media among our participants ($R^2 = .02$, $F(3,178) = 1.48$, $p = .22$). See Table 9 for additional information about this linear regression.

Other Exploratory "Findings". Some questions about the specific social media apps were included in the survey for curiosity's sake per the interests of the researcher. Generally, most participants considered TikTok to be the most addicting, Instagram to be the most "toxic" (i.e., problematic) yet fun to use, and Snapchat to be the most harmless (i.e., reduced psychological effect when compared to other apps). When asked which of these five apps participants' would have a hard time giving up, Instagram was the most common response. When asked which of the five apps participants' would delete if they had to, Facebook was the most common response. The majority of respondents agreed that social media has made life more complicated and has made people more isolated. Most participants answered neutrally when asked whether social media results in more individual and societal good than harm.

Discussion

The present study investigated whether social media use predicted levels of self-compassion in college students, controlling for numerous related variables (i.e., mindfulness, self-esteem, the FoMO, anxiety and dependence on technology, social media affinity, social media fatigue, social media addiction). The addition of these secondary variables to our statistical models provided further insight to the replicatory and primary research questions.

Replicatory Research Inquiries

The replicatory research resulted in some fascinating outcomes. Although depression, anxiety, stress, mindfulness, and self-esteem did not significantly predict social media use, further investigation on the effects of using specific social media apps provided some insight. Facebook and TikTok directly predicted levels of depression. On average, the more participants' used Facebook and TikTok, the more depressed they were. This is consistent with prior research that found Facebook and TikTok use to be associated with depressive disorder (Jelenchick et al., 2014; Sha & Dong, 2021). Twitter directly predicted both anxiety and stress. On average, the more participants' used Twitter, the more anxious and stressed they were, consistent with research findings from Guntuku and colleagues (2019). Interestingly, Instagram negatively predicted depression, anxiety, and stress, suggesting that, on average, the more participants used Instagram, the less depressed, anxious, and stressed they were.

All of these social media apps operate on complex algorithms that predict what kinds of content will keep users engaged. This is done as a means to keep participants on the platform for as long as possible each day and to increase engagement and exposure to advertisements. Doing so may make users more susceptible to increased social media use and the negative psychological consequences that can result from it. Results concerning the psychological effects

of Instagram use were unique, however. Instagram was rated by our participants as being the most potentially problematic but fun social media app to use, meaning that user enjoyment may be mitigating any negative effects that may result from its use.

FoMO and anxiety/dependence on technology were significant negative predictors of mindfulness levels, indicating that the more participants feared missing out or experienced anxiety around being without their technology, the lower their mindfulness scores were on average. FoMO was also a significant negative predictor of self-esteem, suggesting that those with higher levels of FoMO had lower self-esteem, on average. Mindfulness was directly predicted by social media affinity, however, indicating that the more keen participants were towards using social media (i.e., perceived social media use as being useful and enjoyable), the more mindful they tended to be.

Our findings support those found in prior research; for example, FoMO has been found to be negatively associated with mindfulness (Baker et al., 2016) and self-esteem (Uram & Skalski, 2020). Both FoMO and technological dependence involve some form of anxiety, which has been found to be negatively associated with mindfulness (Desrosiers et al., 2013), therefore, it makes sense that both variables negatively correlate with mindfulness as well. With regard to the relationship between mindfulness and social media affinity, however, it is evident that the degree to which users find social media to be enjoyable and useful could be having a protective effect on any negative repercussions on mindfulness that tend to result from social media use (Apaolaza et al., 2019). In other words, users who find social media to be useful and enjoyable may be more likely to be mindful when using social media, and therefore less affected psychologically by any harms related to social media use.

To summarize, psychological distress and mental illness symptoms may be direct related with social media use for a variety of reasons, such as the upwards social comparison that's frequently involved in its use (i.e., associated with lower self-esteem; Silber & Tippet, 1965) or the experience of FoMO which has been found to be heightened by social media use (i.e., and FoMO correlates significantly with anxiety and depression; Reagle, 2015). Ultimately, there are many possible explanations as to the relationship between social media use and symptoms of psychopathology, all of which are likely to be brought about by using any one of the five social media apps selected for this study (i.e., Instagram, Facebook, TikTok, Twitter, Snapchat), considering that they are all conducive to such explanations.

Primary Research Questions

Based on our results as well as findings from prior research, it is evident that use on specific social media apps may be having a more adverse effect on mental health and aspects from positive psychology (e.g., mindfulness, self-compassion) than others. In the present study, when examining whether use on specific apps predicted levels of self-compassion in our participants, it was found that time spent on TikTok was the sole significant predictor of self-compassion. TikTok use negatively predicted self-compassion, meaning that the more someone used TikTok, the less self-compassionate they tended to be. None of the other social media apps were found to significantly predict lower levels of self-compassion. Factoring gender into the model did not have an effect on statistical significance. TikTok was rated as being the most addicting of the social media apps by our participants, a possible explanation as to why it's use had such a profound negative impact on levels of self-compassion, considering that self-compassion negatively associates with other forms of addiction such as substance abuse (Phelps et al., 2018). TikTok is a relatively new social media site when compared to the other

four selected for this study. Research has noted TikTok's popularity and have noted that it is particularly vulnerable to the spread of hateful and inappropriate content due to lacking regulation standards (Weimann & Masri, 2020), and have acknowledged that TikTok has the power to be incredibly addictive especially to younger audiences (Manzar et al., 2020). It is evident that using TikTok may be problematic, a possible explanation as to why its use negatively predicts self-compassion levels.

TikTok use was not the only variable to negatively predict self-compassion at a level of significance. FoMO and anxiety/dependence on technology were also significantly predictive of levels of self-compassion, indicating that the more participants feared missing out or experienced anxiety surrounding being without their technology, the lower their self-compassion scores were on average. Factoring age into this model did not have an effect on statistical significance. Such as with mindfulness, however, social media affinity was interestingly a direct predictor of self-compassion, suggesting that the more keen participants' were towards using social media (i.e., perceived it as being useful and enjoyable), the more self-compassionate they tended to be. This finding, when considered alongside the finding about social media affinity and mindfulness, further suggests that social media affinity may be a protective factor against the negative psychological effects associated with social media use. It seems that whether a person finds using social media to be enjoyable and useful plays a significant role in the psychological effects of their use.

Implications

An increasing amount of research is supporting the notion that social media use may pose a harm to the mental health of its users. Since social media is in its infancy, relatively speaking, it is considerably important that we closely monitor the effect, both individually and societally, that

it is having on the people who use it, especially if increasing amounts of research demonstrate that it may be damaging psychologically. As social media use continues to become more complex and widespread, and at a rapid rate, the importance of this issue becomes progressively pressing. This topic is highly relevant in today's day and age. As mental illness is on the rise in the United States (Whitaker, 2005), especially among adolescents and young adults (McCloughen et al., 2012; Houghton et al., 2015; Elliot and Urry, 2010), it is possible that the inception of social media is contributing to this increase in mental illness.

Today's adolescents and young adults are considerably the first generation to have grown up with both the internet and social media. As a result, psychological research should continue to investigate the effects of social media on mental health, especially among adolescents and young adults. Mental illness is a significant contributor to the global burden of disease, and if it is possible that social media use is exacerbating symptoms of psychopathology, this warrants further investigation as to what we as a society can do to thwart the psychological ramifications of social media use. However, this responsibility may not only fall on the users but onto those who developed the social media platforms as well.

One might argue that social media developers also have a certain responsibility to thwart any ramifications that may be resulting from use on their apps, perhaps by designing the apps in a way that is not so potentially burdensome on the mental health of its users. As it is somewhat known, social media developers, such as those who work at Facebook and YouTube, designed their sites with the objective of captivating our attention in mind. Over the years, social media sites have become increasingly innovative with their tactics to keep users on the apps engaging with the content for as long as possible (e.g., the addition of the "Like" button to the Facebook interface increased engagement on the site). It has been said that social media is not the product,

and that it is instead human attention that is the commodity, sold to paying advertisers seeking to promote their products through the virtual medium of apps like Instagram and Tik Tok. As such, the goal is to garner as much of the users' awareness as possible as a means for more exposure to advertisements: how Big Tech and social media developers make much of their ample earnings.

Tik Tok, our significant negative predictor of self-compassion, has been said to have the most complexly intellectual algorithm of any social media app to date, one that is said to understand the wants and interests of the user to an utmost degree. Similarly to YouTube's "Recommended" feature, the algorithm for Tik Tok's "For You" page only displays videos that it has assessed the user probably likes, all of them short (i.e., under 60 seconds), but oftentimes highly stimulating; resulting in the potentiality for users to become 'lost' on the app for as long as multiple hours each day. This is because the algorithms reward engagement by becoming "stronger" (i.e., the algorithm becomes increasingly better at analyzing the users interests and presenting them with the types of content they want to see). While some are seemingly unphased by the increasing prevalence of social media use in modern day society, others are growing concerned with the impacts of use on the multifarious social media apps, and a select few are taking concrete steps towards addressing these issues.

Recently, a former Facebook data scientist by the name of Frances Haugen exposed the platform and its developers for engaging in unethical activities (e.g., omitting vital information about what was known about Facebook and Instagram's potential to cause harm) as well as blatant disregard for the wellbeing of its users (e.g., negative impacts on mental health resulting from social media use have been well-demonstrated in the literature). Resultantly, Facebook CEO Mark Zuckerberg came under fire for designing a platform that appears, if allegations are true, to prioritize "profits over people." Following these events and the proclamations of the

whistleblower, many agree that social media apps and the design thereof warrants monitoring and regulation, however there is currently an obstruction to the implementation of this. It has been nearly 30 years since the last time internet regulation laws were changed in 1996. Over the years, social media developers have become increasingly aware of their capacity to capitalize on human attention, and the lack of internet regulation is doing nothing to manage and control this. Ultimately, it seems that social media apps are designed in a way that is not prioritizing user well-being from both a psychological and physical perspective (e.g., increased social media use means increase in sedentary behavior). As research initiatives on the effects of social media use increase, as does the seriousness of calls to action to design social media in a way that does not psychologically harm its users. As such, the results of this research and similar studies can be said to have psychological, sociological, and business ethical implications.

Limitations & Future Directions

This study had several limitations. For example, we only used data that represented mobile social media use (i.e., via a smartphone) as opposed to social media that was accessed via a laptop or a desktop computer. Moreover, in this study we examined time spent on five popular specific social media apps (i.e., Instagram, Facebook, TikTok, Twitter, Snapchat), but there are numerous other social media platforms that college students use (e.g., Reddit, YouTube). Therefore our data may not be representative of participants' total social media use. Future research should consider collecting more exhaustive data on social media use, including other possible apps and mediums (e.g., phone, laptop).

The generalizability of these findings are limited given our sample of 18-24 years old undergraduate students who were primarily women (68.1%) and who were primarily white (45.6%). College students are not only more susceptible to mental illness (relative to the general

population) but they are also more likely to engage in compulsive social media use, thus, a sample population of college students seemed justified for the purposes of this study. Data collected from other populations containing a wider age range (i.e., including children and adolescents as well as millennials, the considerable first generation to grow up on the internet), however, may provide more insight as to the effects of using social media for different populations. Future research should continue to collect social media data that is inclusive of all ages, as it is very likely that social media use and the effects resulting from it vary by age.

There are also some drawbacks to self-reported data. Although it is an easy way to collect information, there is a possibility of individual bias and reported values that are inaccurate. A more rigid way of collecting screen time data, such as collecting screenshots from participants' smartphones, would be beneficial for future research. In doing so, researchers would have a more objective measure of social media use, as opposed to a more subjective one.

Finally, this study was correlational in nature so we cannot assume causation. Intervention studies are required to see whether limiting the amount of time one spends on social media apps reduces mental health symptoms. Self-compassion interventions may also buffer the impact of social media on mental health.For example, practicing self-compassion could be an effective intervention for compulsive (i.e., addictive) social media use. Based on the results achieved in the present research, future studies should continue to explore the effects of use on specific social media apps and platforms. Future research may also consider examining psychological outcomes resulting from the use of dating apps, another intriguing novelty brought about by the establishment of the internet and mobile smartphones.

Conclusion

This study provides further clarity about the effects of social media use on the human psyche. Specific social media apps may have a more adverse effect on mental health (e.g., depression) while others may have more benefits for aspects from positive psychology (i.e., self-compassion). For example, although total social media use had no correlation with self-compassion, TikTok use was a significant predictor of depression and lower levels of self-compassion. FoMO and technological dependence were also significant negative predictors of self-compassion. Thus, further investigation is warranted as to the effect of social media-related variables and use on specific social media apps.

References

Apple. (December 06, 2021). *Use Screen Time on your iPhone, iPad, or iPod touch* . Retrieved from website address. https://support.apple.com/en-us/HT208982

Akram, W. (2018). A study on positive and negative effects of social media on society. *International Journal of Computer Sciences and Engineering*, *5*. https://doi.org/10.26438/ijcse/v5i10.351354

Andreassen, C. S., Billieux, J., Griffiths, M. D., Kuss, D. J., Demetrovics, Z., Mazzoni, E., & Pallesen, S. (2016). The relationship between addictive use of social media and video games and symptoms of psychiatric disorders: A large-scale cross-sectional study. *Psychology of Addictive Behaviors*, *30*(2), 252–262. https://doi.org/10.1037/adb0000160

Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2017a). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive Behaviors*, *64*, 287–293. https://doi.org/10.1016/j.addbeh.2016.03.006

Andreassen, C. S., Pallesen, S., & Griffiths, M. D. (2017b). The relationship between addictive use of social media, narcissism, and self-esteem: Findings from a large national survey. *Addictive Behaviors*, *64*, 287–293. https://doi.org/10.1016/j.addbeh.2016.03.006

Apaolaza, V., Hartmann, P., D'Souza, C., & Gilsanz, A. (2019). Mindfulness, compulsive mobile social media use, and derived stress: The mediating roles of self-esteem and social anxiety. *Cyberpsychology, Behavior, and Social Networking*, *22*(6), 388–396. https://doi.org/10.1089/cyber.2018.0681

Bailey, N. W., Nguyen, J., Bialylew, E., Corin, S. E., Gilbertson, T., Chambers, R., & Fitzgerald, P. B. (2018). Effect on well-being from an online mindfulness intervention: "Mindful in may." *Mindfulness*, *9*(5), 1637–1647. https://doi.org/10.1007/s12671-018-0910-7

Baker, Z. G., Krieger, H., & LeRoy, A. S. (2016). Fear of missing out: Relationships with depression, mindfulness, and physical symptoms. *Translational Issues in Psychological Science*, *2*(3), 275–282. https://doi.org/10.1037/tps0000075

Barry, C. T., Sidoti, C. L., Briggs, S. M., Reiter, S. R., & Lindsey, R. A. (2017). Adolescent social media use and mental health from adolescent and parent perspectives. *Journal of Adolescence*, *61*, 1–11. https://doi.org/10.1016/j.adolescence.2017.08.005

Birnbaum, L., & Birnbaum, A. (2004). In search of inner wisdom: Guided mindfulness meditation in the context of suicide. *The Scientific World JOURNAL*, *4*, 216–227. https://doi.org/10.1100/tsw.2004.17

Blackwell, D., Leaman, C., Tramposch, R., Osborne, C., & Liss, M. (2017). Extraversion, neuroticism, attachment style and fear of missing out as predictors of social media use and addiction. *Personality and Individual Differences*, *116*, 69–72. https://doi.org/10.1016/j.paid.2017.04.039

Bluth, K., & Neff, K. D. (2018). New frontiers in understanding the benefits of self-compassion. *Self and Identity*, *17*(6), 605–608. https://doi.org/10.1080/15298868.2018.1508494

Breines, J. G., & Chen, S. (2013). Activating the inner caregiver: The role of support-giving schemas in increasing state self-compassion. *Journal of Experimental Social Psychology*, *49*(1), 58–64. https://doi.org/10.1016/j.jesp.2012.07.015

Bright, L. F., Kleiser, S. B., & Grau, S. L. (2015). Too much facebook? An exploratory examination of social media fatigue. *Computers in Human Behavior*, *44*, 148–155. https://doi.org/10.1016/j.chb.2014.11.048

Broyd, S. J., Demanuele, C., Debener, S., Helps, S. K., James, C. J., & Sonuga-Barke, E. J. S. (2009). Default-mode brain dysfunction in mental disorders: A systematic review.

Neuroscience & Biobehavioral Reviews, *33*(3), 279–296. https://doi.org/10.1016/j.neubiorev.2008.09.002

Charmaraman, L., Lynch, A. D., Richer, A. M., & Grossman, J. M. (2022). Associations of early social media initiation on digital behaviors and the moderating role of limiting use. *Computers in Human Behavior*, *127*, 107053. https://doi.org/10.1016/j.chb.2021.107053

Davis, D. M., & Hayes, J. A. (2011). What are the benefits of mindfulness? A practice review of psychotherapy-related research. *Psychotherapy*, *48*(2), 198–208. https://doi.org/10.1037/a0022062

Dempsey, A. E., O'Brien, K. D., Tiamiyu, M. F., & Elhai, J. D. (2019). Fear of missing out (FoMO) and rumination mediate relations between social anxiety and problematic Facebook use. *Addictive Behaviors Reports*, *9*, 100150. https://doi.org/10.1016/j.abrep.2018.100150

Desrosiers, A., Vine, V., Klemanski, D. H., & Nolen-Hoeksema, S. (2013). Mindfulness and emotion regulation in depression and anxiety: Common and distinct mechanisms of action. *Depression and Anxiety*, *30*(7), 654–661. https://doi.org/10.1002/da.22124

Dhir, A. (2018). Online social media fatigue and psychological wellbeing—A study of compulsive use, fear of missing out, fatigue, anxiety and depression. *International Journal of Information Management*, 12.

Dhir, A., Yossatorn, Y., Kaur, P., & Chen, S. (2018). Online social media fatigue and psychological wellbeing—A study of compulsive use, fear of missing out, fatigue, anxiety and depression. *International Journal of Information Management*, *40*, 141–152. https://doi.org/10.1016/j.ijinfomgt.2018.01.012

Duradoni, M., Innocenti, F., & Guazzini, A. (2020). Well-being and social media: A systematic review of Bergen addiction scales. *Future Internet*, *12*(2), 24. https://doi.org/10.3390/fi12020024

Elhai, J. D., Levine, J. C., Dvorak, R. D., & Hall, B. J. (2016). Fear of missing out, need for touch, anxiety and depression are related to problematic smartphone use. *Computers in Human Behavior*, *63*, 509–516. https://doi.org/10.1016/j.chb.2016.05.079

Fardouly, J., Diedrichs, P. C., Vartanian, L. R., & Halliwell, E. (2015). Social comparisons on social media: The impact of Facebook on young women's body image concerns and mood. *Body Image*, *13*, 38–45. https://doi.org/10.1016/j.bodyim.2014.12.002

Ferrari, M., Hunt, C., Harrysunker, A., Abbott, M. J., Beath, A. P., & Einstein, D. A. (2019). Self-compassion interventions and psychosocial outcomes: A meta-analysis of rcts. *Mindfulness*, *10*(8), 1455–1473. https://doi.org/10.1007/s12671-019-01134-6

Franchina, V., Vanden Abeele, M., van Rooij, A., Lo Coco, G., & De Marez, L. (2018). Fear of missing out as a predictor of problematic social media use and phubbing behavior among flemish adolescents. *International Journal of Environmental Research and Public Health*, *15*(10), 2319. https://doi.org/10.3390/ijerph15102319

Gerlich, R. N., Browning, L., & Westermann, L. (2010a). *The social media affinity scale: Implications for education*. *3*(11), 8.

Gerlich, R. N., Browning, L., & Westermann, L. (2010b). The social media affinity scale: Implications for education. *Contemporary Issues in Education Research (CIER)*, *3*(11), 35. https://doi.org/10.19030/cier.v3i11.245

Gilbert, P., & Irons, C. (2008). Shame, self-criticism, and self-compassion in adolescence. In N. B. Allen & L. B. Sheeber (Eds.), *Adolescent Emotional Development and the Emergence of*

Depressive Disorders (pp. 195–214). Cambridge University Press. https://doi.org/10.1017/CBO9780511551963.011

Greeson, J. M. (2009). Mindfulness research update: 2008. *Complementary Health Practice Review*, *14*(1), 10–18. https://doi.org/10.1177/1533210108329862

Guntuku, S. C., Preotiuc-Pietro, D., Eichstaedt, J. C., & Ungar, L. H. (n.d.). *What Twitter Profile and Posted Images Reveal about Depression and Anxiety*. 11.

Harrington, R., & Loffredo, D. A. (2010). Insight, rumination, and self-reflection as predictors of well-being. *The Journal of Psychology*, *145*(1), 39–57. https://doi.org/10.1080/00223980.2010.528072

Hawi, N. S., & Samaha, M. (2017). The relations among social media addiction, self-esteem, and life satisfaction in university students. *Social Science Computer Review*, *35*(5), 576–586. https://doi.org/10.1177/0894439316660340

Higher emotional investment in social media is related to anxiety and depression in university students | Elsevier Enhanced Reader. (n.d.). https://doi.org/10.1016/j.jtumed.2020.11.004

Hogan, M., & Strasburger, V. C. (2018). Social media and new technology: A primer. *Clinical Pediatrics*, *57*(10), 1204–1215. https://doi.org/10.1177/0009922818769424

Hou, Y., Xiong, D., Jiang, T., Song, L., & Wang, Q. (2019). Social media addiction: Its impact, mediation, and intervention. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace*, *13*(1). https://doi.org/10.5817/CP2019-1-4

Houghton, S., Hunter, S. C., Rosenberg, M., Wood, L., Zadow, C., Martin, K., & Shilton, T. (2015). Virtually impossible: Limiting australian children and adolescents daily screen based media use. *BMC Public Health*, *15*(1), 5. https://doi.org/10.1186/1471-2458-15-5

Hunt, J., & Eisenberg, D. (2010). Mental health problems and help-seeking behavior among college students. *Journal of Adolescent Health*, *46*(1), 3–10. https://doi.org/10.1016/j.jadohealth.2009.08.008

Hunt, M. G., Marx, R., Lipson, C., & Young, J. (2018). No more fomo: Limiting social media decreases loneliness and depression. *Journal of Social and Clinical Psychology*, *37*(10), 751–768. https://doi.org/10.1521/jscp.2018.37.10.751

John, A. (2017). *Student attitudes on social media and perception of instructor social media use.* [University of Louisville]. https://doi.org/10.18297/etd/2647

Kabat-Zinn, J. (n.d.). *The foundation of mindfulness practice: Attitudes & commitment*. 10.

Kabat‐Zinn, J. (2003). Mindfulness-based interventions in context: Past, present, and future. *Clinical Psychology: Science and Practice*, *10*(2), 144–156. https://doi.org/10.1093/clipsy.bpg016

Kee, Y. H., Chatzisarantis, N. N. L. D., Kong, P. W., Chow, J. Y., & Chen, L. H. (2012). Mindfulness, movement control, and attentional focus strategies: Effects of mindfulness on a postural balance task. *Journal of Sport and Exercise Psychology*, *34*(5), 561–579. https://doi.org/10.1123/jsep.34.5.561

Keles, B., McCrae, N., & Grealish, A. (2020). A systematic review: The influence of social media on depression, anxiety and psychological distress in adolescents. *International Journal of Adolescence and Youth*, *25*(1), 79–93. https://doi.org/10.1080/02673843.2019.1590851

Keyte, R., Mullis, L., Egan, H., Hussain, M., Cook, A., & Mantzios, M. (2020). Self-compassion and instagram use is explained by the relation to anxiety, depression, and stress. *Journal of Technology in Behavioral Science*. https://doi.org/10.1007/s41347-020-00186-z

Killingsworth, M. A., & Gilbert, D. T. (2010). A wandering mind is an unhappy mind. *Science*, *330*(6006), 932–932. https://doi.org/10.1126/science.1192439

Krieger, T., Altenstein, D., Baettig, I., Doerig, N., & Holtforth, M. G. (2013). Self-compassion in depression: Associations with depressive symptoms, rumination, and avoidance in depressed outpatients. *Behavior Therapy*, *44*(3), 501–513. https://doi.org/10.1016/j.beth.2013.04.004

Lin, L. yi, Sidani, J. E., Shensa, A., Radovic, A., Miller, E., Colditz, J. B., Hoffman, B. L., Giles, L. M., & Primack, B. A. (2016). Association between social media use and depression among the U.S. Young adults. *Depression and Anxiety*, *33*(4), 323–331. https://doi.org/10.1002/da.22466

Liu, C., & Ma, J. (2020). Social media addiction and burnout: The mediating roles of envy and social media use anxiety. *Current Psychology*, *39*(6), 1883–1891. https://doi.org/10.1007/s12144-018-9998-0

Logan, K., Bright, L. F., & Grau, S. L. (2018). "Unfriend me, please!": Social media fatigue and the theory of rational choice. *Journal of Marketing Theory and Practice*, *26*(4), 357–367. https://doi.org/10.1080/10696679.2018.1488219

MacBeth, A., & Gumley, A. (2012). Exploring compassion: A meta-analysis of the association between self-compassion and psychopathology. *Clinical Psychology Review*, *32*(6), 545–552. https://doi.org/10.1016/j.cpr.2012.06.003

Marsh, I. C., Chan, S. W. Y., & MacBeth, A. (2018). Self-compassion and psychological distress in adolescents—A meta-analysis. *Mindfulness*, *9*(4), 1011–1027. https://doi.org/10.1007/s12671-017-0850-7

McCloughen, A., Foster, K., Huws-Thomas, M., & Delgado, C. (2012). Physical health and wellbeing of emerging and young adults with mental illness: An integrative review of

international literature. *International Journal of Mental Health Nursing*, *21*(3), 274–288. https://doi.org/10.1111/j.1447-0349.2011.00796.x

McComb, S. E., & Mills, J. S. (2021). Young women's body image following upwards comparison to instagram models: The role of physical appearance perfectionism and cognitive emotion regulation. *Body Image*, *38*, 49–62. https://doi.org/10.1016/j.bodyim.2021.03.012

Muise, A., Christofides, E., & Desmarais, S. (2009). More information than you ever wanted: Does facebook bring out the green-eyed monster of jealousy? *CyberPsychology & Behavior*, *12*(4), 441–444. https://doi.org/10.1089/cpb.2008.0263

Neff, K. (2003). Self-compassion: An alternative conceptualization of a healthy attitude toward oneself. *Self and Identity*, *2*(2), 85–101. https://doi.org/10.1080/15298860309032

Neff, K. D. (2003). The development and validation of a scale to measure self-compassion. *Self and Identity*, *2*(3), 223–250. https://doi.org/10.1080/15298860309027

Neff, K. D. (2009). The role of self-compassion in development: A healthier way to relate to oneself. *Human Development*, *52*(4), 211–214. https://doi.org/10.1159/000215071

Neff, K. D. (2011). Self-compassion, self-esteem, and well-being: Self-compassion, self-esteem, and well-being. *Social and Personality Psychology Compass*, *5*(1), 1–12. https://doi.org/10.1111/j.1751-9004.2010.00330.x

Neff, K. D. (2016). The self-compassion scale is a valid and theoretically coherent measure of self-compassion. *Mindfulness*, *7*(1), 264–274. https://doi.org/10.1007/s12671-015-0479-3

Neff, K. D., & Germer, C. K. (2013). A pilot study and randomized controlled trial of the mindful self-compassion program. *Journal of Clinical Psychology*, *69*(1), 28–44. https://doi.org/10.1002/jclp.21923

Neff, K. D., Kirkpatrick, K. L., & Rude, S. S. (2007). Self-compassion and adaptive psychological functioning. *Journal of Research in Personality*, *41*(1), 139–154. https://doi.org/10.1016/j.jrp.2006.03.004

Neff, K. D., Rude, S. S., & Kirkpatrick, K. L. (2007). An examination of self-compassion in relation to positive psychological functioning and personality traits. *Journal of Research in Personality*, *41*(4), 908–916. https://doi.org/10.1016/j.jrp.2006.08.002

Neff, K. D., Tóth-Király, I., Knox, M. C., Kuchar, A., & Davidson, O. (2021). The development and validation of the state self-compassion scale (long- and short form). *Mindfulness*, *12*(1), 121–140. https://doi.org/10.1007/s12671-020-01505-4

Neff, K. D., & Vonk, R. (2009). Self-compassion versus global self-esteem: Two different ways of relating to oneself. *Journal of Personality*, *77*(1), 23–50. https://doi.org/10.1111/j.1467-6494.2008.00537.x

NW, 1615 L. St, Suite 800 Washington, & Inquiries, D. 20036USA202-419-4300 | M.-857-8562 | F.-419-4372 | M. (n.d.). Demographics of social media users and adoption in the united states. *Pew Research Center: Internet, Science & Tech*. Retrieved May 7, 2021, from https://www.pewresearch.org/internet/fact-sheet/social-media/

O'Keeffe, G. S., Clarke-Pearson, K., & Council on Communications and Media. (2011). The impact of social media on children, adolescents, and families. *Pediatrics*, *127*(4), 800–804. https://doi.org/10.1542/peds.2011-0054

Perloff, R. M. (2014). Social media effects on young women's body image concerns: Theoretical perspectives and an agenda for research. *Sex Roles*, *71*(11–12), 363–377. https://doi.org/10.1007/s11199-014-0384-6

Poon, K.-T., & Jiang, Y. (2020). Getting less likes on social media: Mindfulness ameliorates the detrimental effects of feeling left out online. *Mindfulness*, *11*(4), 1038–1048. https://doi.org/10.1007/s12671-020-01313-w

Primack, B. A., Shensa, A., Escobar-Viera, C. G., Barrett, E. L., Sidani, J. E., Colditz, J. B., & James, A. E. (2017). Use of multiple social media platforms and symptoms of depression and anxiety: A nationally-representative study among u.s. young adults. *Computers in Human Behavior*, *69*, 1–9. https://doi.org/10.1016/j.chb.2016.11.013

Raes, F. (2010). Rumination and worry as mediators of the relationship between self-compassion and depression and anxiety. *Personality and Individual Differences*, *48*(6), 757–761. https://doi.org/10.1016/j.paid.2010.01.023

Rosen, L. D., Whaling, K., Carrier, L. M., Cheever, N. A., & Rokkum, J. (2013a). The media and technology usage and attitudes scale: An empirical investigation. *Computers in Human Behavior*, *29*(6), 2501–2511. https://doi.org/10.1016/j.chb.2013.06.006

Rosen, L. D., Whaling, K., Carrier, L. M., Cheever, N. A., & Rokkum, J. (2013b). The media and technology usage and attitudes scale: An empirical investigation. *Computers in Human Behavior*, *29*(6), 2501–2511.

Schivinski, B., Brzozowska-Woś, M., Stansbury, E., Satel, J., Montag, C., & Pontes, H. M. (2020). Exploring the role of social media use motives, psychological well-being, self-esteem, and affect in problematic social media use. *Frontiers in Psychology*, *11*, 617140. https://doi.org/10.3389/fpsyg.2020.617140

Sha, P., & Dong, X. (2021). Research on Adolescents Regarding the Indirect Effect of Depression, Anxiety, and Stress between TikTok Use Disorder and Memory Loss.

International Journal of Environmental Research and Public Health, *18*(16), 8820. https://doi.org/10.3390/ijerph18168820

Shapiro, S. L., Oman, D., Thoresen, C. E., Plante, T. G., & Flinders, T. (2008). Cultivating mindfulness: Effects on well-being. *Journal of Clinical Psychology*, *64*(7), 840–862. https://doi.org/10.1002/jclp.20491

Silber, E., & Tippett, J. S. (1965). Self-esteem: Clinical assessment and measurement validation. *Psychological Reports*, *16*(3_suppl), 1017–1071. https://doi.org/10.2466/pr0.1965.16.3c.1017

Simsek, A., Elciyar, K., & Kizilhan, T. (2019). A comparative study on social media addiction of high school and university students. *Contemporary Educational Technology*, *10*(2), 106–119. https://doi.org/10.30935/cet.554452

Slater, A., Varsani, N., & Diedrichs, P. C. (2017). #fitspo or #loveyourself? The impact of fitspiration and self-compassion instagram images on women's body image, self-compassion, and mood. *Body Image*, *22*, 87–96. https://doi.org/10.1016/j.bodyim.2017.06.004

Sponcil, M., & Gitimu, P. (n.d.). *Use of social media by college students: Relationship to communication and self-concept*. 13.

Sriwilai, K., & Charoensukmongkol, P. (2016). Face it, don't facebook it: Impacts of social media addiction on mindfulness, coping strategies and the consequence on emotional exhaustion. *Stress and Health*, *32*(4), 427–434. https://doi.org/10.1002/smi.2637

Stefan, C. A., & Cheie, L. (2020). Self-compassion and social anxiety in late adolescence: Contributions of self-reflection and insight. *Self and Identity*, 1–13. https://doi.org/10.1080/15298868.2020.1861082

Tadena, S., Kang, S. R., & Kim, S.-J. (2020). The influence of social media affinity on eating attitudes and body dissatisfaction in philippine adolescents. *Child Health Nursing Research*, *26*(1), 121–129. https://doi.org/10.4094/chnr.2020.26.1.121

Taylor, S. E., & Lobel, M. (n.d.). *Social comparison activity under threat_downward evaluation and upward contacts*. 7.

Tonelli, M. E., & Wachholtz, A. B. (2014). Meditation-based treatment yielding immediate relief for meditation-naïve migraineurs. *Pain Management Nursing*, *15*(1), 36–40. https://doi.org/10.1016/j.pmn.2012.04.002

Uram, P., & Skalski, S. (2020). Still logged in? The link between facebook addiction, fomo, self-esteem, life satisfaction and loneliness in social media users. *Psychological Reports*, 0033294120980970. https://doi.org/10.1177/0033294120980970

Utley, A., & Garza, Y. (2011). The therapeutic use of journaling with adolescents. *Journal of Creativity in Mental Health*, *6*(1), 29–41. https://doi.org/10.1080/15401383.2011.557312

Utz, S., Muscanell, N., & Khalid, C. (2015). Snapchat elicits more jealousy than facebook: A comparison of snapchat and facebook use. *Cyberpsychology, Behavior, and Social Networking*, *18*(3), 141–146. https://doi.org/10.1089/cyber.2014.0479

Vannucci, A., Flannery, K. M., & Ohannessian, C. M. (2017). Social media use and anxiety in emerging adults. *Journal of Affective Disorders*, *207*, 163–166. https://doi.org/10.1016/j.jad.2016.08.040

Vogel, E. A., Rose, J. P., Roberts, L. R., & Eckles, K. (2014). Social comparison, social media, and self-esteem. *Psychology of Popular Media Culture*, *3*(4), 206–222. https://doi.org/10.1037/ppm0000047

Wang, P., Wang, X., Nie, J., Zeng, P., Liu, K., Wang, J., Guo, J., & Lei, L. (2019). Envy and problematic smartphone use: The mediating role of FOMO and the moderating role of student-student relationship. *Personality and Individual Differences*, *146*, 136–142. https://doi.org/10.1016/j.paid.2019.04.013

Wang, P., Wang, X., Wu, Y., Xie, X., Wang, X., Zhao, F., Ouyang, M., & Lei, L. (2018). Social networking sites addiction and adolescent depression: A moderated mediation model of rumination and self-esteem. *Personality and Individual Differences*, *127*, 162–167. https://doi.org/10.1016/j.paid.2018.02.008

Weimann, G., & Masri, N. (2020). Research note: Spreading hate on tiktok. *Studies in Conflict & Terrorism*, 1–14. https://doi.org/10.1080/1057610X.2020.1780027

Whiting, A., & Williams, D. (2013). Why people use social media: A uses and gratifications approach. *Qualitative Market Research: An International Journal*, *16*(4), 362–369. https://doi.org/10.1108/QMR-06-2013-0041

Woods, H. C., & Scott, H. (2016). #sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal of Adolescence*, *51*, 41–49. https://doi.org/10.1016/j.adolescence.2016.05.008

Yang, C. (2016). Instagram Use, Loneliness, and Social Comparison Orientation: Interact and Browse on Social Media, But Don't Compare. *Cyberpsychology, Behavior, and Social Networking*, *19*(12), 703–708. https://doi.org/10.1089/cyber.2016.0201

Yang, C., Holden, S. M., & Carter, M. D. K. (2017). Emerging adults' social media self-presentation and identity development at college transition: Mindfulness as a moderator. *Journal of Applied Developmental Psychology*, *52*, 212–221. https://doi.org/10.1016/j.appdev.2017.08.006

Tables

Table 1

Sociodemographic Characteristics of Participants

Demographic Characteristic	*n*	%
Gender		
Men	54	29.7
Women	124	68.1
Non-Binary	4	2.2
Collegiate Class		
Freshman	10	9.6
Sophomore	17	16.3
Junior	37	35.6
Senior	40	38.5
Ethnicity		
African American/Black	9	4.9
Asian/Pacific Islander	41	22.5
Caucasian/White	83	45.6
Hispanic/Latinx	37	20.3
Middle Eastern/Arab	3	1.6
Native American	1	0.5
Multiracial	5	2.7
Other	3	1.6

Note. $N = 182$. Participants were on average 20.3 years old ($SD = 1.3$ years).

Table 2

Correlation Matrix for all Study Variables

Descriptive Statistics (Means, Standard Deviations) and Correlations for Study Variables

Variable	*M*	*SD*	*1*	2	3	4	5	6	7	8	9	10	11	12	13
1. Self-Compassion	2.82	0.67	—												
2. Mindfulness	3.68	0.74	.36**	—											
3. Self-esteem	17.93	5.84	.71**	.36**	—										
4. Depression	11.89	9.99	-.60**	-.44*	-.72**	—									
5. Anxiety	11.13	9.71	-.40**	-.45**	-.50**	.66**	—								
6. Stress	15.29	9.31	-.58**	-.51**	-.63**	.73**	.73**	—							
7. FoMO	2.64	0.83	-.32**	-.35**	-.31**	.32**	.33**	.38**	—						
8. Est. SM Use [a]	4.64	2.88	-.06	-.12	-.09	.02	.06	.06	.14*	—					
9. Tech Depend.	3.57	0.95	-.19**	-.29**	-.15*	.21**	.14*	.17*	.28**	0.12	—				
10. SM Affinity	48.79	5.67	.07	.02	.03	-.04	.01	.01	.21**	.17*	.31**	—			
11. SM Fatigue	3.75	1.13	.00	-.11	-.08	.11	.12	.20**	0.12	0.05	.12	-.15*	—		
12. SM Addiction	16.21	4.80	-.20**	-.29*	-.18**	.25**	.19**	.25**	.33**	.25**	.42**	.10	.27**	—	
13. Tik Tok Use	1.03	1.30	-.19**	-.15*	-.12	.19**	.09	.14*	.16*	.32**	.07	-.01	.13	.24**	—
14. Actual SM Use [b]	2.82	1.94	-.07	-.15*	-.10	.13	.16*	0.12	.17*	.40**	.15*	.05	0.00	.24**	.70**

[a] Est. SM Use refers to participants' total *estimated* time spent on social media across all apps.

[b] Actual SM Use refers to participants' total actual time spent on social media across all apps (i.e., composite number calculated by taking the sum of all of their daily averages, in hours, for each of the five social media apps, using participants' Screen Time data)

$p < .05^{*} < .01^{**} < .001^{***}$

Table 3

Correlation Matrix: Self-Compassion and Time Spent on Specific Apps

Variable	*M*	*SD*	1	2	3	4	5	6
1. Self-Compassion	2.82	0.67	—					
2. Instagram Use	0.85	0.81	0.12	—				
3. Facebook Use	0.13	0.33	-0.02	0.16**	—			
4. Tik Tok Use	1.03	1.30	-0.19**	−0.04	-0.03	—		
5. Twitter Use	0.24	0.55	-0.06	-0.13	0.01	0.12	—	
6. Snapchat Use	0.57	0.65	0.08	0.24**	0.11	0.06	0.18**	—

Note. $p < .05^{*} < .01^{**} < .001^{***}$

Table 4

Multiple Regression Analyses Results: Effect on Social Media Use by Psychological Variables

Effect	Estimate	*SE*	df	*t*-value	*p*
Social Media Use					
Intercept	2.45	.28	178	8.87	< .001***
Depression	.01	.03	178	.50	.62
Anxiety	.03	.02	178	1.19	.24
Stress	-.003	.03	178	-.14	.89
Social Media Use					
Intercept	4.37	.76	179	5.78	< .001***
Mindfulness	-.34	.21	179	-1.63	.10
Self-Esteem	-.02	.03	179	-.64	.53

Note. Two distinct linear models were built to investigate whether various psychological variables predicted total time spent on social media. The first featured psychopathological symptoms (i.e., depression, anxiety, stress) as predictors, and the second featured positive psychological aspects (i.e., mindfulness, self-esteem) as predictors. This was replicatory.

$p < .05^{*} < .01^{**} < .001^{***}$

Table 5

Multiple Regression Analyses Results: Effect on DASS-21 by Use on Indiv. Social Media Apps

Effect	Estimate	*SE*	df	*t*-value	*p*
Depression					
Intercept	11.19	1.30	176	8.63	< .001***
Instagram Use	-2.44	.93	176	-2.61	.01**
Facebook Use	4.15	2.17	176	1.91	.06 .
TikTok Use	1.36	.56	176	2.45	.02*
Twitter Use	1.68	1.34	176	1.23	.21
Snapchat Use	.78	1.15	176	.67	.50
Anxiety					
Intercept	9.67	1.25	176	7.75	< .001***
Instagram Use	-1.62	.89	176	-1.80	.07 .
Facebook Use	2.43	2.09	176	1.16	.25
TikTok Use	.38	.54	176	.70	.48
Twitter Use	4.22	1.29	176	3.27	.001**
Snapchat Use	1.99	1.12	176	1.77	.08 .
Stress					
Intercept	14.48	1.23	176	11.77	< .001***
Instagram Use	-1.64	.89	176	-1.84	.07 .
Facebook Use	.96	2.06	176	.47	.64
TikTok Use	.84	.53	176	1.60	.11
Twitter Use	2.18	1.27	176	1.71	.08 .
Snapchat Use	1.20	1.11	176	1.09	.28

Note. Three distinct linear models were built to investigate whether use on specific social media apps predicted levels of depression, anxiety, and stress, respectively. This was replicatory.

$p < .1$. p < .05* < .01** < .001***

Table 6

Multiple Regression Analyses: Effect on Mindfulness and Self-Esteem by Social Media Variables

Effect	Estimate	*SE*	df	*t*-value	*p*
Mindfulness					
Intercept	4.25	.49	175	8.60	< .001***
Social Media Use	-.02	.03	175	-.71	.48
Fear of Missing Out	-.25	.07	175	-3.79	.0002***
Dependence to Tech	-.16	.06	175	-2.56	.011*
Social Media Affinity	.02	.01	175	2.16	.03*
Social Media Fatigue	-.002	.05	175	-.05	.96
Social Media Addiction	-.018	.01	175	-1.46	.15
Self-Esteem					
Intercept	20.23	4.11	175	4.92	< .001***
Social Media Use	-.08	.22	175	-.38	.71
Fear of Missing Out	-2.05	.55	175	-3.74	.0003***
Dependence to Tech	-.46	.51	175	-.90	.37
Social Media Affinity	.13	.08	175	1.59	.11
Social Media Fatigue	.005	.39	175	.01	.99
Social Media Addiction	-.07	.10	175	-.72	.47

Note. Two distinct linear models were built to investigate whether specific social media-related variables predicted levels of mindfulness and self-esteem, respectively. This was also replicatory.

$p < .1$. p < .05* < .01** < .001***

Table 7

Results of the Multiple Regression Analysis: Effect on Self-Compassion by Social Media App

Effect	Estimate	*SE*	df	*t*-value	*p*
Self-Compassion					
Intercept	2.94	.11	175	25.65	< .001***
Instagram Use	.08	.06	175	1.25	.21
Facebook Use	-.11	.15	175	-.71	.48
TikTok Use	-.08	.04	175	-2.04	.04*
Twitter Use	-.04	.09	175	-.46	.65
Snapchat Use	.06	.08	175	.77	.44
Gender	-.17	.10	175	-1.65	.10

Note. $p < .05* < .01** < .001***$

Table 8

Results of the Multiple Regression Analysis: Effect on Self-Compassion by Social Media Variable

Effect	Estimate	*SE*	df	*t*-value	*p*
Self-Compassion					
Intercept	2.59	.92	174	2.82	< .01**
Social Media Use	.006	.03	174	.24	.81
Fear of Missing Out	-.25	.06	174	-4.03	< .001***
Dependence to Tech	-.09	.06	174	-1.72	.09 .
Social Media Affinity	.02	.008	174	2.66	.009**
Social Media Fatigue	.06	.04	174	1.43	.15
Social Media Addiction	-.01	.01	174	-1.16	.25
Age	.001	.04	174	.05	.96

Note. $p < .1$. $p < .05* < .01** < .001***$

Table 9

Multiple Regression Analyses Results: Effect on Social Media Use by Psychological Variables 2

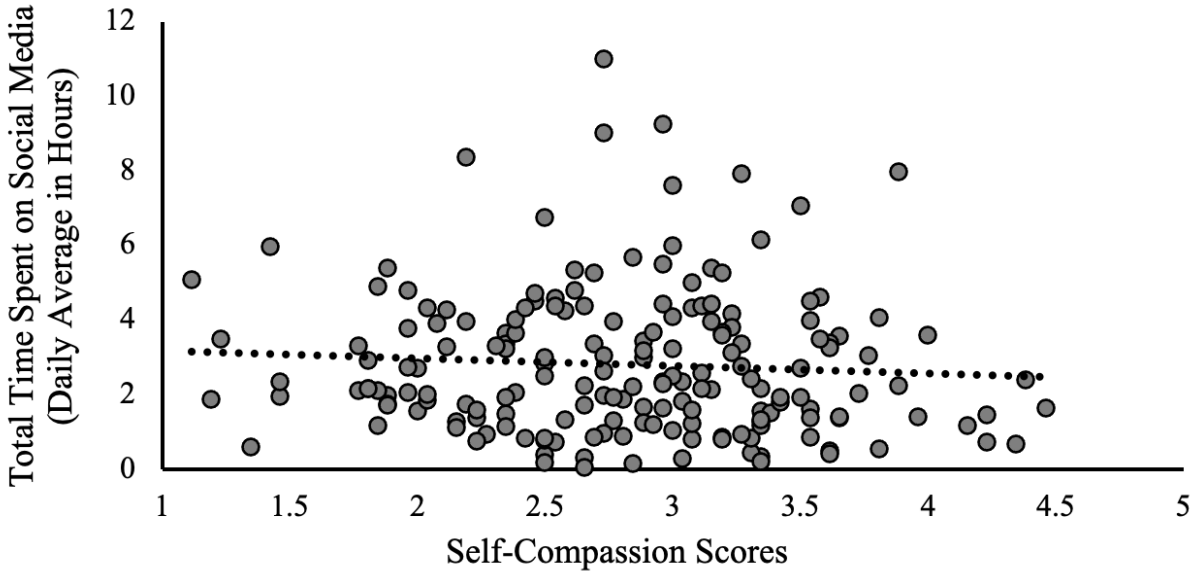
Effect	Estimate	*SE*	df	*t*-value	*p*
Social Media Use					
Intercept	2.31	1.00	177	2.31	.022*
Depression	.01	.02	177	.51	.1
Anxiety	.02	.02	177	1.1	.25
Stress	-.003	.03	177	-.09	.93
Self-Compassion	.04	.28	177	.14	.89
Social Media Use					
Intercept	4.29	.82	178	5.22	< .001***
Mindfulness	-.35	.32	178	-1.65	.10
Self-Esteem	-.02	.04	178	-.65	.51
Self-Compassion	.08	.31	178	.27	.79

Note. $p < .05$* < .01** < .001***

Figures

Figure 1

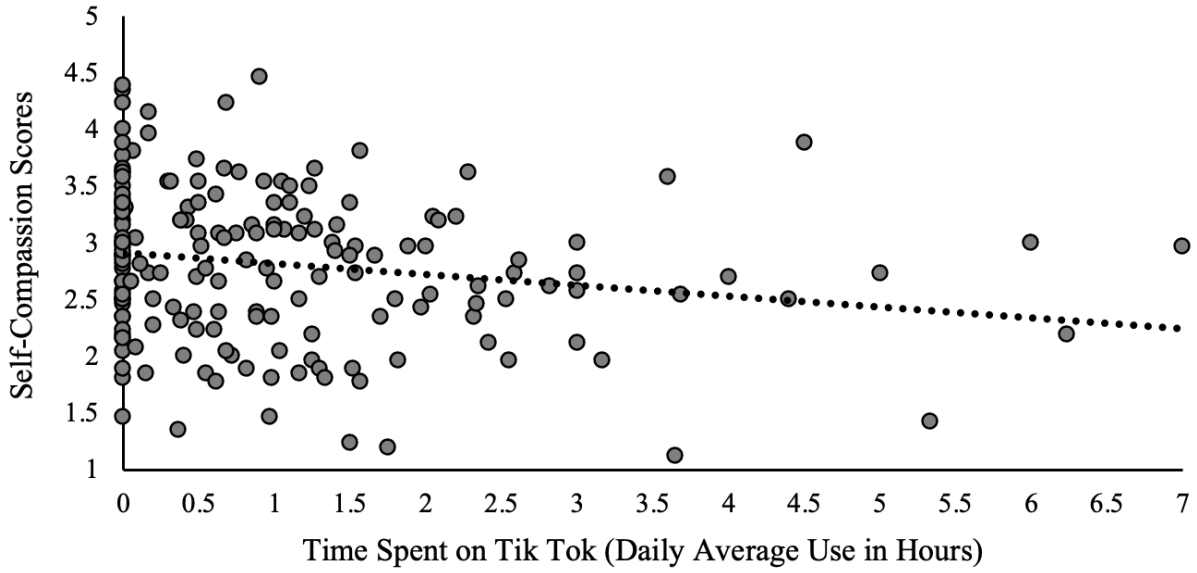
Tendency for Social Media Use to Inversely Correlate with Self-Compassion was Not Significant



Note. Although there was a negative correlation found between self-compassion scores and total time spent on social media (represented by the dashed trendline on the plot), it was a weak association, $r(182) = -.07$, $p > 0.35$.

Figure 2

Tik Tok Use Significantly, Negatively Correlated with Self-Compassion



Note. While not all of our participants used Tik Tok (as indicated by the data points along the y-axis), it's evident that, among those who do, more hours spent on Tik Tok correlated with lower levels of self-compassion, on average, $r(180) = -.19$, $p < .01$.

Appendix A - Questionnaires

Bergen Social Media Addiction Scale

(BSMAS; Andreassen et al., 2016)

Instruction: Below you find some questions about your relationship to and use of social media (*Facebook, Twitter, Instagram*, and the like). Choose the response alternative for each question that best describes you.

How often during the last year have you . . .	Very rarely	Rarely	Sometimes	Often	Very often
. . . spent a lot of time thinking about social media or planned use of social media?[1]	❑	❑	❑	❑	❑
. . . felt an urge to use social media more and more?[2]	❑	❑	❑	❑	❑
. . . used social media to forget about personal problems?[3]	❑	❑	❑	❑	❑
. . . tried to cut down on the use of social media without success?[4]	❑	❑	❑	❑	❑
. . . become restless or troubled if you have been prohibited from using social media?[5]	❑	❑	❑	❑	❑
. . . used social media so much that it has had a negative impact on your job/studies?[6]	❑	❑	❑	❑	❑

Note. Addiction component: [1] salience, [2] craving/tolerance, [3] mood modification, [4] relapse/loss of control, [5] withdrawal, [6] conflict/functional impairment. All items are scored on the following scale: 1 (*very rarely*), 2 (*rarely*), 3 (*sometimes*), 4 (*often*), 5 (*very often*).

Fear of Missing Out Scale

(FoMOs; Przybylski et al., 2013)

Participant Instructions

Below is a collection of statements about your everyday experience. Using the scale provided please indicate how true each statement is of your general experiences. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item.

Response Anchors

Not at all true of me	1
Slightly true of me	2
Moderately true of me	3
Very true of me	4
Extremely true of me	5

Items

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 share the details online (e.g. updating status).
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.

Rosenberg Self-Esteem Scale

(RSE; Rosenberg, 1965)

Instructions

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

1. On the whole, I am satisfied with myself.

Strongly Agree Agree Disagree Strongly Disagree

2. At times I think I am no good at all.

Strongly Agree Agree Disagree Strongly Disagree

3. I feel that I have a number of good qualities.

Strongly Agree Agree Disagree Strongly Disagree

4. I am able to do things as well as most other people.

Strongly Agree Agree Disagree Strongly Disagree

5. I feel I do not have much to be proud of.

Strongly Agree Agree Disagree Strongly Disagree

6. I certainly feel useless at times.

Strongly Agree Agree Disagree Strongly Disagree

7. I feel that I'm a person of worth, at least on an equal plane with others.

Strongly Agree Agree Disagree Strongly Disagree

8. I wish I could have more respect for myself.

Strongly Agree Agree Disagree Strongly Disagree

9. All in all, I am inclined to feel that I am a failure.

Strongly Agree Agree Disagree Strongly Disagree

10. I take a positive attitude toward myself.

Strongly Agree Agree Disagree Strongly Disagree

Mindful Attention Awareness Scale

(MAAS; Brown & Ryan, 2003)

Day-to-Day Experiences

Instructions: Below is a collection of statements about your everyday experience. Using the 1-6 scale below, please indicate how frequently or infrequently you currently have each experience. Please answer according to what *really reflects* your experience rather than what you think your experience should be. Please treat each item separately from every other item.

1	2	3	4	5	6
Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never

I could be experiencing some emotion and not be conscious of it until some time later.	1	2	3	4	5	6
I break or spill things because of carelessness, not paying attention, or thinking of something else.	1	2	3	4	5	6
I find it difficult to stay focused on what's happening in the present.	1	2	3	4	5	6
I tend to walk quickly to get where I'm going without paying attention to what I experience along the way.	1	2	3	4	5	6
I tend not to notice feelings of physical tension or discomfort until they really grab my attention.	1	2	3	4	5	6
I forget a person's name almost as soon as I've been told it for the first time.	1	2	3	4	5	6
It seems I am "running on automatic," without much awareness of what I'm doing.	1	2	3	4	5	6
I rush through activities without being really attentive to them.	1	2	3	4	5	6
I get so focused on the goal I want to achieve that I lose touch with what I'm doing right now to get there.	1	2	3	4	5	6
I do jobs or tasks automatically, without being aware of what I'm doing.	1	2	3	4	5	6
I find myself listening to someone with one ear, doing something else at the same time.	1	2	3	4	5	6

1	2	3	4	5	6
Almost Always	Very Frequently	Somewhat Frequently	Somewhat Infrequently	Very Infrequently	Almost Never

I drive places on 'automatic pilot' and then wonder why I went there.	1	2	3	4	5	6
I find myself preoccupied with the future or the past.	1	2	3	4	5	6
I find myself doing things without paying attention.	1	2	3	4	5	6
I snack without being aware that I'm eating.	1	2	3	4	5	6

Self-Compassion Scale

(SCS; Neff, 2003b)

HOW I TYPICALLY ACT TOWARDS MYSELF IN DIFFICULT TIMES

Please read each statement carefully before answering. For each item, indicate how often you behave in the stated manner, using the following 1-5 scale. Please answer according to what really reflects your experience rather than what you think your experience should be.

Almost never				Almost always
1	2	3	4	5

1. I'm disapproving and judgmental about my own flaws and inadequacies.
2. When I'm feeling down I tend to obsess and fixate on everything that's wrong.
3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
5. I try to be loving towards myself when I'm feeling emotional pain.
6. When I fail at something important to me I become consumed by feelings of inadequacy.
7. When I'm down, I remind myself that there are lots of other people in the world feeling like I am.
8. When times are really difficult, I tend to be tough on myself.
9. When something upsets me I try to keep my emotions in balance.
10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
11. I'm intolerant and impatient towards those aspects of my personality I don't like.
12. When I'm going through a very hard time, I give myself the caring and tenderness I need.
13. When I'm feeling down, I tend to feel like most other people are probably happier than I am.
14. When something painful happens I try to take a balanced view of the situation.
15. I try to see my failings as part of the human condition
16. When I see aspects of myself that I don't like, I get down on myself.
17. When I fail at something important to me I try to keep things in perspective.
18. When I'm really struggling, I tend to feel like other people must be having an easier time of it.
19. I'm kind to myself when I'm experiencing suffering.
20. When something upsets me I get carried away with my feelings.
21. I can be a bit cold-hearted towards myself when I'm experiencing suffering.
22. When I'm feeling down I try to approach my feelings with curiosity and openness.
23. I'm tolerant of my own flaws and inadequacies.
24. When something painful happens I tend to blow the incident out of proportion.
25. When I fail at something that's important to me, I tend to feel alone in my failure.
26. I try to be understanding and patient towards those aspects of my personality I don't like.

DASS-21 Scale

(DASS-21; Lovibond & Lovibond, 1995)

Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you **over the past week**. There are no right or wrong answers. Do not spend too much time on any statement.

The rating scale is as follows:

0 Did not apply to me at all
1 Applied to me to some degree, or some of the time
2 Applied to me to a considerable degree or a good part of time
3 Applied to me very much or most of the time

1 (s)	I found it hard to wind down	0	1	2	3
2 (a)	I was aware of dryness of my mouth	0	1	2	3
3 (d)	I couldn't seem to experience any positive feeling at all	0	1	2	3
4 (a)	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
5 (d)	I found it difficult to work up the initiative to do things	0	1	2	3
6 (s)	I tended to over-react to situations	0	1	2	3
7 (a)	I experienced trembling (e.g. in the hands)	0	1	2	3
8 (s)	I felt that I was using a lot of nervous energy	0	1	2	3
9 (a)	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
10 (d)	I felt that I had nothing to look forward to	0	1	2	3
11 (s)	I found myself getting agitated	0	1	2	3
12 (s)	I found it difficult to relax	0	1	2	3
13 (d)	I felt down-hearted and blue	0	1	2	3
14 (s)	I was intolerant of anything that kept me from getting on with what I was doing	0	1	2	3
15 (a)	I felt I was close to panic	0	1	2	3
16 (d)	I was unable to become enthusiastic about anything	0	1	2	3
17 (d)	I felt I wasn't worth much as a person	0	1	2	3
18 (s)	I felt that I was rather touchy	0	1	2	3
19 (a)	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
20 (a)	I felt scared without any good reason	0	1	2	3
21 (d)	I felt that life was meaningless	0	1	2	3

Social Media Fatigue Scale

(Bright et al., 2015)

Dependent variable
Social media fatigue
I am likely to receive too much information when I am searching for something on social media sites
I am frequently overwhelmed by the amount of information available on social media sites
I find that social media sites do not have enough detail to quickly find the information I am looking for
The amount of information available on social media sites makes me feel tense and overwhelmed
When searching for information on social media sites, I frequently just give up because there is too much to deal with

Social Media Affinity Scale

(SMA; Gerlich et al., 2010)

Item	Statement	Factor 1: Redeeming Value	Factor 2: Shared Interests	Factor 3: Business & Organizations
1	Social networks are a great way for people to stay in touch with one another.		.435	
2	Social network sites are a waste of time. (**)	.694		
3	Social networks allow people with similar interests to stay connected.		.810	.
4	It consumes too much time to maintain and/or read social networking pages. (**)	.521		
5	It is important for a person to have his or her own social networking page in which they can tell about themselves and their activities.	.570		
6	I want to read about my friends and/or family members on their social network pages.	.547		
7	Potential and/or existing employers may use information found on social networking pages to make decisions about prospective and/or existing employees.			.644
8	Social network sites are a great way to build online communities of people with shared interests or traits.		.808	
9	Social networking sites are just a fad. (**)	.733		
10	I do not care what other people are doing. (**)	.718		
11	The emergence of social networking sites illustrates a growing need among people for a sense of community.			.616
12	A social network could be an effective communications tool in a college class.	.563		
13	Social networking sites have great potential for marketing businesses and/or individuals.			.706

(*) Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization
(**) These items were recoded for analysis

The Media and Technology Usage and Attitudes Scale

Specifically, the Attitudes. Subscale // Dependence Subscale [3 items]

(MTUAS; Rosen et al., 2013)

Attitudes. subscales

These subscales includes 16 items, which comprise four subscales: Positive Attitudes Toward Technology (6 items), Anxiety About Being Without Technology or Dependence on Technology (3 items), Negative Attitudes Toward Technology (3 items) and Preference for Task Switching (4 items)

5-point Likert scale for all items (with scoring in parentheses)

Strongly agree (5)

Agree (4)

Neither agree nor disagree (3)

Disagree (2)

Strongly disagree (1)

1. (Positive attitudes) I feel it is important to be able to find any information whenever I want online.
2. (Positive attitudes) I feel it is important to be able to access the Internet any time I want.
3. (Positive attitudes) I think it is important to keep up with the latest trends in technology.
4. (Anxiety/dependence) I get anxious when I don't have my cell phone.
5. (Anxiety/dependence) I get anxious when I don't have the Internet available to me.
6. (Anxiety/dependence) I am dependent on my technology.
7. (Positive attitudes) Technology will provide solutions to many of our problems.
8. (Positive attitudes) With technology anything is possible.
9. (Positive attitudes) I feel that I get more accomplished because of technology.
10. (Negative attitudes) New technology makes people waste too much time.
11. (Negative attitudes) New technology makes life more complicated.
12. (Negative attitudes) New technology makes people more isolated.
13. (Preference for task switching) I prefer to work on several projects in a day, rather than completing one project and then switching to another.
14. (Preference for task switching) When doing a number of assignments, I like to switch back and forth between them rather than do one at a time.
15. *(Preference for task switching) I like to finish one task completely before focusing on anything else.
16. (Preference for task switching) When I have a task to complete, I like to break it up by switching to other tasks intermittently.

*Scoring for item 15 is reversed with strongly agree = 1 and strongly disagree = 5.