Careers, demographics, and internet availability: Predictors of social media addiction

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Abstract
Obsessive social media use has become a prevalent addictive behavior. The purpose of this study was to take a deeper look at what specific variables are leading to social media addiction. Specifically, we wanted to see if variables such as unlimited data and Wi-Fi availability, social media job requirements, and other demographics including education, age, gender, and marital status, predict increased addiction behaviors such as withdrawal and mood modification. As social media becomes increasingly prevalent, and the mental health issues that are connected become clearer, it is imperative that both predictors and solutions to social media addiction are identified. In the current study, a sample of 347 participants, recruited via Amazon Mechanical Turk, responded to a survey using a version of the Bergen Facebook Addiction Scale that was modified to represent all social media platforms. The scale measured social media salience, mood modification, tolerance, withdrawal, conflict, and relapse. Results revealed that being younger, more educated, married, male, having better access to internet, and having a job that required social media usage, all lead to a higher likelihood of social media addiction behaviors.

Key words: Social Media Addiction, Salience, Mood Modification, Tolerance, Withdrawal, Relapse.

To many citizens of the United States, the idea of the two main political parties working together to address an issue seems unlikely at best. So, when the two parties actually work together to solve problems, it speaks to the concern and the consensus of the issue. This happened in February of 2022 when Democratic Senator Amy Klobuchar and Republican Senator Cynthia Lummis introduced a bipartisan bill to fund research addressing social media addiction prevention (Goldsberry, 2022). Obsessive internet use has become so prevalent that it is often listed among behavioral addictions such as pornography, gambling, shopping, video games, binge eating, and plastic surgery (Iliades, 2016). Perhaps it is time to start addressing social media addiction the same way that these other behavioral addictions are addressed, and treating the victims with care and respect.

One possible factor driving social media addiction is the increase in internet availability. Just two decades ago, the smartphone wasn't yet in existence. In the early days of social media, when Myspace commanded the market share, people who wanted to spend time on social media had to find a desktop computer and access the platforms through traditional web browsers. Now, with 4.28 billion unique mobile internet users worldwide (Lin, 2021), many people are accessing the internet literally everywhere they go. In addition, unlimited data plans have become the norm rather than the exception for those with more disposable income. In 2012, most major carriers were offering limited data plan as their main option for users, and throttling data for anyone lucky enough to be grandfathered into an unlimited plan (Kovach, 2012). Fast-forward to 2022, and practically

every carrier is pushing their unlimited data plans (Michaels, 2022). The geographical and financial barriers to constant internet access are gone.

Some people don't have the choice to avoid social media, as their jobs demand it. 27% of Americans are required to use social media as part of their job duties (Dean, 2021). Indeed, a search engine for employment opportunities, has identified 14 common job titles that are based solely on social media, including content curator, social media coordinator, social media specialist, social media manager, social media community manager, digital strategist, brand manager, content strategist, etc. (Indeed editorial team, 2021). This doesn't include people who have social media as just one responsibility among many others, such as a marketing director. It's not uncommon in the 2020's for the average person to be required by their employer to use social media. The purpose of this study was to take a deeper look at what specific variables are leading to social media addiction. Specifically, we wanted to see if variables such as unlimited data, job requirements, and other demographics led to increased addiction behaviors such as withdrawal and mood modification. The following literature review outlines the framework of this study.

Social Media Addiction

The Addiction Center (n. d.), defines social media addiction as, "a behavioral addiction that is characterized as being overly concerned about social media, driven by an uncontrollable urge to log on to or use social media, and devoting so much time and effort to social media that it impairs other important life areas" (para. 1). One study that exemplifies this behavior measured social media addiction among 700 high school students and found that approximately 85% of the students were using social media for at least two hours-per-day (Simsek, Elciyar, & Kizilhan, 2019). As social media has evolved, it has become more addictive to its audience because of its ability to provide satisfaction through recognition, and has been identified as a significant predictor in life satisfaction (Sahin, 2017). Haynes (2018) explains that the average American spends approximately two to four hours on their smartphone per day. This has led to a correlation between addiction and negative mental health outcomes such as depression, anxiety, and poor sleep quality (Woods & Scott, 2016).

A study by Hou, Xiong, Jiang, Song, and Wang (2019) shows how social media addiction can affect mental health and academic performance (with self-esteem being a mediating variable). Those who have a higher level of social media addiction have worse mental health.

Also, academic performance and self-esteem are negatively correlated with social media addiction. With evidence that social media addiction is a growing problem, a study from Van Den Eijnden, et al. (2016) revealed that social media disorder is heavily correlated with depression and attention deficit.

Brevers and Turel (2019) conducted a two-part study to observe self-controlling strategies with social media use. In the first study, participants were asked to write one sentence to elaborate on their action/thinking and context for how they control their social media use. Results showed that self-control takes two forms: 1) reactive "in the moment" acts, and 2) being proactive by reinforcing or challenging current behavior. The second part of the study evaluated four themes of self-control strategies: (1) Trait self-control, (2) social networking site use habit, (3) social networking site self-control strategies, and (4) social networking site addiction symptoms. Results showed that individuals with a prominent trait of self-control scored lower in use habits and addiction symptoms. Self-control then can be looked at as the first step to breaking social media addiction.

There is not one concrete method when it comes to attempting to quit an addiction to social media. Schoenebeck (2014) conducted a study on social media breaks using participants in Lent as her sample. The average person who has quit social media resists the temptation for approximately 25 days. The main reasons participants wanted to give up social media were privacy, productivity, misuse, and data. Results showed that 64% gave up social media in the 40-day Lenten Period, while 36% only posted on social media two times or less. 31% of individuals who lasted the entire duration of Lent followed up on social media by announcing that they were back.

An article by Bullinger and Vie (2017) broke down the influences on social media abstainers, non-users, and those who try to quit. The study looked at conversations about abstainers and why they have yet to adopt social media in their day-to-day lives. From the perspective of social media users, these abstainers seemed to be out of the loop. Non-users found that benefits of not using social media outweighed the benefits of using, such as being overwhelmed and addiction concerns. Though social media abstainers may have a negative perception amongst social media users, studies show that there are significant benefits to not using these outlets (Turel, Cavagnaro, & Meshi, 2018). In regards to social media quitters, Bullinger and Vie (2017), found that those who stopped using social media experienced fatigue and celebratory reflections about quitting. Lastly, those who have quit

and started using social media again tend to have been influenced by their peers and/or the individual not permanently deleting the social media account.

The Bergen Facebook Addiction Scale

Developed in 2012, the Bergen Facebook Addiction Scale (Andreassen, et al., 2012) is used to measure salience, mood modification, tolerance, withdrawal, conflict, and relapse. Salience is defined as situation where "the activity dominates thinking and behavior" (Andreassen, et al., 2012, p. 503). The scale measures how much time is spent thinking about and planning to use Facebook, freeing up time for Facebook, and pondering about recent happenings on Facebook. Tolerance is high when "increasing amounts of the activity are required to achieve previous effects" (Andreassen, et al., 2012, p. 503). The Bergen scale for tolerance measures time spent on Facebook, urge to use Facebook, and a feeling that one needs to increase use to get the same pleasure from Facebook. Mood Modification is when "the activity modified/improves mood" (Andreassen, et al., 2012, p. 503). The Bergen scale measures the perception that one uses Facebook to forget about personal problems, reduce negative emotions, and reduce restlessness. Withdrawal is "the occurrence of unpleasant feelings when the activity is discounted or suddenly reduced" (Andreassen, et al., 2012, p. 503). The Bergen scale measures restlessness, irritability, and negative feelings when prohibited from using Facebook. Conflict occurs when "the activity causes conflicts in relationships, in work/education, and other activities" (Andreassen, et al., 2012, p. 503). The Bergen scale measures the degree to which one perceives Facebook to have a negative impact on job/studies, other hobbies or leisure activities, and partners, family members or friends. Relapse is "a tendency to revert to earlier patterns of the activity after abstinence or control" (Andreassen, et al., p. 503). The Bergen scale measures experiences that include being told by others to reduce use of Facebook, trying to cut down time spent on Facebook without success, and deciding to use Facebook less frequently and failing.

Recent studies using the Bergen scale show that it is valuable and useful for measuring problematic Facebook use (Chen, et al., 2021; Primi, et al., 2021). The scale has also been used to link social networking sites to depression and anxiety symptoms (Jovanovic, Visnjic, & Gmijovic, 2021). Based on this literature review and on a version of the Bergen Facebook Addiction scale that we modified to measure overall social media addiction (further elaborated on in the following method section), the following research questions guided this research.

RQ1: Which of seven variables including gender, age, education, marital status, data plan, WIFI access, and social media job requirement predict social media salience.

RQ2: Which of seven variables including gender, age, education, marital status, data plan, WIFI access, and social media job requirement predict social media tolerance.

RQ3: Which of seven variables including gender, age, education, marital status, data plan, WIFI access, and social media job requirement predict social media mood modification.

RQ4: Which of seven variables including gender, age, education, marital status, data plan, WIFI access, and social media job requirement predict social media relapse.

RQ5: Which of seven variables including gender, age, education, marital status, data plan, WIFI access, and social media job requirement predict social media withdrawal.

RQ6: Which of seven variables including gender, age, education, marital status, data plan, WIFI access, and social media job requirement predict social media conflict.

Method
Participants and Procedures

Individuals were recruited to participate in this project through Amazon Mechanical Turk (MTurk) on January 26th, 2022. Once an MTurk worker agreed to participate in the project (IRB approved), they were led to a Qualtrics survey. At the end of the survey, they were asked to leave a unique personal code that they could re-enter into the MTurk assignment page. Once the codes were matched, respondents were given a $0.10 incentive. 474 responses were initially recorded. Of those, six were removed because of identical IP addresses, which were possibly duplicate responses. Two responses were incomplete and removed from the data. There were four easy-to-answer attention check questions given in the survey. Only participants that got all four questions correct were kept in the data set. This prevented lazy responses from being included. 122 respondents missed one or more attention check. This left a final sample of 347 participants. The demographics of the population sample are available in table 1.

Table 1. *Sample Demographics*

Demographic	N (%)		
Male	174 (50.1%)	-	-
Female	168 (48.4%)	-	-
Other or N/A	5 (1.3%)	-	-
18-24 years	-	20 (5.8%)	-
25-34 years	-	138 (39.8%)	-
35-44 years	-	95 (27.4%)	-
45-54 years	-	48 (13.8%)	-
55-64 years	-	32 (9.2%)	-
65-74 years	-	12 (3.5%)	-
75 years +	-	2 (0.6%)	-
No college degree	-	-	90 (25.9%)
2-year degree	-	-	24 (6.9%)
4-year degree	-	-	188 (54.2%)
Graduate degree	-	-	45 (12.9%)
Married	-	-	171 (49.4%)
Not Married	-	-	175 (46.8%)

Instrument

The survey used in this study included three different item types, including conditions, measures, and demographics. The order of all items was randomized in Qualtrics for each participant. Four separate items were used to establish group conditions. The first asked participants what best described their data plan. They could respond with unlimited data, personal limited data, shared limited data, or no data. The second item asked participants if they agreed or disagreed with the statement, "I have a job that requires me to use social media." The third item asked participants if they agreed or disagreed with the statement, "I usually have access to Wi-Fi." The fourth item asked participants if they agreed or disagreed with the statement "I usually have a good internet connection on my phone."

For the measures, 18 items were used from the Bergen Facebook Addiction scale (Andreassen, Torsheim, Brunborg, & Pallesen, 2012), and modified to reflect social media addiction in lieu of just Facebook addiction. The 18 items made up six scales measuring salience, tolerance, mood modification, relapse, withdrawal, and conflict. Each scale was comprised of three items. Each scale had acceptable reliability (salience (α=.889), tolerance (α=.852), mood (α=.878), relapse (α=.905), withdrawal (α=.929), and conflict (α=.872)). Finally, participants were asked several demographic questions inquiring about biological sex, age, race, education, and marital status.

Data Analysis

Multivariate linear regression analysis was used for each of the six dependent variables in order to address the research questions of this study. Predictors in the models included female (because only a small number of participants (N=5) identified as a biological sex other than male or female, female was used as the dummy variable in the analysis with male participants included in the constant), age, education (participants with college degrees were included as the dummy variable "educated" with all other participants in the constant), married (with all other marital statuses in the constant), unlimited data plan, social media job requirement, and WiFi availability.

Results

Regression analysis was used to address the research questions. The results below are organized by each of the six measures of the Bergen scale. For each dependent measure, analysis was conducted with all four factors.

Salience

The model for salience was significant (R^2=.399, $F(7, 331)$=31.446, p<.001). The results of the model are shown in table 2. Sex (Female) and age were both negative significant predictors of salience among participants. Specifically, females reported significantly less salience than men, and there was a decrease in salience with age. This essentially means that women and older participants spend less time thinking

about social media. Education, marriage, and social media job requirement were all positive significant predictors of salience. Specifically, participants with college degrees reported higher salience scores than those without. Married participants reported significantly higher salience scores than those who were not married. And those who have jobs that require them to use social media reported higher salience scores than those that don't have the same requirements. Therefore, participants in these categories were more consumed with social media.

Table 2. *Regression Results for Salience*

Variable	β	t	p
Female	-.092	-2.12	.035*
Age	-.228	-5.169	<.001*
Educated	.089	2.041	.042*
Married	.162	3.668	<.001*
Unlimited Data Plan	-.087	-1.958	.051
Soc. Media Job Duties	.441	9.696	<.001*
WIFI Access	-.048	-1.083	.280

Tolerance

The model for tolerance was significant (R^2=.397, $F_{(7, 331)}$=31.090, $p<.001$). The results of the model are shown in table 3. Age was the only negative significant predictors of tolerance among participants. Specifically, there was a decrease in tolerance with age. This essentially means that younger participants needed more social media in order to feel satisfied. Education, marriage, and social media job requirement were all positive significant predictors of tolerance. Specifically, participants with college degrees reported higher tolerance scores than those without. Married participants reported significantly higher tolerance scores than those who were not married. And those who have jobs that require them to use social media reported higher tolerance scores than those that don't have the same requirements. Therefore, people in these categories need more social media in order to feel satisfied.

Table 3. *Regression Results for Tolerance*

Variable	β	t	p
Female	-.077	-1.773	.077
Age	-.226	-5.100	<.001*
Educated	.124	2.842	.005*
Married	.148	3.334	<.001*
Unlimited Data Plan	-.016	-0.362	.717
Soc. Media Job Duties	.453	9.920	<.001*
WIFI Access	-.025	-0.574	.556

Mood Modification

The model for mood modification was significant (R^2=.316, $F_{(7, 334)}$=22.020, $p<.001$). The results of the model are shown in table 4. Age was the only negative significant predictors of mood modification among participants. Specifically, there was a decrease in mood modification with age. This means that social media significantly impacted the mood of younger participants. Education and social media job requirement were both positive significant predictors of mood modification. Specifically, participants with college degrees reported higher mood modification scores than those without. And those who have jobs that require them to use social media reported higher mood modification scores than those that don't have the same requirements. For these participants, their mood was more likely to be altered by social media.

Table 4. *Regression Results for Mood Modification*

Variable	β	t	p
Female	-.010	-0.211	.833
Age	-.260	-5.535	<.001*
Educated	.129	2.781	.006*
Married	.062	1.313	.190
Unlimited Data Plan	-.051	-1.075	.283
Soc. Media Job Duties	.388	8.011	<.001*
WIFI Access	-.006	-0.122	.903

Relapse

The model for relapse was significant (R^2=.349, F(7, 333)=25.498, p<.001). The results of the model are shown in table 5. Sex (Female), age, and WIFI access were negative significant predictors of relapse among participants. Specifically, females had a significantly lower relapse score than males. There was also a decrease in relapse scores with age. Finally, better WIFI access led to lower relapse scores. Education, marriage, and social media job requirement were all positive significant predictors of relapse. Specifically, participants with college degrees reported higher relapse scores than those without. Those who were married reported higher relapse scores than those who were unmarried. And those who have jobs that require them to use social media reported higher relapse scores than those that don't have the same requirements.

Table 5. *Regression Results for Relapse*

Variable	β	t	p
Female	-.109	-2.414	.016*
Age	-.209	-4.574	<.001*
Educated	.109	2.399	.017*
Married	.168	3.652	<.001*
Unlimited Data Plan	-.059	-1.290	.198
Soc. Media Job Duties	.370	7.845	<.001*
WIFI Access	-.105	-2.303	.022*

Withdrawal

The model for withdrawal was significant (R2=.380, F(7, 334)=29.300, p<.001). The results of the model are shown in table 6. Age, unlimited data plan, and WIFI access were negative significant predictors of relapse among participants. Specifically, there was a decrease in withdrawal scores with age. Also, those with unlimited data plans reported a lower withdrawal score than those who had limited data. Finally, better WIFI access led to lower withdrawal scores. Education, marriage, and social media job requirement were all positive significant predictors of withdrawal. Specifically, participants with college degrees reported higher withdrawal scores than those without. Those who were married reported higher withdrawal scores than those who were unmarried. And those who have jobs that require them to use social media reported higher withdrawal scores than those that don't have the same requirements.

Table 6. *Regression Results for Withdrawal*

Variable	β	t	p
Female	-.053	-1.213	.226
Age	-.236	-5.288	<.001*
Educated	.120	2.707	.007*
Married	.173	3.877	<.001*
Unlimited Data Plan	-.092	-2.057	.040*
Soc. Media Job Duties	.379	8.230	<.001*
WIFI Access	-.103	-2.317	.021*

Conflict

The model for conflict was significant (R^2=.309, $F(7, 330)$=21.119, $p<.001$). The results of the model are shown in table 7. Age was the only negative significant predictors of conflict among participants. Specifically, there was a decrease in conflict scores with age. Marriage and social media job requirement were both positive significant predictors of conflict. Specifically, those who were married reported higher conflict scores than those who were unmarried. And those who have jobs that require them to use social media reported higher conflict scores than those that don't have the same requirements.

Table 7. *Regression Results for Conflict*

Variable	β	t	p
Female	-.029	-0.629	.530
Age	-.200	-4.219	<.001*
Educated	.078	1.668	.096
Married	.155	3.259	<.001*
Unlimited Data Plan	-.041	-0.853	.394
Soc. Media Job Duties	.389	7.986	<.001*
WIFI Access	-.075	-1.596	.111

Table 8. Measures Predicted by Each Factor

	Salience	Tolerance	Mood	Relapse	Withdrawal	Conflict
Female	Less Time	-	-	Control	-	-
Younger	More Time	Need More	Alters Mood	No Control	Withdrawal	Conflict
Educated	More Time	Need More	Alters Mood	No Control	Withdrawal	Conflict
Married	More Time	Need More	-	No Control	Withdrawal	Conflict
Unlimited Data	-	-	-	-	No Withdrawal	-
Soc. Media Job	More Time	Need More	Alters Mood	No Control	Withdrawal	Conflict
WIFI Access	-	-	-	Control	No Withdrawal	-

Discussion

The following discussion section is organized by independent variable, with each subsection covering the implications for each.

Sex
Two main findings were revealed in regard to sex. Specifically, both of these findings showed females to be more resilient than males. There were not enough participants in other sex categories to draw any significant findings. The first finding was that male participants spent more time thinking about social media

(salience). Second, male participants also experienced more situations in which they could not control the amount of social media in which they consumed (relapse). This alignes with a study from Jaradat and Atyeh (2017) that also found that men spent more time on certain social media apps such as Facebook, YouTube, Instagram, Google+, and LinkedIn.

These are both interesting findings in that they seem to work against current narratives that social media is more problematic for females. For instance, recent whistleblower reports from inside Facebook uncovered internal data that

revealed Instagram (a product of Facebook) is especially harmful to young women (Elsesser, 2021). These two seemingly contradictory findings don't have to be reconciled however. It is the opinion of the researchers here that instead, both male and female social media issues are relevant and important, but different. For female social media users, it's the culture of comparison and shaming that is most harmful (Crouse, 2021). For male social media users, it's addiction to the platforms and an inability to control the amount of time dedicated to using the apps. Perhaps for these two genders, different types of interventions are needed.

Age

All across the board there was a noticeable and significant trend among participants. Younger people are far more likely to show signs of social media addiction. In all six categories, younger people were significantly worse off regardless of the measure. This shouldn't be surprising to anyone familiar with the literature, as other studies (Ferris, Hollenbaugh, & Sommer, 2021) including those by the author of the Bergen Facebook scale (Andreassen, et al., 2017) have already shed light on this trend. Therefore, while this specific finding doesn't add anything novel to the literature, it does strengthen existing hypotheses.

Education

A perhaps surprising finding of this study was a very strong indication that social media addiction is a bigger problem for those with more education. This appears to run contrary to most the available literature. Tunc-Aksan and Akbay (2019), for example, found that perceived academic competence   actually decreased smartphone addiction levels. However, their sample came from a population of high school students. In the current study, the participants referred to as 'educated' were those with college degrees. We could not find any literature that supports this finding, or any that lead to possible explanations for why this is the case. Further research should be done in order to validate this finding. Also, qualitative methods should be used in further research to better understand why this may be the case.

Marriage

Social media usage has been identified as a negative predictor of marriage quality and happiness, and a positive predictor of troubled relationships and thinking about divorce (Valenzuela, Halpern, & Katz, 2014). This makes the findings of the current study even more troubling. We found the five of the six social media addiction variables were predicted by being married. Mood modification was the only exception. One possible cause for this is the likelihood that married couples experience an initial decline in leisure (Claxton & Perry-Jenkins, 2008). As couples spend less time out of the house participating in leisure activities, it gives them more time to spend in the house on social media. We believe that this is contributing to social media addiction. Therefore, we recommend awareness campaigns that would open the eyes of married couples to this potential issue.

Job Requirement as the Strongest Predictor of Social Media Addiction

As it turns out, job requirement was the strongest and most consistent predictor of all six social media addiction measures. In every model that we ran, job requirement reliably predicted each social media addiction characteristic. This should not be surprising as an individual's job often consumes a large amount of time throughout his or her week. For some, a workplace can be the one atmosphere where the option to use social media is not available. This can provide them with a meaningful and routine break from social media almost every day. If that break is taken away, then it is more likely that the individual will experience negative consequences of social media saturation. The question then arises, is it the duty of the employer to prevent overexposure to social media, especially when it is a required function of the job? While that question is difficult to answer, it appears that it would improve the mental health of employees if social media requirements were regulated.

Internet Availability

Unlimited data plans were only a predictor of one social media addiction variable: withdrawal. The withdrawal items asked participants about restlessness, irritability, and negative feelings when prohibited from using social media. According to our data, having unlimited data increases these feelings. This makes sense as it is easy to draw a logical line from unlimited data to time using social media. If someone has zero constraints on the amount of time they can spend using social media without any additional financial costs, then using platforms for long stretches of time would come naturally. Then, attempts to withdraw would be more difficult. Consequently, it is our recommendation, based on this data, that individuals experience withdrawal due to social media consumption should consider enrolling in a limited data plan. This could serve as a stopping queue that will free up time for other important lifestyle necessities.

Having reliable Wi-Fi access was a significant predictor of both withdrawal and relapse. The same arguments made above in regard to unlimited data and withdrawal apply here. In addition, people with reliable Wi-Fi also experience stronger feelings of relapse. These feelings are brought on by attempts to quit or limit social media that are unsuccessful. Reliable Wi-Fi access, like unlimited data, eliminates financial and time barriers that put in natural stopping queues. It is difficult to come up with solutions that would be both effective and practical. Making internet less available and more expensive will cause more problems than it would fix. Therefore, future research should aim to identify other ways that could solve the problem of social media addiction.

As social media becomes increasingly prevalent, and the mental health issues that are connected become clearer, it is imperative that both predictors and solutions to social media addiction are identified. This study will hopefully serve the former. We have identified several predictors of social media addiction including jobs that require social media as a duty and internet availability.

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