

**Problematic social media use is associated with poorer attention and increased media  
Multitasking behavior**

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## Abstract

Social media use can be a positive way to maintain social connections. However, it can also be used problematically and negatively impact people's lives. Problematic social media use shares some characteristics with substance abuse addictions. With the rise of the attention economy, social media platforms make profit by designing their sites to be addictive in nature. Therefore, it is important to understand how problematic social media use and attention-related cognitive abilities are connected. We examined this relationship by measuring participants' (N = 903) problematic social media use, attentional control, susceptibility to attentional errors, and tendency to engage in media multitasking behavior. We found that a greater tendency to report experiencing attentional errors and a greater difficulty switching attention is associated with problematic social media use. In addition, a greater tendency to engage in media multitasking behavior corresponds with increased problematic social media use. Specifically, multitasking while talking to others face to face, texting, using nonsocial text-oriented websites, video calling, and doing homework are most strongly related to increased problematic social media use. Understanding the behaviors and cognitive states that are associated with problematic use of social media can reveal risk factors and help individuals prevent their social media use from becoming addictive in nature.

## Introduction

As of 2021, 72% of Americans used some form of social media (Pew Research Center, 2021). Using social media can have positive impacts such as fostering social connections (Meshi, Tamir, & Heekeren, 2015). However, it can also become problematic and negatively impact one's life. Social media provides rewards, in the form of features such as likes, comments, and followers, that are often designed to take advantage of users' desire for social validation (Bhargava, 2020). Problematic social media use shares characteristics with substance abuse addictions, such as preoccupation, mood modification, tolerance, conflict, withdrawal, and relapse (Griffiths et al., 2014). However, because social media addiction is not characterized as a mental disorder in the fifth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), this paper discusses problematic social media use (APA, 2013).

Other substance-related or behavioral addictions with which problematic social media use shares symptoms are gambling disorder and substance abuse disorder. Both are documented in the DSM-5. The DSM-5 defines gambling disorder as persistent problematic gambling behavior leading to clinically significant impairment or distress (DSM-5 diagnostic criteria: Gambling disorder - NCPG). Both of these disorders share the same six major underlying constructs with problematic social media use. Preoccupation describes persistent thoughts about reliving past experiences with a reward or focusing lots of time and effort on contemplating how to achieve the rewards of a problematic behavior. Mood modification involves engaging in the harmful behavior, whether it be drinking, gambling, or social media use, when one feels distressed and hopes to improve their mood. Tolerance to the rewards of the behavior refers to people engaging with the problematic behavior at higher rates to achieve the desired effect or experiencing a

diminished effect of the rewards with continued use of the same rate or quantity. The symptom of conflict can be social or professional and it encompasses continuing to engage in the behavior despite having social problems caused by the addiction or the behavior interfering with the fulfillment of work, home, or school-related obligations. Withdrawal describes the experience of feeling restless or irritable when trying to cut down on a behavior. Finally, relapse describes unsuccessful attempts to control or cut back on the behavior (Diagnosis reference guide A).

Past research has found links between addictive behaviors in the DSM-5 and attentional measures. Specifically, research has linked addictions with impulsive decision making, and attention has been theorized to play a role in decision-making processes (Anderson, 2016). Research by Anderson has examined the role of attentional bias in addictive behaviors, such as substance abuse and gambling. Attentional bias describes the ability for stimuli that are associated with a reward to automatically capture one's attention over other stimuli. In the case of gambling disorder, the reward may be money, making someone more likely to attend to stimuli that are associated with acquiring money. This kind of reward-driven attention can impact how people make decisions about engaging with their environment. Furthermore, this attentional bias can be a differentiator between people who have experienced addictions and those who have not. Among people with histories of substance abuse, stimuli associated with the substance at hand had the ability to capture their attention and this did not occur among individuals who had no history of substance abuse. Furthermore, even if reward-related cues are not related to a present task, they may still evoke a strong attentional response (Anderson, 2012). This may have implications for the conflict component of addictive disorders, which is also a symptom of problematic social media use (Griffiths, 2005). Reward-related stimuli may have the ability to

distract people from completing the task at hand, leading to the inability to fulfill work, family, or school obligations. More generally, attentional biases for reward-related stimuli may become pathological when the behaviors, such as consuming substances and gambling, are no longer beneficial (Anderson, 2016).

Because of the past research establishing that attention plays a role in addictive disorders, it is worth investigating other types of attentional behavior in relation to addictive behaviors. The specific attentional constructs this study examines are attentional control, cognitive-related attentional errors, and media multitasking. Attentional control describes the ability to orient and shift one's attention (Derryberry & Reed, 2002). Previous research has found that lower attentional control, so a decreased ability to control how one orients and shifts their attention, mediates the relationship between post-traumatic stress symptoms and alcohol abuse (Preston et al., 2020). A proposed explanation of these findings is that those with diminished attentional control resulting from increased post-traumatic stress symptoms may face difficulty disengaging their attention from alcohol cues, possibly turning to alcohol use to relieve the distress from post-traumatic stress symptoms. This behavior is an example of one of the common addiction symptoms: mood modification (Griffiths et al., 2014). In addition, lower attentional control, as measured with the attentional control scale, is positively correlated with the severity of gambling behavior (Spada & Roarty, 2015). Given previous correlations between attentional control and addictive behaviors, examining the relationship between attentional control and problematic social media use can provide more information regarding the construct of problematic social media use and its addictive nature.

Previous research has also found links between addictive behaviors and media multitasking. Media multitasking involves simultaneously engaging with two activities when at least one is media-based (Ralph, 2018). More frequent media multitasking is associated with reactive, impulsive decision making and prioritizing immediate rewards over future ones (Schutten et al., 2017). This is called delay discounting, which is also associated with substance misuse and problematic gambling. Due to this, people who engage with media multitasking at greater levels may be at risk for disorders that are associated with preference for immediate rewards over future rewards. Furthermore, individuals with higher scores on the Media Multitasking Index performed worse on the Iowa Gambling Task (Müller et al., 2021). The Iowa Gambling Task measures value-based decision making through providing participants with feedback that of four decks of cards, two are advantageous, meaning they would result in positive outcomes in the long run, and the others are not. Participants are evaluated on their ability to learn from the feedback and adjust their behavior accordingly. Previous studies have also found that those who use social media sites in excessive, problematic ways may make more risky decisions on the Iowa Gambling Task (Meshi, 2019). Therefore, it is important to investigate whether there is a direct link between media multitasking behavior and problematic, excessive social media use.

Now that we have established previous links between addictive behaviors and attention, it is also important to note the associations found between problematic social media use and those addictive behaviors. Problematic social media use, as defined by six addictive constructs, was found to be associated with problematic gambling, problematic gaming (Henzel & Hakansson, 2021), and using alcohol to cope with negative emotions (Holmes, 2016).

Previous research has revealed connections between attention and addictive behaviors as well as shared symptoms between problematic social media use and addictive behaviors. This study extends on the literature to examine whether there is a direct link between attention and problematic social media use, which is contextualized as sharing characteristics with addictive behaviors. As mentioned above, in order to assess potential connections between problematic social media use and attention, this study focuses on three measures of attention: attentional control, attention-related cognitive errors, and media multitasking. Attentional control involves two factors: a difficulty switching attention and difficulty controlling distractions (Carriere, 2013). For example, if someone has difficulty concentrating when there is music in the room around them, this would be an indication of a greater tendency to experience distractions, revealing a lower level of attentional control. Attention-related cognitive errors refer to performance failures that result from brief failures of sustained attention (Cheyne et al., 2006). Media multitasking involves simultaneously engaging with at least two media types or engaging with one form of media at the same time as a non-media-based activity (Ralph, 2018).

The relationship between problematic social media use and these attention-related behaviors has not been thoroughly examined. This study builds on the established link between attentional measures and addictive behaviors as well as the parallel symptoms of addictive behaviors and problematic social media use by examining whether there are direct relationships with various attentional measures and problematic social media use. Examining this relationship will provide more insight into the construct of problematic social media use and situates it in relation to addictive behaviors.

## Methods

### *Participants*

We recruited 903 U.S. college students (205 from a mid-sized private university in the Northeast and 698 from a large public university in the Midwest) to complete a survey about their social media use habits and attentional capabilities for course credit. We excluded 159 participants from data analysis if they did not pass attention checks embedded in the survey as disguised questions (e.g., “Which of these is a vegetable? potato or chair”). We also excluded three individuals who did not identify as male or female because the small group size would have yielded inconclusive results. Our final sample consisted of 756 participants. Of these respondents, 40% were male ( $n = 305$ ) and 60% were female ( $n = 451$ ). Participants’ ages ranged from 18 to 42 ( $M = 20$ ,  $SD = 2.1$ ). All participants provided written consent according to the Declaration of Helsinki, and our protocol was approved by both university IRBs.

### *Measures*

*Problematic Social Media Use.* We measured problematic social media use with the Bergen Social Media Addiction Scale, which is adapted from the Bergen Facebook Addiction Scale (Andreassen, Torsheim, Brunborg, & Pallesen, 2012). This questionnaire consists of 6 items, each of which measures a facet of addiction: preoccupation, mood modification, tolerance, conflict, withdrawal, and relapse (Griffiths, 2005). Example items include “Do you use social media in order to forget about personal problems?” and “Do you ever feel an urge to use social media more and more?” Items are rated on a 5-point scale ranging from (1) very rarely to (5) very often. Scores were calculated by taking the sum of all items, with higher scores indicating a



greater level of problematic social media use. In this study's sample ( $N = 756$ ), the mean BSMAS score was  $M = 14.1$ ,  $SD = 4.61$  (range: 6–30; Cronbach's  $\alpha = 0.83$ ).

*Attentional Control: Switching and Distractibility.* The Attentional Control Scale (Carriere, 2013), an 8-item questionnaire, measures individual differences in two factors of attentional control: (a) difficulties with attentional switching and (b) attentional distraction. The Attentional Control-Switching (AC-S) includes items such as “I am slow to switch from one task to another” and Attentional Control-Distractibility (AC-D) includes items such as “I have difficulty concentrating when there is music in the room around me”. Items are rated on a 5-point scale ranging from (1) almost never to (5) always. Scores were calculated by taking the average of all items, with higher scores reflecting greater difficulty in switching attention (AC-S) or greater distractibility (AC-D). The AC-S and AC-D scales have good psychometric properties as they have very satisfactory internal consistency and no substantial deviations from normality in skewness and kurtosis (Carriere, 2013). Within this study's sample ( $N = 756$ ), the mean score on the AC-S was  $M = 2.57$ ,  $SD = 0.93$  (range: 1-5; Cronbach's  $\alpha = 0.86$ ) and the mean score on the AC-D was  $M = 3.03$ ,  $SD = 0.99$  (range: 1-5; Cronbach's  $\alpha = 0.83$ ).

*Attention-related cognitive errors scale ARCES.* The Attention-Related Cognitive Errors Scale (ARCES; Cheyne et al., 2006) is a 12-item questionnaire that measures how frequently participants make minor mistakes due to absent-mindedness. Example items from the ARCES are: “I make mistakes because I am doing one thing and thinking about another” and “I have absent-mindedly placed things in unintentional locations.” Items are rated on a 5-point scale

ranging from (1) never to (5) very often. Scores were calculated by taking the sum of the 12 items, with totals ranging from 12 to 60. Higher scores reflect more cognitive failures. In our sample (N = 756), the mean score on the ARCES measure was  $M = 36.1$ ,  $SD = 8.41$  (range: 12-60; Cronbach's  $\alpha = 0.90$ ).

*Media Multitasking Index – Version 2.* The Media Multitasking Index 2.0 (MMI-2; Ralph, 2018) measures the tendency to engage in media multitasking in daily life. It includes 10 media-based activities: using print media, texting or emailing, using social media sites, using non-social text-oriented sites, talking on the phone, listening to music, watching TV, playing video games, doing homework, and talking face-to-face with someone. Respondents first indicated on average how many hours per day they spend engaging with each activity. Next, respondents indicated for each of the 10 media activities how often, on a scale from (0) never to (3) most of the time, they simultaneously use each of the other 9 media activities. For each of the 10 media activities, responses were summed and divided by three so that individual values were 0, .33, .66, or 1. We then multiplied these values by the total number of hours spent with that specific media activity. These 10 weighted multitasking scores were then divided by the total hours spent engaging in all forms of media. The MMI score is the sum of these 10 sub-scores (Ophir et al., 2009). In our sample, the mean score on the MMI was  $M = 3.89$ ,  $SD = 1.41$  (range: 0.17-9.39; Cronbach's  $\alpha = 0.97$ ).

### *Procedure*

After providing informed consent, participants completed an online survey. The survey included demographic questions as well as measures about participants' social media use, media multitasking use, and attention-related abilities in a pseudo-randomized order. Embedded in the survey were three attention checks that prompted participants to answer questions involving common knowledge.

### *Ethics*

The study procedures were carried out in accordance with the Declaration of Helsinki. The Institutional Review Boards of two universities approved the study. All subjects were informed about the study and all provided informed consent.

## **Results**

### *Attention measures*

To assess the relationship between self-reported attentional control issues and problematic social media use, we conducted a linear regression with attentional measures, age, gender, and university as covariates and problematic social media use as the dependent variable. The overall regression was statistically significant,  $R = 0.432$ ,  $R^2 = 0.187$ ,  $F(6, 749) = 28.7$ ,  $p < .001$ . We found that two of our attentional measures, the ARCES,  $t(749) = 6.139$ ,  $p < .001$ , and the AC-S,  $t(749) = 5.109$ ,  $p < .001$ , were significantly, positively associated with problematic social media use. Addition, we found a significant correlation between gender and problematic social media use,  $t(749) = 5.40$ ,  $p < 0.001$ . This suggests that individuals who use social media in problematic ways also experience a greater tendency to experience attentional errors and a

greater difficulty switching attention. In addition, the positive correlation with gender indicates that being female is associated with a higher level of problematic social media use. This aligns with past findings that female-identifying social media users are more prone to developing problematic social media habits (Andreassen, 2017; Banyai, 2017). However, the AC-D scale, measuring distractibility, had no significant relationship with problematic social media use.

**Table 1.** Linear Regression Model with problematic social media use as the dependent variable and attentional measures, age, gender, and university as covariates.

Predictor	Estimate	SE	<i>t</i>	<i>p</i>
Intercept	7.25	1.96	3.70	< .001
Age	-0.13	0.08	-1.68	0.09
Gender	1.55	0.29	5.40	< .001
University	-0.22	0.37	-0.58	0.56
ARCES	0.13	0.02	6.44	< .001
AC-S	1.03	0.20	5.03	< .001
AC-D	-0.06	0.18	-0.32	0.75

Note.  $R = 0.432$ ;  $R^2 = 0.187$ ;  $F(6, 749) = 28.7$ ;  $p < .001$ . ARCES = Attention-related cognitive errors scale; AC-S = Attention Control (Switching); AC-D = Attention Control (Distractibility).

### *Media Multitasking*

We also investigated a relationship between problematic social media use and media multitasking. Thus, we conducted a linear regression with an adjusted Media Multitasking Index, age, gender, and university as covariates and problematic social media use as the dependent variable (Table 2a). We adjusted the MMI index to remove all instances of social media as either the primary or secondary task, thus avoiding overlap between the constructs of media multitasking and social media use. The overall regression was statistically significant,  $R = 0.320$ ;  $R^2 = 0.103$ ;  $F(4, 750) = 21.4$ ;  $p < .001$ . We observed a significant, positive correlation between problematic social media use and media multitasking,  $t(750) = 6.70$ ,  $p < 0.001$ . This suggests

that those who use social media in ways that negatively impact their everyday lives also engage in higher levels of media multitasking behavior.

**Table 2a.** Linear Regression Model with problematic social media use as the dependent variable and media multitasking, age, gender, and university as covariates.

Predictor	Estimate	SE	<i>t</i>	<i>p</i>
Intercept	10.53	2.01	5.24	< .001
Age	-0.13	0.08	-1.58	0.115
Gender	1.86	0.33	5.70	< .001
University	0.32	0.39	0.83	0.41
MMI Adjusted	0.85	0.13	6.70	< .001

Note.  $R = 0.320$ ;  $R^2 = 0.103$ ;  $F(4, 750) = 21.4$ ;  $p < .001$ . MMI adjusted = MMI scale score representing all media multitasking behavior that does not include either the primary or secondary task of using social media sites.

Next, we conducted a linear regression to understand the unique correlations between specific forms of media multitasking and problematic social media use. The covariates in this model were age, gender, and university, as well as the 9 individual media type scores (Table 2b). The overall regression, which specified problematic social media use as the dependent variable, was statistically significant,  $R = 0.340$ ;  $R^2 = 0.116$ ;  $F(12, 742) = 8.09$ ;  $p < .001$ . Five specific types of simultaneous media multitasking showed significant positive associations with problematic social media use, including media multitasking while speaking with someone face to face,  $t(742) = 3.19$ ,  $p = .001$ , while texting,  $t(742) = 3.09$ ,  $p = .002$ , while using nonsocial online sites,  $t(742) = 2.84$ ,  $p = .005$ , while video calling,  $t(742) = 2.92$ ,  $p = .004$ , and while doing homework,  $t(742) = 2.19$ ,  $p < .001$ . Multitasking while someone is talking to others face to face, texting, using non-socially oriented websites, video calling or chatting, and doing homework are all behaviors that are associated with being a problematic social media user. Whereas the previous regression shows that those who engage in more media multitasking behavior in general

are more likely to use social media in problematic ways, this analysis highlights the specific types of media multitasking that are most strongly associated with problematic social media use.

**Table 2b.** Linear Regression Model with problematic social media use as the dependent variable and media multitasking with specific media types, age, gender, and university as covariates.

Predictor	Estimate	SE	<i>t</i>	<i>p</i>
Intercept	10.81	2.07	5.23	< .001
Age	-0.13	0.08	-1.62	0.105
Gender	1.72	0.36	4.80	< .001
University	0.36	0.41	0.89	0.37
MM talking	0.87	0.27	3.19	0.001
MM print	-0.05	0.85	-0.06	0.95
MM texting	1.24	0.40	3.09	0.002
MM sites	2.80	0.99	2.84	0.005
MM phone calls	1.72	0.59	2.92	0.004
MM music	0.24	0.36	0.66	0.509
MM homework	0.91	0.43	2.11	0.035
MM TV	0.06	0.64	0.10	0.922
MM video games	0.74	0.86	0.86	0.39

Note.  $R = 0.340$ ;  $R^2 = 0.116$ ;  $F(12, 742) = 8.09$ ;  $p < .001$ . MM talking = amount of media multitasking while talking face to face with other people; MM print = amount of media multitasking while using print media; MM sites = amount of media multitasking while using nonsocial text-oriented sites; MM phone calls = amount of media multitasking while talking on the telephone or video chatting; MM music = amount of media multitasking while listening to music; MM homework = amount of media multitasking while doing homework/studying/writing papers; MM TV = amount of media multitasking while watching TV and Movies (online and off-line) or YouTube; MM video games = amount of media multitasking while playing video games or online games.

## Discussion

In this study we assessed the relationship between problematic social media use and attentional measures including attentional control, susceptibility to attentional errors, and media multitasking behavior. Prior studies have established links between addictive behaviors and attentional measures, such as attentional control and media multitasking (Anderson, 2016;

Anderson et al., 2012; Parvaz et al., 2021; Preston et al., 2020; Spada & Roarty, 2015; Schutten et al., 2017; Müller et al., 2021; Meshi, 2019), as well as the link between addictive behaviors and problematic social media use (Hormes, 2016; Henzel & Hakansson. 2021). The present study expands upon the understanding of attention's relationship with addictive behaviors by examining the association between problematic social media use and attentional measures. In order to investigate the research question, 903 participants completed an online self-report survey that assessed social media behavior as well as attentional ability. We identified two primary relationships.

Firstly, problematic social media use has a significant, positive association with cognitive-related attentional errors and difficulty switching attention, but not with difficulty controlling distractions. In other words, those who use social media in harmful, problematic ways are more likely to experience errors that result from everyday attentional lapses and have a greater difficulty switching their attention from one task to another. However, those who engage in problematic social media use do not also have difficulty controlling distractions.

Our findings differ from a previous study that found that all attentional control factors (focusing, shifting, and flexible control of thought) were negatively correlated with the severity of gambling, suggesting that those with lower levels of attentional control had higher levels of gambling severity (Spada & Roarty, 2015). However other previous research has found that lower attentional control, a decreased ability to control how one orients and shifts their attention, mediates the relationship between post-traumatic stress symptoms and alcohol abuse (Preston et al., 2020). The explanation of these findings proposed by Preston et al. is that post-traumatic stress symptoms contribute to a diminished attentional control, and people with this diminished

attentional control may face difficulty disengaging their attention from alcohol-related cues. This relationship between attentional control and alcohol abuse lies at the ability or inability to switch away from reward-associated cues. Attentional biases may exist at the cognitive difficulty with directing attention away from a reward-associated stimuli, rather than the difficulty with blocking out the initial distraction. Given the established ties between alcohol abuse and problematic social media use, our findings align with a lack of attentional control existing at the level of a difficulty switching attention away from rewarding, addiction-related stimuli.

Past studies regarding boredom, attention-related cognitive errors, and addictive behaviors can provide more context regarding our finding that those who experience more attention-related cognitive errors are also more likely to engage in problematic social media use (Malkovsky et al., 2012; Leary et al., 1986; Fisher, 1998; Hunter & Eastwood, 2016). In the literature, boredom is one of the few constructs that is tied to both attention-related cognitive errors and addictive behaviors. Boredom proneness has been associated with problematic gambling and substance use (Hunter & Eastwood, 2016). Individuals who are prone to experience trait or state boredom experience more attention-related cognitive errors (Malkovsky et al., 2012). Other studies have provided possible explanations for the association between attention-related cognitive errors and boredom. One suggests that if people are experiencing attentional errors, they may feel the strain of needing to engage greater mental effort (Leary et al., 1986). Others suggest that attention failures may lead individuals to feel that the stimulation they are experiencing is not sufficient (Fisher, 1998). This latter proposal maps onto the symptom of addictive behaviors that is tolerance. Tolerance describes a desire for more intense rewards from addictive behaviors (Griffiths, 2005). These feelings of engaging lots of mental



effort and not receiving optimal stimulation may mediate individuals' engagement with problematic behaviors, as these addictions involve mood modification and the desire for more intense rewards from behaviors (Griffiths, 2005). Future research can examine whether attentional failures interact with satisfaction with levels of stimulation as well as how perceptions of one not having enough stimulation may relate to using social media in a way that mirrors addictive behaviors.

Given that there are mixed findings as to the relationship between social media use and attentional ability, more research is needed to better understand the difference between forms of attentional control as well as what behaviors are clear indicators of problematic social media use.

Our second finding was that problematic social media use also has a significant positive correlation with media multitasking behavior. This seemed to be driven by a subset of media multitasking types such that multitasking while talking to others face to face, texting, using nonsocial text-oriented websites, video calling, and doing homework were most strongly associated with problematic social media use. Media multitasking can become problematic when it reduces productivity on a primary task due to the disruptions in attention (Bhargava & Velasquez, 2020). This finding aligns with the finding that multitasking while doing homework, specifically, had a strong, positive relationship with problematic social media use. This may be due to the fact that one component of problematic social media use is conflict with other aspects of one's life such as their job, studies, or hobbies (Griffiths et al., 2014). In other words, using social media while simultaneously doing homework may negatively impact academic performance, leading to the characterization of that social media use as problematic for one's life. Decisions to engage in media-related activities while carrying out an important, primary task

may be because those who engage in more media multitasking are more impulsive (Sanbonmatsu et al., 2013) as well as more likely to make reactive decisions and prioritize immediate gratification over future rewards. This puts media multitaskers at greater risk for problematic behaviors, such as addiction, associated with preference of immediate rewards over bigger future rewards (Schutten et al., 2017). Problematic social media use can be categorized as such a problematic behavior because it involves using social media so much that it has a negative impact on jobs, studies, or hobbies.

Our findings expand upon previous work as they directly assess the role of media multitasking in predicting problematic social media use. In addition, this study analyzes individual scores for each media type on the Media Multitasking Index. This is valuable information as it allowed for more specific understanding of what forms of media multitasking are most important to address in the context of reducing problematic behaviors. Not all media-related activities require the same level of attentional resources and different combinations of activities can have different effects on one's ability to process information as well as one's ability to switch between tasks (Koch et al., 2018). For example, listening to music and using social media may recruit a different attentional network than reading a book and talking on the phone. Within multitasking, there are two paradigms: dual tasking, when tasks are presented at the same time, and task switching, when tasks are presented sequentially, requiring the ability to switch between two tasks (Koch et al., 2018). Listening to music while using social media would fall under the dual tasking paradigm while reading a book and talking on the phone would require switching between the two tasks. In addition, the modality of the two tasks can result in differences in attentional behavior. Multitasking with two tasks that are auditory in nature, such

as listening to music and talking on the phone, can result in perceptual interference. Therefore, the combination of tasks that individuals often multitask with can vary depending on whether they are attended to simultaneously or sequentially as well as the modality of the task (Koch et al., 2018). Furthermore, because some combinations of media types may rarely occur in everyday life, examining the score as a whole may underestimate media multitasking behavior (Baumgartner, 2017).

One paradox that arose in our examination of problematic social media use is the correlation between it and both a difficulty switching and a greater tendency to media multitask, a behavior that inherently involves switching. Firstly, it is important to clarify that engaging in a behavior does not make one good at that behavior or experience ease with that behavior. Secondly the measures in this study are self-report questionnaires, so the constructs measured are one's *perceptions* of their ability to control and orient attention as well as their *perceptions* of how often they engage with media multitasking behavior. Other possible explanations for this paradox lie in the understanding that not all media-related tasks or forms of multitasking require the same kind of attentional allocation (Koch et al., 2018). In some forms of task switching between two forms of media, there may be a primary task and a secondary task. For example, a student may be working on the primary task of doing their homework while switching their attention to a secondary task of texting a friend. In this case, despite their frequency of task switching between these two activities, it may be difficult to switch away from the distracting task (texting) and back to the productive task. Furthermore, attentional biases exist when the draw of a reward-related stimuli is compelling and one's difficulty switching attention may make

it hard to divert attention away from the reward-related stimuli back to the primary, productive task at hand (Anderson, 2016).

While this study has helpful implications for the field of addictive behaviors and social media use, it is not without limitations. Firstly, this study consisted of self-report measures. This means that our results reflect participants' perception of their attentional control and social media use, rather than an objective measure of these constructs. While participants' self-reported behaviors are valuable, future studies may consider implementing objective measures, such as cognitive tasks measuring attentional ability, to complement self-report measures. Secondly, our study was a correlational study, so we could not determine any causation to pinpoint the direction of observed relationships. Future studies may implement an experimental design that isolates a causal relationship in order to better understand how problematic social media use and attention are connected. In addition, our sample consisted of primarily college-aged students as the mean age was 20, with a fairly low standard deviation. Therefore, our results may not be generalizable to a broader population and instead apply best to college students and young adults. Given that young adults are a primary user group of social media sites, this is still valuable data. Future studies may assess predictors of problematic social media use among younger adolescents.

## **CONCLUSION**

Better understanding what behaviors and cognitive states predict problematic behavior with social media can reveal risk factors and help individuals take preventative measures to reduce the likelihood that their social media use becomes addictive in nature. Furthermore, the specific findings regarding what forms of media multitasking may be more indicative of an

individual being prone to problematic social media use can provide even more concrete, targeted prevention.

This study built on past connections between attentional measures and addictive behaviors as well as parallels between symptoms of addiction and problematic social media use. It was conducted in order to further conceptualize problematic social media use in relationship to cognitive measures. Our findings suggest there are cognitive indicators, such as susceptibility to experience attentional errors, difficulty switching one's attention, and engaging in media multitasking behavior, that can show how prone an individual may be to engaging in problematic social media use.

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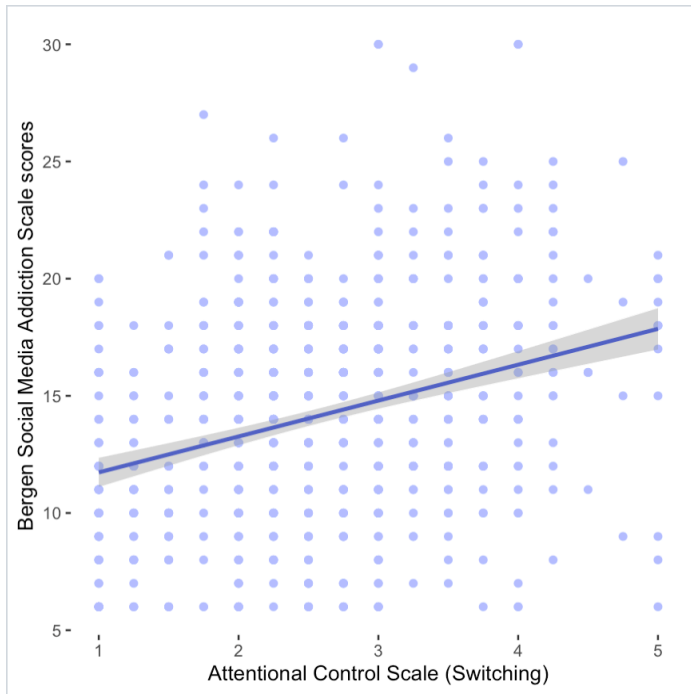


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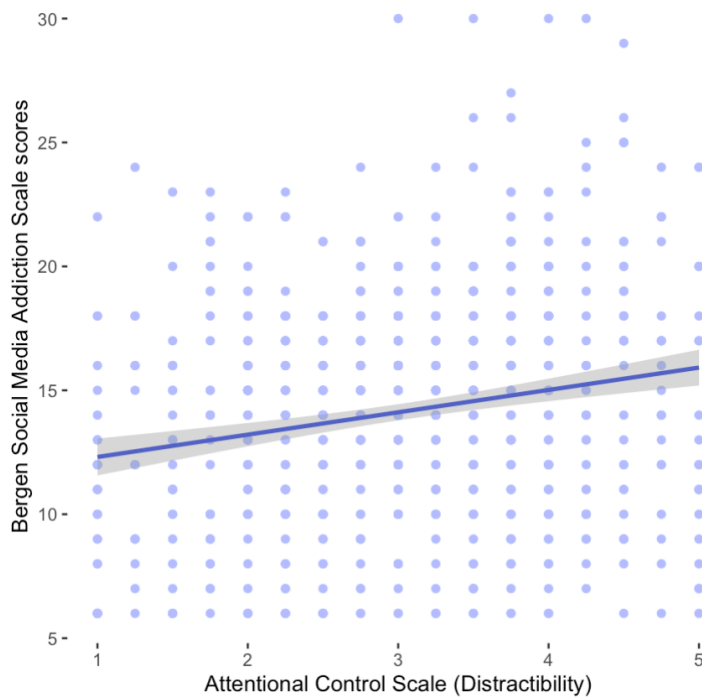
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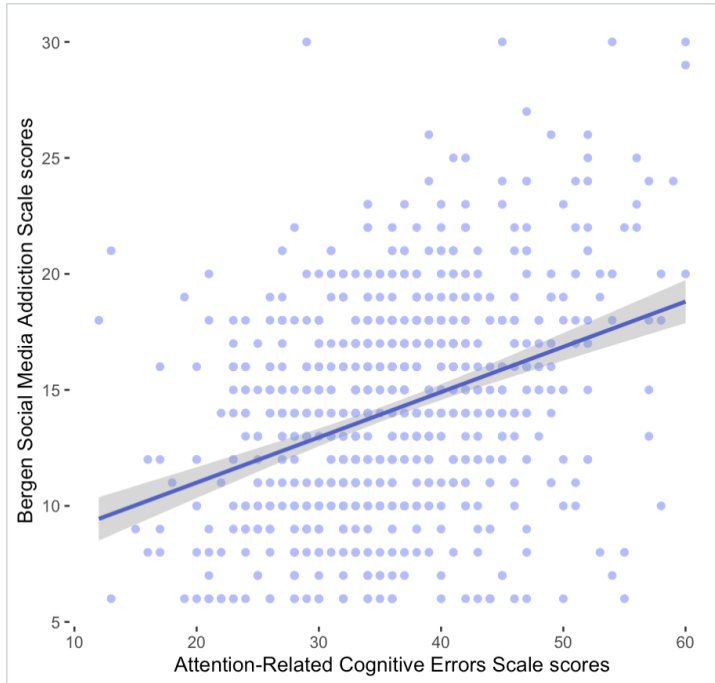
## Figures



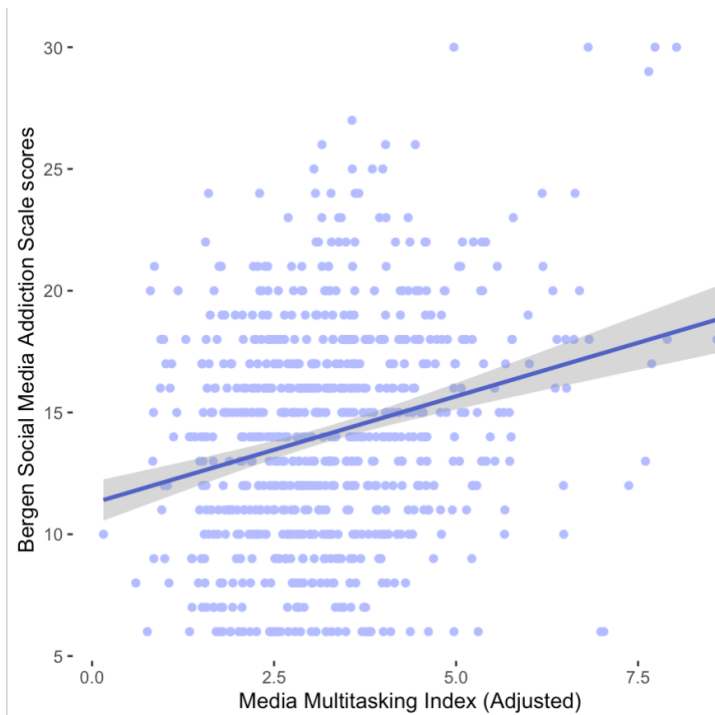
Correlation Matrix for the relationship between the Attentional Control Scale (Switching) and The Bergen Social Media Addiction scale.



Correlation Matrix for the relationship between the Attentional Control Scale (Distractibility) and The Bergen Social Media Addiction scale.



Correlation Matrix for the relationship between the Attention-Related Cognitive Errors scale and The Bergen Social Media Addiction scale.



Correlation Matrix for the relationship between the Media Multitasking Index (Adjusted) and The Bergen Social Media Addiction scale.

