The Darkside of the Like: The Effects of Social Media Addiction on Digital and In-Person Communication

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Social media are an important, widely used communication tools for individuals and businesses. However, there is the dark side of social media addiction and its impact to consider. Young adults were asked to identify the social media platforms they use and measure their use of those platforms. They were then asked to restrict their use of social media for 24-hours and record their emotions at the 1-hour, 4-hour, 8-hour, 12-hour, and 24-hour marks with both open-ended and quantitative indices. Social media is addicting in part because of a fear of missing out (FOMO) and platform features like notifications, limitations on time to view, streaks, and the desire to stay current on world news. Participants' self-evaluation of their relationship with social media was compared to the symptoms and outcomes found in the social media addiction literature. Symptoms included time distortion and brain and behavior changes. Outcomes included depression, anxiety, low self-esteem, poor sleep, feelings of guilt, diminished performance, and decreased cognitive capacity. A positive result from the study was the awareness participants gained of their emotional attachment to social media. Awareness is the first step to addressing addiction.

Keywords: social media addiction, FOMO, fear of missing out, addictive behaviors of social media, social media outcomes

S ocial media have been recognized as an essential tool in advancing person-to-person communication, business-to-consumer communication, and business-to-business communication. While the positives of social media have been utilized by businesses and consumers alike, there are also a lot of negatives to social media that can have lasting effects on consumers. In understanding this valuable tool for marketers, it is also essential to understand the negative consequences as well. In particular, understanding the relationship individuals can have with social media, and how this relationship impacts their lives, is vital for marketers and firms to understand. A dark side to an individual's relationship with social media is social media addiction. Social media addiction is a psychological condition in which individuals become dependent upon social media, being preoccupied and consumed with the desire to use

social media sites, so much so that it impacts their normal functioning and behaviors (Turel & Cavagnaro, 2019). Sixty-seven percent of individuals between the ages of 18 to 29 are active users of social media (Aksoy 2018), with 90% of these people visiting two or more sites daily (Perrin, 2015). According to Turel and Cavagnaro (2019), 15.2% of these young adults are in the category of high risk for social media addiction. While marketers and firms are excited by the potential audience that is actively engaging with social media so regularly, it is the responsibility of businesses to understand the impact that this excessive use can have on this generation.

Considering this responsibility, this research intends to study the relationships young adults have with social media. To do so, this research examined the effects of what happens when young adults abstain from usage of social media for 24 hours and how they then self-evaluate their relationship with social media. As participants started the study, they were measured on their use of social media. As they began the 24 hours, participants described the emotions they were feeling at hours 1, 4, 8, 12, and 24. Through these emotional descriptions, the evidence is found to support the discoveries made in the literature thus far concerning social media addiction. The following discussion will identify the symptoms and outcomes of social media addiction while incorporating the participants' responses that support these previous findings through a qualitative study. Following the discussion on the qualitative results, quantitative data analysis was conducted with the subject's emotional responses to identify patterns of behavior over the 24 hours of non-use of social media. Finally, general conclusions discovered from the study will be discussed.

METHODOLOGY

A total of 76 undergraduate college students (61.6% female) from a large southern university were asked to give up all social media for 24 hours as a class assignment. At the start of the 24 hours, participants were asked about the social media platforms they currently use. Next, participants measured their use of each of the social media platforms (ranging from 1 – "Never use" to 5 – "Use throughout the day"). Next, participants were measured on their emotional relationship with social media through their social media addiction using a measure adapted from the Facebook addiction scale (Andreassen et al. 2012) and their usage of social media applications adapted from the scale by Olufadi

(2016). Finally, participants identified their social media emotional attachment based on the adapted Facebook Use Intensity scale (Ellison et al. 2007). (See Appendix for scale items).

Following a discussion of their relationship/usage of social media, participants were asked to reflect on their relationship with social media through an open-ended question. Participants were then asked to indicate the intensity of emotions they were feeling about starting the 24 hours of giving up social media on a 7-point scale (ranging from 1 – "Not at all" to 7 – "Very" for the following items: anxious, sad, depressed, worried, excited, happy, and interested). Finally, participants were asked to describe how they felt about starting the assignment of not using social media for 24 hours through an open-ended question.

At 1 hour, 4 hours, 8 hours, 12 hours, and then 24 hours, participants were asked to describe the intensity of the emotions they were feeling based on the same emotional items used before starting the assignment (anxious, sad, depressed, worried, excited, happy, and interested). Then participants were asked to describe how they feel at the present moment about being disconnected from social media in an open-ended question.

QUALITATIVE RESULTS

As with any addiction, social media addiction has symptoms, including time distortion, brain changes, and behavior changes (Turel & Cavagnaro, 2019). Some of the outcomes of these symptoms are depression, anxiety, insecurities, poor sleep, urges and cravings, cognitive impairment, withdrawal, and relapse (Woods & Scott, 2016; Turel, Poppa, and Gil-Or, 2018; Duke et al., 2018). The following is a discussion of the symptoms and the resulting outcomes. Included are direct quotes taken from the participants who gave up social media for 24 hours, that support the previous findings in the literature.

Symptom: Time Distortion

Social media addiction can impact individuals by causing them to lose track of time. Due to this, individuals may not realize how much time they are devoting to using social media. Individuals at risk for social media addiction believe the time spent using social media applications is much shorter than the actual time spent on social media, and they believe the time spent on non-social media tasks is much longer than it is (Turel and Cavagnaro 2019). This time distortion helps to explain how individuals may not be aware

of how much time they are devoting to using social media, and are then not aware of the impact it may have on their lives. Looking at the data from the current study, it was evident that participants were surprised to realize how much time they were devoting to social media.

> I know that I am on my phone a lot when I do have some downtime outside of school and work but I am simply unaware of the amount of time I spend on social media so putting an actual number of hours seemed a little daunting.

> Overall, I think that disconnecting from social media has shown me how much I rely on it for escaping a lot of my responsibilities in real life. I would get so much more done and feel way more productive if I didn't go on social media every time I decide to take a break. It's so easy to say 'I'm only going to take a 5 minute break and go back to studying,' and then that 5 minute break turns into an hour because I used that time to go on social media.

Both of these individuals identified that what feels like or intends to be a quick usage of social media turns into much more time devotion than initially intended.

Symptom: Brain and Behavior Changes

Social media addiction has been found to mimic other addictions with brain changes. Functional and morphological brain changes that are observed in other addictive behaviors have been identified when individuals overuse social media sites (Turel and Cavagnaro, 2019). These brain changes can result in the urgency to use social media and increase cravings and, ultimately, to behaviors to seek gratification (Turel, Poppa, and Gil-Or, 2018). Urgency and cravings are evidenced in the data from this study, as well as the behavior of seeking gratification.

> In the morning, I was almost itching to get on social media it was just bothering me so much that I couldn't. It was almost the only thing I could thing [think] about for the first 8 hours I would say.

> I discovered that I created an unhealthy habit for myself that is like playing a slot machine. It leads to me craving to check social media more for the gratification.

> To get over it you just had to put your mind somewhere else cause many times throughout the day I found myself clicking on my social media folder, it was like I've become programmed to just open Twitter when I get bored.

> I also noticed that when I would go on my phone to answer texts, I would immediately gravitate toward the folder that has all my social media sites

even if that's not why I was going on my phone in the first place. It was definitely an impulse reaction that I was used to and didn't really notice I did this until this assignment.

These statements provide support that brain and behavior changes are occurring for these participants, like that of an addict. The urgency and cravings are exhibited using the words "itching" and "craving" and "immediately gravitate." It is understandable how strong feelings such as that can lead to behavior changes of addiction.

Outcome: Depression

According to the World Health Organization (2016), depression is the leading cause of disability worldwide (Shensa et al., 2017). In the U.S. alone, the resulting economic impact in dealing with this disability is over $210 billion (Greenberg et al., 2015; Shensa et al., 2017). It is easy to grasp the enormity of the problem that individuals can face in relation to dealing with depression and its financial impact. Social media has been found to contribute to increased depression symptoms due to the limiting of face-to-face interaction, decreased physical activity, and interrupted sleep (Shensa et al., 2017). As will be discussed further, increased insecurities and other behavior changes will also add to increased risks with depression.

By overusing social media, individuals are engaging with people more online than in face-to-face interactions. Interestingly, participants identified that without social media, they had suddenly increased their face-to-face interactions. The general response from this increase in face-to-face interactions was positive, with indications of feeling happier as a result.

It made me realize that social media is not as important as people make it. It is just something extra for people to worry about being on and I realized that it truly does take away from family time. I am thankful for this assignment because it was an eye opener on how I 'spend time' with my family when half the time I am on my phone.

Once I got home, I had a family to talk to so I was not as tempted to get on my phone as I would have been if I was at my own apartment alone.

At first I was super annoyed that I couldn't, but then I realized I could actually hang out with my roommates and we could talk with each other, and it put me in a better mood for the rest of the day. I realized after this

assignment that socializing makes me feel better than scrolling through social media looking at other people's online lives.

When I was forced to put my phone down and actually talk to everybody, I wasn't playing the comparison game and enjoyed myself.

I realized that social media is not nearly as exciting or dramatic as we make it out to be. Real and raw conversations with friends and people are just as much fun and entertaining than a picture behind a screen. This assignment was encouraging to me and made me want to make sure I do a better job of truly engaging with others in a deeper and personal way.

Interestingly, while the use of social media can take individuals away from face-to-face interactions, some found it challenging to communicate with friends and family without it. While one participant struggled to feel connected without it, another participant used text messaging as an alternative to staying connected.

At first, I was not concerned or worried about disconnecting for 24 hours, but as time went on I felt more and more separated from some of the people I am closest with. I never realized how much I communicate with some of my friends through social media more than just through messages.

What made the assignment easier was that I had access to communicating with my immediate circle of friends and family through text messaging.

These comments point indicate that personal connection is a need for individuals and that social media, while it can contribute to depression, it is also used as a method to help overcome it.

Outcome: Anxiety

Anxiety disorder is the second leading cause of disability, with the majority of outcomes peaking for young adults (Whiteford et al., 2013). The economic expenditures of anxiety disorders are estimated to exceed $42 billion (Whiteford et al., 2013; Vannucci, Flannery, and Ohannessian, 2017). Studies are indicating that higher usage of social media can lead to higher incidences of anxiety (Vannucci, Flannery, and Ohannessian, 2017). In particular, concerning increased daily use, statistics indicate an increased likelihood of participants scoring higher than the anxiety severity clinical cut-off measurement also showed an anxiety disorder (Vannucci, Flannery, and Ohannessian, 2017). Anxiety is believed to increase with social media usage due to individuals having

fears of interacting with others or being judged negatively during this social interaction (Liu and Ma, 2018). The caveat of this situation is that the more individuals feel anxious from the overuse of social media, the more they turn to social media to help alleviate and distract themselves from their anxiety. Individuals use social media when they feel anxious to feel social support (Moreno and Whitehill, 2014; Vannucci, Flannery, and Ohannessian, 2017) and to avoid real-world stressful situations (Vannucci, Flannery, and Ohannessian, 2017).

Interestingly, many of the participants were able to identify their relationship with social media usage and increased anxiety.

> I am the type of person where when I am told I cannot do something I only want to do it more and can't stop thinking about it so in the beginning I had high anxiety that I wasn't going to be able to control myself.

> I gave myself anxiety thinking about the anxiety I would have by not being able to use it.

> I felt anxious that I was not going to be able to check my accounts for an entire day.

> I can see anxiety playing a big role when you can't get on social media, I definitely felt a little anxious to wanting to get on Instagram, but once I finally deleted the app after the 4th hour, my anxiety went out the window.

Here, the individuals indicated that not being able to use social media increased their anxiety. However, as one respondent indicated, removing the application all together actually removed the anxiety.

Outcome: Low Self-Esteem

While individuals may increase their use of social media to feel a greater connection and attempt to reduce their anxiety, they experience an adverse outcome in lowered self-esteem through increased social comparisons (Vogel et al., 2014; Woods and Scott, 2016). These social comparisons can trigger negative beliefs, such as the perception that other individuals are happier and are living better lives (Chou and Edge, 2012; Vannucci, Flannery, and Ohannessian, 2017). These beliefs can increase higher levels of envy of others (Tandoc et al., 2015; Liu and Ma, 2018). Individuals may attempt to post on social media to feel connected, but the resulting positive or negative feedback could increase or

decrease individuals' self-esteem accordingly (Valkenburg, Peter, & Schouten, 2006; Woods and Scott, 2016).

Participants in the study were able to identify the social comparisons that occur through the use of social media and the impact on self-esteem.

> On a Saturday night I usually look through snapchat and see how much fun everyone else is having and then feel like I need to be having just as much fun as them. When I wasn't able to look at social media and compare my night to anyone else's, I was focused on the people in front of me, and just had a better time than I normally would.

> One of the main reason[s] I decided personally to disconnect from Instagram was so that I could stop comparing my journey of life to people on Instagram. Also, I want to stop having unrealistic expectations for myself.

> I find that I compare myself with other people on social media, and it makes me feel bad about myself.

> I always compare my life to someone else's that I follow and I don't realize that it affects me in a negative way.

> I also noticed when I am on social media, I compare myself and the things I am doing to everyone else and what they are doing. When I do not have social media I just get to see what is right in front of me and be appreciative of that, instead of comparing, which can take away from what I am experiencing.

As these comments indicate, not using social media, respondents were able to discover the connection between the use of social media and the negative emotional responses based on self-comparison to others. Removal of the use and comparisons actually increased positive feelings about oneself.

Outcome: Poor Sleep

As a result of trying to reduce anxiety through increased use in social media, individuals can suffer from a lack of sleep. Increased social media usage has been linked to shorter sleep durations, later bedtimes that can result in later rise times, and increased daytime tiredness (Woods and Scott, 2016). As individuals use social media close to bedtime, screen exposure can impact melatonin production, which can affect circadian rhythms (Woods and Scott, 2016). While the goal may be to relax in bed before sleep with a glance at social media, this has been found to decrease the ability to relax for fear of missing out on social media content or messages (Woods and Scott, 2016). The use of

notifications on the social media application impact this ability to relax as individuals can be connected 24/7 and may feel the need to respond. The pressure to feel connected results in 86% of young adults sleeping with the phone next to them in the bedroom, under the pillow, or even in their hand (Woods and Scott, 2016). Unfortunately, it is the lack of sleep that can further inflate the issues of depression and anxiety, perpetuating the problem.

Participants reflected on their use of social media and how it impacts their sleep schedule.

It's the first thing I look at when I wake up in the morning and the last thing I look at before I go to bed for the night.

Even though the sole reason of me skipping the class was for extra sleep I would've probably stayed on my phone playing on it while I was laying there. I realized I would be pretty bored if I weren't to go back to sleep and got up and went to class. This was my first realization on how impactful social media is as a time filler or filler of life in general and how it can get in the way of tasks pretty often.

Normally, my nights end by me lying in bed, doing what I like to call social media surfing, where I just get on Instagram and YouTube, sometimes Snapchat, and I just browse on there until I fall asleep. So that was a challenge for me, because that's basically my nightly routine.

The hardest part for me was when I had a break and when I was about to go to bed, which is normally the time I would look at my newsfeed.

These comments provide support that social media does impact the respondents sleep patterns in a negative way through use of these apps in lieu of sleep.

Outcome: Feelings of Guilt

With increased social media usage comes additional outcomes such as reduced health, mood swings, and complaints from other people because of excessive use, which ultimately culminate into feelings of guilt (Turel, Poppa, and Gil-Or, 2018; Liu and Ma, 2018; Vannucci, Flannery, and Ohannessian, 2017). These feelings of guilt can be due to individuals feeling guilty about their excessive use or their behaviors that resulted from their use of social media. These behaviors can impact themselves or others.

This study showed that participants identified their feelings of guilt from social media usage, and relief from this guilt due to lack of use, in their responses.

It has shown me that I don't need to rely so heavily on it because most times it makes me feel bad about myself.

I felt really relieved without social media. I was glad to know that I was really happy being where I was at the moment and not having to see what other people were doing for entertainment.

…but it was also a relief because it gave me time to sit down with my family once I got home and talk to them about how each other[']s weeks went. I enjoyed not being attached to my phone as much as I normally am when I am around my family. I was able to see that I could talk to my parents for hours and still have more to talk about. It was as if we never ran out of something to talk about.

As time goes on I feel more relieved than anxious. I felt good owning my own life for a chance and not letting social media control me every second of the day.

As evidenced by these comments, the removal of the use of social media demonstrated a connection to the release of feelings of guilt. Guilt was replaced by feelings of relief by not engaging in social comparisons, as well as spending time with family members.

Outcome: Diminished Performance

Connected to the feelings of guilt is the identification of neglecting things of importance other than social media. One such area that the participants in the study identified was their use of social media has led to is a diminished job and academic performance.

This assignment has helped me realize social media is pretty much a massive waste of time. I should be doing something more constructive with my time than looking at pictures of people I haven't talked to in years.

While completing my tasks at work I was so much more productive due to the fact that I wasn't taking little breaks here and there to check social media.

I realize how much of a distraction it is in my life. I can probably get a lot more done, if I didn't have social media to distract me, but that's all mental. I can easily discipline myself to not use it, but I shouldn't have to.

…because I had a break in between my classes, which is usually the time I catch up on my newsfeed. However, this time I wasn't allowed to do that so I had to study instead.

> I noticed that I got so much more done in a smaller amount of time because I wasn't able to go on my phone.

Abstaining from use, participants were able to identify the excessive time usage of social media and were actually able to be more productive at work and studies.

Outcome: Decreased Cognitive Capacity

An interesting outcome due to excessive social media use is a potential decrease in cognitive capacity. Cognitive capacity is critical for learning, reasoning, and developing new ideas (Duke et al. 2018). A study conducted by Duke et al. (2018) found that individuals who attempted to complete a task that relied on individuals' cognitive capacity demonstrated a decrease in cognitive capacity when their smartphones were nearby, even turned off, compared to in the other room. These results hint at the preoccupation of what is being missed on the phone, rather than being able to focus on the task at hand free of distraction. The comments from the participants in this study support the findings in the previous survey. With a lack of social media, participants found it easier to concentrate.

> I was able to focus on tasks longer because I didn't have the urge to refresh any of my feeds throughout the day, so that was nice. I also realized how pointless some of the time I spend on social media is. For example, I spend way too much time on Facebook watching pointless videos about cats and cooking tutorials, and habits like that I would be willing to discontinue.
>
> In the long run, I made an A on my test, so overall, being disconnected from social media had a positive result for me and made me realize that I probably should continue to use it less when it comes to schoolwork.
>
> I am going to try to decrease my usage of social media so I can pursue other hobbies such as reading or painting or something that does not require me to use my phone.
>
> Because I had a big test I needed to study for after practice, I felt relieved by not being able to look at my phone cause it made me study more, and I had less distraction and more time to focus on my studies.

These comments point to the positives of removing excessive use of social media, so that cognitive capacity can increase or not be diminished. The ability to focus on a task was greatly increased when social media usage was removed.

Why Social Media Is So Addicting

To fully understand social media addiction, an understanding of how it becomes so addicting is essential. Based on the need to belong theory, individuals will engage in behavior to feel connected to others (Baumeister and Leary, 1995). As such, individuals will engage in actions to stay connected through social media, feeling a sense of obligation to keep up-to-date on peoples' lives (Aksoy, 2018; Elhai et al., 2018). This need to belong also results in increased apprehension not to feel left out and stay connected to others' experiences (Przybylski, Murayama, DeHaan, & Gladwell, 2013; Elhai et al., 2018). This need ultimately leads to a fear of missing out (FOMO), which can motivate many of the addictive behaviors that have been discussed (Casale, Rugai, and Fioravantia 2018). While some participants in the study may not have specifically indicated they had FOMO, their responses indicated FOMO was present in their motivations to use social media.

> Well, I cannot deny that when the time was over I was super anxious because I knew I would have a lot of messages and fun Snapchats.

> FOMO, which means fear of missing out, basically sums up what why I'm now programmed to check on Instagram so often throughout the day.

> Throughout the day, my friends would talk about things they saw on social media, but I wasn't able to fully engage in the conversation because I hadn't been on social media.

> I definitely had a large amount of FOMO at the start of the assignment. Honestly something about checking the aesthetic, glamorous side of people's lives feels somehow fulfilling on Instagram.

> I just felt like I was going to miss out on so much.

> I was also anxious about being disconnected from social media because I do have people that message me on my accounts and I just kept thinking well what if someone is trying to get in touch with me that does not have my number.

Another aspect of social media that impacts addiction is the functioning of the applications themselves. Notifications that are available on the applications were shown in this study to influence the participants' desire to focus on social media.

Another thing that I was anxious about was clearing my notifications because having notifications on my phone is one of my biggest pet peeves especially when it comes to social media because I HAVE TO check it.

Seeing the notifications icon near my folder had irritated me since I am the type of person who likes to clear their notifications from all apps. I do not enjoy seeing that red icon by any apps on my phone. Due to this, I temporarily turned my notifications off in my settings which helped make the rest of the experience easier.

I felt anxious that I had so many notifications waiting to be cleared. However, I was not anxious about what the notifications were about. I simply wanted to turn my notifications back on so I could get rid of them. Many accounts such as Facebook, Twitter, and Pinterest in particular send notification alerts on a daily basis that are irrelevant to me. I feel I get on my accounts more just to clear those than I actually use it for its purpose.

In addition to notifications, the applications have features that increase the need for daily use, or FOMO can be increased. Limitations on time to view Snapchats, Instagram, and Facebook stories, makes it necessary for individuals to use the applications daily or risk missing this information. Streaks on Snapchat (a number indicating the number of days that individuals have communicated back and forth to each other in the same chat dialogue) increases the pressure to connect every day or risk letting down others when a "streak" is broken. Participants in this study identified these features as motivations to continue daily social media use.

Also, I have something on my Snapchat application that is called "streaks" is like sending a Snapchat back and forth with your friends daily, and if you miss a day your streak score starts over. I had streaks with six friends, one of them was like 200 days long and I missed it! Today my friend sends me a lot of angry faces, I should have had explained her the day before missing our almost a year of streaks.

Another thing that turned me away from wanting to do this assignment was I have plenty of Snapchat streaks that are almost a year old and I did not want to lose them. Thankfully I had someone manage my account that way I did not lose them.

In the beginning I was freaking myself out, thinking negatively, and sad that I wouldn't be able to see what was going on in my friends and bloggers I follow posts. More than anything it sucked not being able to check Snapchat because those posts disappear within 24 hours and I knew I would be missing out on a lot. It was a Thursday night, friends were going out, which is usually

when people post more on social media. I then came to the realization that I would probably still be able to see most of the Snapchat stories after the 24 hours so I wouldn't be missing out on too much.

An unexpected discovery from this study was the reliance on social media as a means to stay connected to the world for world events. Participants indicated their use of social media to obtain their news stories. Without social media, some participants displayed uneasiness about how they should receive their news.

> I also noticed how dependent I am on social media for news and for updates just on things going on in the world. Throughout the day I felt like I was out of the loop on what was going on in politics that day and how my favorite teams were performing.

> What if another mass casualty event occurred and I have no idea because I am disconnected which made me realize that I use social media as a news source which sort of freaked me out. I really do not check the local news websites nor national news websites, I solely get my news from social media which is not necessarily a good thing.

> By avoiding Twitter for 24 hours, I felt as though I was unaware of current events and breaking news during the time period.

Interestingly, FOMO was not only related to social connections but to societal news events. These comments demonstrate that social media is being used a vehicle for connection to all societal information and connection, and the removal of use increased FOMO.

Positive Participant Discoveries

While many of the participant discoveries discussed thus far related to a social media addiction symptom or outcome, a positive finding from this study was participants' insight into their desire for a better relationship with social media. Many of the participants were able to identify how social media had been negatively impacting them and how they plan to change.

> Disconnecting from social media for 24 hours made me more aware of my relationship with social media in regards to how much I depend on it to fill the emptiness.

> It really opened my eyes to how much social media dictates our lives.

Disconnecting for social media for 24 hours changed my relationship with social media by reminding me how important it is to live in the present. I am reminded that I need to really pay attention to the people I am around, and to not let myself be distracted by Instagram or Facebook.

I will put away my phone and avoid social media when I am with friends and family in order to better engage in conversation with them. Additionally, I will not check social media first thing in the morning and will not have social media be the last thing I look at before I go to sleep. I will try reading a book or simply spending some quiet, reflective alone time before going to bed.

It's been a few days after I disconnected and I actually don't find myself to be as engaged as I was before because I learned how little of an impact it has on my life. At night I now turn on the "Do Not Disturb" feature on my phone to give me less inclination to check social media. Will I still continue to use it? I most definitely would but I'm just going to take it down a notch.

Once you realize that in the grand scheme of things that responding to someone is not nearly as important as other things in life, so it got a lot easier to deal with.

These comments provide evidence of the positive benefits of abstaining from use of social media for various time periods, even if it is only 24 hours. By participants demonstrating a connection between the negative impacts discovered from not engaging to with social media applications, they were able to identify positive outcomes.

Overall, the qualitative results provided support that the connection between social media usage and addiction are supported. The symptoms of addiction (time distortion, behavior and brain changes, depression, anxiety, sleep issues, feelings of guilt) were evidenced and supported in the comments from the participants when they gave up social media for 24 hours. By these participants abstaining from usage of social media, they were able to make connections between reducing feelings of low self-esteem to increasing feelings of relief and ability to focus better. In general, the participants were able to identify social media as having a main impact on their emotional well-being.

Next, the participants' surveyed responses of their social media usage will be analyzed. In addition, the emotional responses felt during this study were quantitatively analyzed.

QUANTITATIVE RESULTS

Social Media Application Usage

Participants were asked to identify their usage of social media applications. Table 1 provides an overview of the average usage of each of the applications. The results show that Snapchat, followed by Instagram, were the two most frequently used social media applications, followed by Facebook and then Twitter.

Table 1
Usage of Social Media Applications

Social Media Application	Mean	Std. Deviation
Snapchat	4.29	1.198
Instagram	4.16	1.189
Facebook	3.75	1.387
Twitter	2.85	1.671
YouTube	2.64	1.262
Pinterest	1.79	1.099
LinkedIn	1.64	.828
Reddit	1.43	1.112
Google+	1.30	.864
Tumblr	1.12	.516
WeChat	1.05	.255
Flickr	1.01	.115

Emotional Responses to Giving Up Social Media Usage

Emotional Scale Items. Mean comparisons of emotions participants experienced during the assignment were performed for the hours of 0, 1, 4, 8, 12, and 24. Here, analysis of the emotional items of anxious, sad, depressed, and worried was summated into the negative emotion scale (α = .922), and emotional items of excited, happy, and interested were summated into the positive emotion scale (α =.851). Figure 1 provides an overview of the mean values for the positive and negative emotions over the 24-hour period.
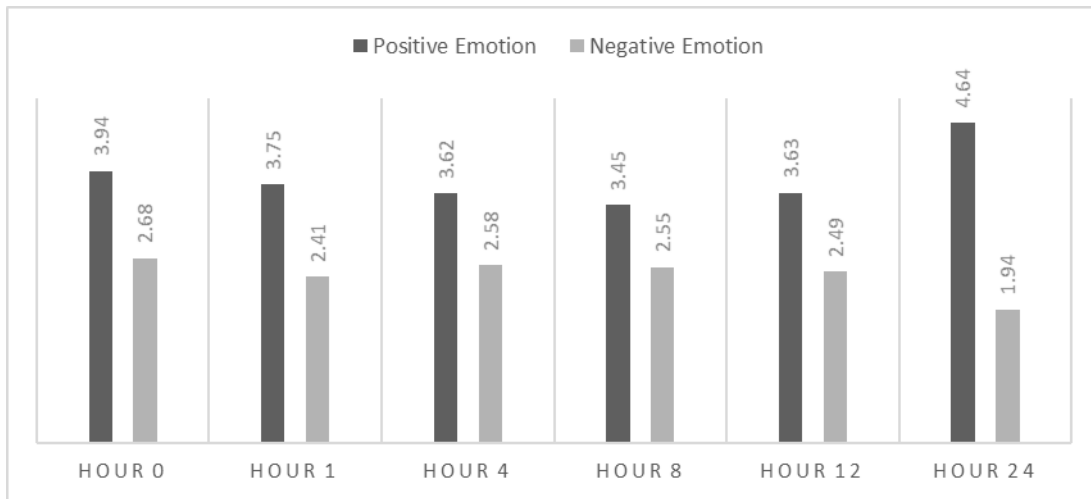
Figure 1. Emotional Response Over 24-Hour Period. Positive emotions decreased from hour 0 to hour 12, however increased at hour 24. Negative emotions appeared to fluctuate throughout the hours and go down at hours 24.

Mean analyses were performed to determine if there were significant differences between positive and negative emotions at different hours. Tables 2 and 3 summarizes the significant differences between the mean values of the positive and negative emotions.

Table 2
Significant Differences Between Positive Emotions by Hour

Hour	Hour	T-Value
Hour 0 (M=3.94, SD=1.28)	Hour 8 (M=3.45, SD=1.30)	$t(75) = 2.816, p < .01**$
Hour 0 (M=3.94, SD=1.28)	Hour 24 (M=4.64, SD=1.35)	$t(75) = -4.103, p < .001**$
Hour 1 (M=3.75, SD=1.30)	Hour 8 (M=3.45, SD=1.30)	$t(75) = 2.793, p < .01**$
Hour 1 (M=3.75, SD=1.30)	Hour 24 (M=4.64, SD=1.35)	$t(75) = -5.982, p < .001**$
Hour 4 (M=3.62, SD=1.35)	Hour 24 (M=4.64, SD=1.35)	$t(75) = -3.926, p < .001**$
Hour 8 (M=3.45, SD=1.30)	Hour 12 (M=3.63, SD=1.36)	$t(75) = -2.193, p < .04*$
Hour 8 (M=3.45, SD=1.30)	Hour 24 (M=4.64, SD=1.35)	$t(75) = -8.212, p < .001**$
Hour 12 (M=3.63, SD=1.36)	Hour 24 (M=4.64, SD=1.35)	$t(75) = -7.448, p < .001**$

*significant at $p \leq .05$, **significant at $p \leq .01$

Table 3
Significant Differences Between Negative Emotions by Hour

Hour	Hour	T-Value
Hour 0 (M=2.68, SD=1.44)	Hour 24 (M=1.94, SD=1.25)	$t(75)= 3.697, p < .001**$
Hour 1 (M=2.41, SD=1.26)	Hour 24 (M=1.94, SD=1.25)	$t(75)= 3.106, p < .01**$
Hour 4 (M=2.58, SD=1.35)	Hour 24 (M=1.94, SD=1.25)	$t(75)= 3.118, p < .01**$
Hour 8 (M=2.55, SD=1.40)	Hour 24 (M=1.94, SD=1.25)	$t(75)= 4.732, p < .001**$
Hour 12 (M=2.49, SD=1.34)	Hour 24 (M=1.94, SD=1.25)	$t(75)= 4.754, p < .001**$

**significant at $p \leq .01$

Looking at the results of emotional response, the pattern of positive emotional response seemed to dip over time; however, at the 24-hour mark, it was the highest. This pattern can be interpreted one of two ways: one, that participants were happier after having given up social media for 24-hours, or two, that participants were satisfied now that the 24-hour period was over and they would be able to access their social media again. Further analysis of the personal responses is needed to determine the motivation for these emotional responses.

Emotional Response Text. To provide a deeper understanding of the emotions participants were experiencing over the 24 hours, text analysis was done on the responses subjects provided at each of the periods using the text mining tool LIWC. LIWC analyzes the text by giving a percentage of words that fall into specific categories (Hancock et al. 2010) and is a standard tool utilized in text analysis (Pennebaker and Stone 2003). Using LIWC, the two categories of interest in this analysis were positive emotions and negative emotions. Figure 2 demonstrates the results of the text analysis over the period of 24-hours. The mean values of the text analysis indicate that both the positive and negative emotions in the participants' responses were both highest at Hour 0, and then the second highest at Hour 24.
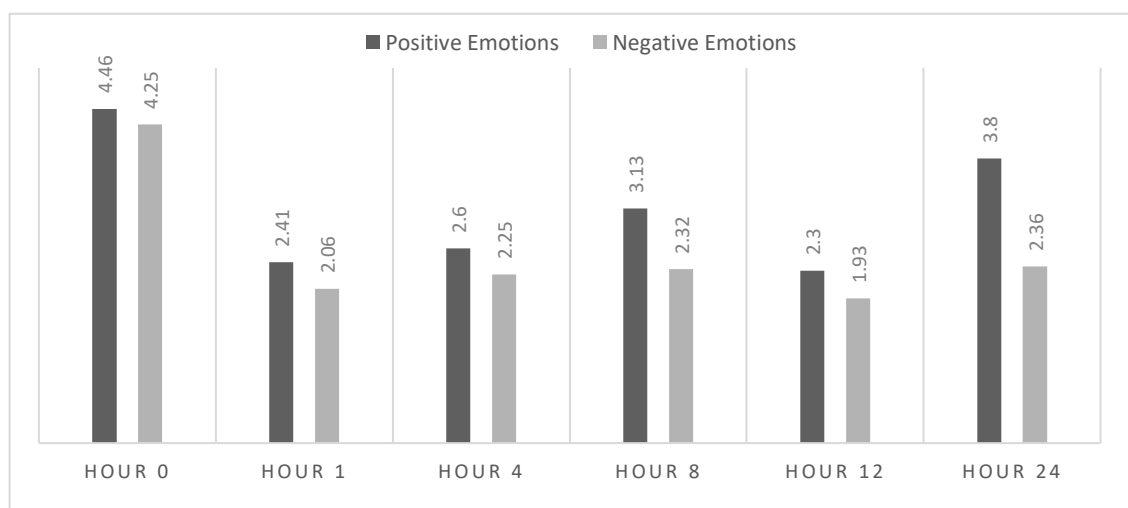

Figure 2. Text Analysis of Emotional Response Over 24-Hour Period. Both positive and negative emotions decreased drastically from hour 0 to hour 1 and then fluctuated over the 24-hour period.

Mean analyses were performed to determine if there were significant differences between the positive and negative emotions of the text analysis at different hours. Table 4 summarizes the significant differences between the mean values of positive emotions via text analysis. There were no significant differences between negative emotions via text analysis.

Table 4
Significant Differences Between Positive Emotions via Text Analysis by Hour

Hour	Hour	T-Value
Hour 0 (M=4.46, SD=4.48)	Hour 1 (M=2.41, SD=2.64)	$t(75)$=3.467, $p < .01$**
Hour 0 (M=4.46, SD=4.48)	Hour 4 (M=2.60, SD=5.71)	$t(75)$=3.286, $p < .01$**
Hour 0 (M=4.46, SD=4.48)	Hour 8 (M=3.13, SD=2.85)	$t(75)$=2.719, $p < .01$**
Hour 0 (M=4.46, SD=4.48)	Hour 12 (M=2.30, SD=2.26)	$t(75)$=3.595, $p < .01$**
Hour 1 (M=2.41, SD=2.64)	Hour 24 (M=3.80, SD=3.17)	$t(76)$= -3.121, $p < .01$**
Hour 4 (M=2.60, SD=5.71)	Hour 24 (M=3.80, SD=3.17)	$t(75)$= -2.630, $p =.01$**
Hour 8 (M=3.13, SD=2.85)	Hour 12 (M=2.30, SD=2.26)	$t(75)$=1.983, $p =.05$*
Hour 12 (M=2.30, SD=2.26)	Hour 24 (M=3.80, SD=3.17)	$t(76)$= - 3.437, $p < .01$**

*significant at $p \leq .05$, **significant at $p \leq .01$

Similar to the emotional scale item analysis, the emotional response text analysis followed a similar pattern of higher positive and negative emotions at the beginning of the assignment and the end of the assignment. To understand why this may be occurring, an analysis of the themes emerging at those time frames is needed. With the assistance of three graduate assistants, the text responses from the participants were analyzed by each assistant identifying themes. Themes for the 24-hour time mark ranged from relief that the 24-hours were complete, frustration from being disconnected to actual enjoyment from disconnecting (see Figure 3). These central themes would help to explain why the positive and negative emotions were high at the end of the project.
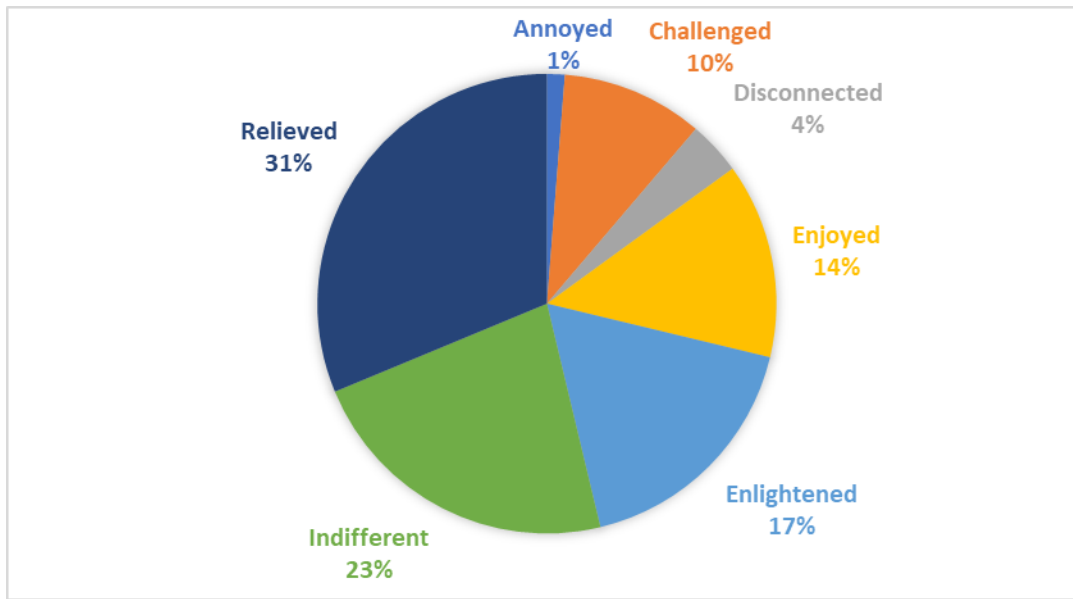
Figure 3. Summary of Theme Responses at Hour 24. Greatest percentage of responses indicated relief, while the smallest percentage of responses indicated annoyance.

Social Media Usage and Emotional Response Relationships

To understand if there is a relationship between the participants' usage of social media and their emotional responses to abstaining from using social media for 24 hours, multiple linear regressions were performed to identify the variables that relate to social media addiction. As shown in Table 5, a linear combination of variables was significantly associated with social media addiction $F(3,72) = 39.28$, $p<.001$, with adjusted R^2 indicating the linear combination of social media emotional connection, use of Instagram, and negative emotions at hour 0 accounting for 64.1% of the variance.

Table 5
Multiple (Stepwise) Regression Analysis for Social Media Addiction

Independent Variable	Unstandardized Coefficients ß	Standardized Coefficients ß	T value	Standard Error
Constant	.067		.268	.248
Social Media Emotional Connection	.320**	.492**	5.408	.059
Use of Instagram	.143*	.235*	2.996	.048
Negative Emotions at Hour 0	.129*	.256*	2.909	.044

*Significant at p<.01, **Significant at p<.001*

Table 6 indicates the results of the variables not included in the multiple (stepwise) linear regression model.

Table 6.
Variables Not Included in the Multiple (Stepwise) Linear Regression Model

Variables	Beta In	*t*-Value	Sig.
SUM_SMUsageAddiction	.068	.731	.467
SUM_NegEmo_All	-.068	-.763	.702
SUM_PosEmo_All	.012	.156	.884
Use_Facebook	-.032	-.408	.425
Use_Twitter	-.065	-.833	.428
Use_SnapChat	.010	.117	.560
Use_WeChat	-.089	-1.217	.502
Use_Google	.040	.543	.497
Use_YouTube	.102	1.398	.324
Use_Pinterest	-.106	-1.389	.596
Use_Tumblr	-.104	-1.443	.868
Use_Flickr	-.076	-1.042	.375
Use_Reddit	.036	.470	.448
Use_Linkedn	.051	.679	.876
Use_OtherSM	.048	.655	.578
SUM_NegEmo_1HR	-.031	-.384	.868
SUM_NegEmo_4HR	-.011	-.147	.685
SUM_NegEmo_8HR	-.062	-.802	.126
SUM_NegEmo_12HR	-.061	-.798	.631
SUM_NegEmo_24HR	-.044	-.586	.537
SUM_PosEmo_0HR	.051	.674	.825
SUM_PosEmo_1HR	-.052	-.683	.587
SUM_PosEmo_4HR	-.075	-.994	.617
SUM_PosEmo_8HR	.040	.533	.270
SUM_PosEmo_12HR	.013	.167	.701
SUM_PosEmo_24HR	.067	.893	.295
Positive Emotions_0HR	-.041	-.559	.684
Positive Emotions_1HR	-.030	-.407	.408
Positive Emotions_4HR	-.036	-.482	.907
Positive Emotions_8HR	-.017	-.222	.228
Positive Emotions_12HR	.037	.502	.589
Positive Emotions_24HR	.029	.386	.167
Negative Emotions_0HR	-.012	-.167	.169
Negative Emotions_1HR	-.112	-1.546	.153
Negative Emotions_4HR	-.046	-.620	.301
Negative Emotions_8HR	.042	.546	.640
Negative Emotions_12HR	.082	1.112	.499
Negative Emotions_24HR	-.081	-1.055	.514

Discussion

The results of these analyses demonstrate the complex emotional range experienced by individuals who abstain from using social media for 24 hours. At the start of this

endeavor, self-report and text analysis revealed that participants shared some of both the highest positive and negative emotions of the duration of the exercise. This fluctuation can be attributed to the optimism of trying something new as well as anxiety toward the difficult task.

The results then begin to differ between the self-report emotional measures and the open-ended text analysis. Expressly, participants indicated on the self-report scale that their positive emotions generally decreased across hours 1, 4, and 8, while the text analysis revealed that these same emotions increased over the same period. Apart from indicating a lack of emotional awareness, these findings show that how individuals describe their emotional experiences are far less dire than their descriptions of the emotions they are experiencing.

Finally, after the exercise, participants indicated an uptick in both positive and negative emotions, with the only exception being the self-report results of the negative emotions showing a sharp decline. Again, this speaks to a myriad of affective reactions to the exercise. However, the decrease in negative emotions on the self-report scale indicates that participants were at least aware of more positive emotions than negative ones once they had completed their 24 hours apart from social media.

GENERAL DISCUSSION

As the global use of social media increases on a rapid and unprecedented scale, the potential for social media addiction to impact its users has increased in tandem. Described as an unhealthy dependence on social media that negatively influences cognition and behavior, social media addiction is increasingly prevalent among younger generations (Turel and Cavagnaro, 2019). As with any addiction, one method of slowing or even curing addiction is an abrupt, "cold turkey" cessation to the practice causing the harmful effects. Such a drastic measure as this is what the current research explored. Students were asked to abstain from using social media for 24 hours, taking note of their emotional experiences before the exercise began, at hours 1, 4, 8, and 12, and then finally after the exercise. Measures at each period included both open-ended responses and quantitative indices.

Results from the open-ended responses revealed that social media addiction results in many of the same consequences as other addictive practices, including depression,

anxiety, low self-esteem, poor sleep, guilt, diminished job and academic performance, and decreased cognitive capacity (Woods and Scott, 2016; Turel, Poppa, and Gil-Or, 2018; Duke et al., 2018). Due in part to distorted perceptions of time, brain and behavioral changes, and a sense of FOMO, social media addiction has a high likelihood of resulting in any number of adverse outcomes. Perhaps most concerning is that it took an exercise like the one conducted in this study to make participants aware of these potential consequences. One positive outcome from this exercise is that many participants described how the 24-hour period increased their self-awareness toward their emotional attachment to social media. Perhaps the first step toward a remedy for social media addiction, then, is providing for greater awareness of one's own personal need for social media.

The findings from the self-report emotional scales, as well as text analysis of the open-ended comments, corroborated this lack of self-awareness. Many of the emotional ratings participants provided for themselves did not align with the emotions revealed by the text analysis of their comments. This mismatch indicates that, again, individuals may be unaware of their genuine emotions or emotional attachments to social media, a common issue among anyone struggling with a form of addiction. High positive emotions at the conclusion of the exercise can mean any number of things depending on the individuals: an optimistic reflection on how much they have learned about themselves, or relief that they survived the 24 hours of abstinence and can return to their old habits again. This need for self-awareness and the varying emotions that accompany the use of (and abstinence from) social media are of high importance in navigating the relatively new waters of social media addiction.

LIMITATIONS AND FUTURE RESEARCH

One limitation of this study is that data were collected from one type of class (Consumer Behavior class) and one exercise. Increasing the sample size across multiple types of classes, and even various universities would significantly enhance the validity of the findings. This study is also limited in that it is solely reliant on self-report data; participants may not have logged their time as accurately as they indicated. Also, there was no protocol to ensure they did not access their social media channels. In future studies, this can be prevented through the use of blocking apps to control access to social

media, time notifications, and penalties for late submissions on time logs. Future research could also expand on these findings by exploring tangible advertising outcomes, such as assessing participants' evaluations of various ads before and after the social media break to determine the direct effects of social media addiction on marketing.

CONCLUSION

Social media is one of the most widely used platforms in advertising today, and yet addictive habits contribute to an unhealthy relationship between the user and a social media channel. Advertisers must be aware of the ethical ramifications of promoting urgent, time-sensitive communications that may produce anxiety in individuals who feel it necessary to frequently check social media channels so as not to miss anything. Advertising on social media is not likely to disappear anytime soon; therefore, advertisers must begin evaluating healthier options for doing so.

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Appendix

Social Media Addiction Scale Items
5-point Likert scale, very rarely – very often

- Spend a lot of time thinking about Social Media or planned used of Social Media
- Feel an urgency to use Social Media more and more
- Use Social Media in order to forget about personal problems
- Try to cut down on the use of Social Media without success
- Become restless or troubled if you have been prohibited from using Social Media
- Use Social Media so much that it has had a negative impact on your job/studies
- Ignored your partner, family members, or friends because of Social Media

Social Media Usage Scale
5-point Likert scale, very rarely – very often

- Watching T.V.
- Waiting for someone or something (like a bus/train)
- While waiting in the waiting room for a service (i.e., doctor's office, car repair)
- When you are in the company of friends/family/colleagues having fun
- While you are eating
- When you are relaxing
- When you wake up in the morning
- When you are in bed, before you go to sleep
- While you are at work
- While you are in class
- While someone is talking, lecturing, preaching, etc.
- While you are at the movie theater watching a movie
- While you are in a stadium watching a sporting event
- While you are at a live concert
- When you want to find out more about someone you met online/offline

Social Media Emotional Attachment Scale
7-point Likert scale, strongly disagree – strongly agree

- I feel disconnected from friends when I have not logged into Social Media
- I would like it if everyone used Social Media to communicate
- I would be disappointed if I could not use Social Media at all
- I get upset when I can't log on to Social Media
- I prefer to communicate with others mainly through Social Media
- Social Media plays an important role in my social relationships
- I enjoy checking my Social Media account
- I like to use Social Media
- Using Social Media is part of my everyday routine
- I respond to content that others share using Social Media