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Social Media as a Predictor of Depression Rates Among Male Versus Female Adolescents During the COVID-19 Pandemic

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SOCIAL MEDIA AS A PREDICTOR OF DEPRESSION RATES AMONG MALE VERSUS
FEMALE ADOLESCENTS DURING THE COVID-19 PANDEMIC

by

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Submitted in Partial Fulfillment
of the requirements for the degree of
Bachelor of Arts
in
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Faculty of Arts and Social Science

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Social Media as a Predictor of Depression Rates Among Male Versus Female Adolescents

During the COVID-19 Pandemic

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Abstract

Technology use has drastically and progressively increased as the COVID-19 pandemic has continued to unfold. Adolescents are now reliant on technology for their education, in addition to communication with friends and family (Pfefferbaum & North, 2020). With the recency of the pandemic, research on the effects of increased internet and social media use for adolescent mental health is decidedly underdeveloped. This study aimed to fill the research gap by examining how the frequency of male and female adolescents' social media use is associated with depression rates during the pandemic by using a longitudinal design. Participants for this study included 351 adolescents, ages 14-19, residing in Ontario, Canada. Participants completed two surveys: the first (Time 1) was conducted between April 4th to April 16th, 2020, approximately three weeks following secondary school closures in Ontario, Canada due to the COVID-19 pandemic. The second survey (Time 2) was conducted between August 21st and September 6th, approximately six months following the first lockdown orders. The findings indicate that, in line with hypotheses, females engaged in more social media use and experienced greater depression than males. Regression analyses further revealed that Time 1 social media use was a significant predictor of Time 2 depression in females only. Strengths, weaknesses, implications, intervention strategies, and future directions for research addressing social media and depression are also discussed.

Keywords: social media, depression, adolescents, COVID-19 pandemic, gender

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Introduction

The last few decades have drastically changed in industrialized society, due to the surge in technology and social media platforms. These transformations were made gradually over time. As such, society adjusted accordingly to new ways of life. However, in 2020, the COVID-19 pandemic rapidly changed society forever. It altered the world and the everyday lives of people in ways no one could have ever predicted. Consequently, an unexpected spike in technology use and reliance on technology dominated Western society resulting from restrictions placed on socializing (Pfefferbaum & North, 2020). This life-altering experience inflicted various negative outcomes, specifically at the beginning of the COVID-19 pandemic when closure rates were at their highest and store items for purchase were becoming scarce (Pfefferbaum & North, 2020). This resulted in society becoming creative with how resources and technology were used to gain essential items and communicate with friends and loved ones.

The world has become reliant on technology, even when times are good, and people are able to socialize face-to-face. However, as found by Pfefferbaum and North (2020), technology use drastically increased as the COVID-19 pandemic unfolded. Many people are now reliant on technology for their occupations, in addition to communication with friends and family. Furthermore, the adolescent population, who was already consumed by new technology, is now reliant upon it in a way that they never were before (Pfefferbaum & North, 2020). For many years, social media use by adolescents has been a controversial topic amongst scholars and healthcare advisers. Some commentators believe that social media is detrimental to the mental health of adolescents, while others believe that the benefits outweigh the potential detriments (Dwivedi et al., 2018). Due to the global COVID-19 pandemic, social media and technology have become a necessity for most adolescents, especially amongst those removed from school and situated in newfound isolation at home. However, due to the way that social media has changed

our everyday communication forms, social media sites meant to encourage communication are having the opposite effect (Solomon, 2016).

Technology can be isolating at the best of times due to concerns around bullying, peer pressure, rumour initiation, drama, lack of in-person connection resulting in loneliness, and the unrealistic perspective of the lives of others (Anderson & Jiang, 2018). Weiss (1973) theorized that there are two types of loneliness: social and emotional loneliness. Weiss defined social loneliness as the feeling of being an outcast due to a lack of purposeful friendships and feeling a lack of belonging in one's community. Furthermore, emotional loneliness was defined as the unsettling feeling of emptiness due to a lack of intimate relationships in one's life. Moody (2001) adopted Weiss' definitions of loneliness and examined their relations to internet use. Moody found that although high levels of internet and social media use were associated with lower levels of self-reported social loneliness among adolescents, they were associated with higher levels of emotional loneliness. In contrast, a high degree of in-person interaction was associated with lower levels of both social and emotional loneliness. Thus, even though the internet is used as a communication tool, it still elicits emotional loneliness. Due to the emotional repercussions, what is this doing to the mental health of adolescents?

It is now easier than ever for adolescents, especially those who are developing their identity and self-confidence, to compare themselves to the picture-perfect lives of others (Solomon, 2016). This can be attributed to the importance that people place on their online self-appearance, which is especially prevalent in adolescence (Perloff, 2014). Due to these edited images resulting in a new standard of perfection, it is predisposing adolescents – generally adolescent females – to body image issues, anxiety, depression, and other mental health concerns (Perloff, 2014). This comparison makes adolescents more susceptible to mental health issues, specifically depression (Twenge et al., 2018). This is a result of the pressure they feel to look like

the perfectly edited images that they see online, in real life (Twenge et al., 2018). Marengo et al. (2018) found that highly-visual social media sites, such as *Facebook*, *Instagram* and *Snapchat*, have significantly increased in popularity among adolescents in recent years. Their study investigated the association between time spent on highly-visual social media, mental health concerns, and body image concerns in adolescents. Marengo et al. found that adolescents who use highly-visual social media for more than two hours per day reported significantly stronger mental health and body image concerns when compared to their peers who do not use highly-visual social media. Furthermore, of the sample of 523 adolescents with an average age of 14, (54.2% female), 28.9% of females as compared to 7.1% of males used highly-visual social media for more than two hours per day (Marengo et al., 2018). Therefore, due to the extra amount of time spent on social media, females are predisposed at a more rapid rate to mental health concerns (such as anxiety and depression), and body image concerns than males (Marengo et al., 2018). This may lead to poorer psychological adjustment to changes in their life, such as adjusting to the COVID-19 pandemic (Marengo et al., 2018).

Furthermore, social media has drastically changed the way in which people communicate and that which they consider valuable (Solomon, 2016). People went from valuing face-to-face relationships to having a digital relationship with someone over the internet in less than a generation (Solomon, 2016). These new relational challenges created by the internet have also caused anxiety and other mental health concerns resulting from comparison due to artificial and unattainable standards of beauty, as our social media portrayals are not always an accurate depiction of our true selves (Rege, 2009). However, with the global pandemic, meeting people in-person has become more challenging due to the COVID-19 social restrictions, and therefore, our unnatural social media representations have become more pervasive. Thus, the reliance and increased use of social media has resulted in individuals internalizing these feelings when they

cannot see others face-to-face, and therefore questioning the legitimacy of their relationships (Rege, 2009).

Since the COVID-19 pandemic is so recent, there is a large gap in the research of how a pandemic situation affects social media use, and more importantly how social media use during a pandemic affects mental health. From the limited amount of research available, Gao et al. (2020) found that self-reported social media exposure was positively associated with a higher prevalence of mental health issues, such as depression and anxiety, in participants from Wuhan, China at the beginning of the pandemic. However, no research to date has examined the association between social media use and depression during the evolving COVID-19 pandemic, specifically with a longitudinal research design. Further, it is important to explore this topic specifically with an adolescent sample because they are the age group most proficient with online technology (Calamaro et al., 2009) and particularly susceptible to mental health issues due to social media comparison (Perloff, 2014; Twenge et al., 2018).

To address this research gap, the current study's aim is to examine how adolescents' frequency of social media use is associated with depression rates during the COVID-19 pandemic. Adolescents were surveyed in April 2020, at the beginning of the COVID-19 pandemic, and again in late August 2020. Based on previous research and literature, it is predicted that a greater frequency of social media use during the timeframe of the study will predict an increase in adolescent depression rates, even after controlling for pre-pandemic social media use (H1). Furthermore, it is expected that the relationship between social media use and depression will be stronger for females than for males (H2). Finally, it is predicted that females will engage in more social media use than males and have increased depression rates (H3).

Method

Participants

Study participants came from an original sample of 1022 adolescents who completed the Time 1 survey, with 93 cases removed because these individuals failed to correctly respond to validation questions such as, “To respond to this question, please select strongly agree”.

Participants for the present study were 351 adolescents aged 14-19 years ($M_{age} = 16.93$, $SD = 0.90$) living in Ontario, Canada who completed both the Time 1 and Time 2 surveys. Thus, the retention rate from Time 1 to Time 2 was 38%.

There were 276 females and 67 males ($N = 343$) whose data was used in the analysis of this study. An additional eight participants were removed from analyses. Out of these eight, four identified as transgender, three indicated there was not an appropriate gender option for them, and one preferred not to disclose their gender. Unfortunately, due to these small group sizes, there was not enough statistical power to include them in the analyses. Furthermore, 220 participants (62.5%) stated they identified as White/European, 10 (2.8%) as Black North American/African, 74 (21%) as Asian, 9 (2.6%) as Hispanic/Latino, 11 (3.1%) as East Indian, 2 (0.6%) as Aboriginal/North American Indian, 23 (6.5%) indicated the “other” option, and 2 (0.6%) preferred not to answer.

Procedure

Recruitment and data collection for Survey 1 occurred from April 4th to April 16th, 2020, approximately three weeks after secondary schools in Ontario, Canada were closed indefinitely due to the COVID-19 pandemic and Canadian citizens were encouraged to engage in social distancing. An advertisement was posted to the Huron Health & Peer Relationships Lab’s *Instagram* page and promoted on 16 to 18-year-old Ontarians’ *Instagram* pages for one week. Adolescents younger than 16 years of age were not recruited in this way due to logistical issues

of having to secure online parental consent. The survey link was also e-mailed to a group of adolescents ($N = 155$; 14-18 years of age) who were, at the time, completing a longitudinal survey for the Health & Peer Relationships Lab and for whom those under age 16 had already received parental consent.

Survey 1 contained demographic questions such as gender, education level and age. Participants were then asked questions regarding their social media use. Participants were also asked questions on a scale pertaining to their mental health, specifically depression, which were then translated to become the Time 1 depression average. After the survey was completed, participants were asked to create a unique participant ID in order to maintain their anonymity but also have a way to link their data to their data in Survey 2, if they chose to participate in the second study. The participant ID that they were asked to create consisted of the first initial of their first name, the first initial of their last name, as well as the first four letters of the name of the street that they live on.

Participants were contacted again in late August of 2020, approximately three months after they completed Survey 1 by the researchers via email. The email invited them to complete Survey 2 through a link provided using their participant ID between August 21st and September 6th. Survey 2 contained the same measures as Survey 1, however, with slightly different wording in order to represent the time lapse of three months. Again, participants were asked questions on a scale pertaining to their mental health, specifically depression, which were then translated to become the Time 2 depression average.

Each survey took participants approximately 30 minutes to complete. Reimbursement for Study 1 completion included entry into a draw to win one of twenty \$50 gift cards or *Air Pods* and reimbursement for Study 2 completion included a \$15 electronic gift card.

Measures

The measures specific to this study are described below.

Depression

The 6-item depression subscale of the Brief Symptom Inventory (BSI) was used to measure depression (Derogatis & Melisaratos, 1983). This scale is appropriate for adolescents over the age of 13 years old. Additionally, the scale has excellent psychometric properties and connections to other measures of depression (Derogatis, 1975). In order to measure depression scores, participants were asked to think back over the past seven days and rate how they were feeling based on prompts such as, “Feeling hopeless about the future”. The rating scale ranged from 0 (*not at all*) to 4 (*extremely*). The items were averaged to create a single index in which a higher score indicated a higher response across the items (Time 1 $\alpha = .882$ and Time 2 $\alpha = .883$).

Social Media Use

In order to measure social media use, participants were asked to rate how many hours per day, on average they spent on social media platforms, such as *Facebook*, *Instagram*, *Snapchat*, and *TikTok* in the past three weeks. In order to obtain the most accurate responses, eight different response options were provided (*less than 10 minutes*, *10-30 minutes*, *31-60 minutes*, *1-2 hours*, *2-3 hours*, *3-5 hours*, *5-10 hours*, *to more than 10 hours*). The data from both Time 1 and Time 2 social media use, while controlling for pre-pandemic social media use, were averaged to create a measure of social media use across the pandemic. In the first survey, participants were also asked about their frequency of social media use during the six months prior to the COVID-19 crisis using the same Likert scale above. This was used as a covariate in the analyses.

Analysis

To test H1, that social media use during the pandemic will predict increases in depression, two linear regressions were run using the PROCESS macro in the statistical software SPSS

Version 27. In the first regression, gender, social media use before the pandemic, social media use during the pandemic and an interaction between gender and social media use during the pandemic were included as predictors of Time 2 depression. The interaction term between gender and social media use allowed for the testing of H2, that the relationship between social media use during the pandemic and depression would be stronger for females as opposed to males. In the second regression, Time 1 depression was included as an additional predictor, which allowed for the examination of whether social media use predicts changes in depression from Time 1 to Time 2.

Finally, in order to address H3, that females would be higher in social media use and depression than males, four independent samples *t*-tests were conducted with gender as the independent variable and Time 1 and 2 social media use and depression as the dependent variables.

Results

Descriptive Statistics

Table 1 reports the means, standard deviations, average depression scores at Time 1 and Time 2, social media scores at Time 1 and Time 2, average social media use, and correlations. Average social media use during the pandemic had a mean of 4.81 ($SD = 1.24$) which was equal to one to two hours of social media use on average, per day. Furthermore, at Time 1, the average social media use score was 5.56 (i.e., 2-3 hours per day; $SD = 1.40$) with an average depression score of 1.84 out of 4 (i.e., “moderately” experiencing depressive symptoms; $SD = 1.03$). Moreover, the average social media use at Time 2 was 6.04 (i.e., 3-5 hours per day; $SD = 1.26$) with an average depression score of 1.53 out of 4 (i.e., “moderately” experiencing depressive symptoms; $SD = 0.99$). Therefore, the average depression score was lower at Time 2 than it was at Time 1.

There were also several correlations, the most predominant being the relationship between social media use and depression. Social media use at Time 1 and Time 2 were both significantly and positively correlated with depression at Time 1 and Time 2 (see Table 1).

Hypothesis Testing

In the first regression, it was found that the interaction term between social media use during the pandemic and gender was a significant predictor of Time 2 depression rates ($B = 0.30$, $t = 2.66$, $p = 0.01$; see Table 2, Model 1). No other significant predictors emerged. A simple slopes analysis revealed that, consistent with H2, the relationship between social media use and depression was not significant for males ($B = -0.05$, $t = 0.50$, $p = 0.62$) but the relationship was significant for females ($B = 0.25$, $t = 3.64$, $p = 0.00$). Therefore, increased social media use predicts greater depression for females but not for males.

In the second regression, only Time 1 depression was a significant predictor of Time 2 depression ($B = 0.61$, $t = 13.90$, $p = 0.00$; see Table 2, Model 2). Furthermore, once this variable was included, the interaction term between gender and social media use became marginally significant ($B = 0.17$, $t = 1.80$, $p = 0.07$; see Table 2, Model 2). Thus, these results suggest that, while females' social media use predicts depression rates, it does not significantly predict increases in depression from Time 1 to Time 2.

Since social media use did not predict increases in depression, it was imperative to investigate whether or not the relationship between the two variables was working in the opposite direction. Does depression predict increases in social media use? Maybe the temporal relationship between social media and depression is reversed to what was hypothesized. Therefore, a further exploratory analysis was done in order to examine this reciprocal relationship in a regression with Time 1 depression predicting changes in social media use. However, neither Time 1 depression ($B = -0.03$, $t = -0.18$, $p = 0.86$; see Table 2, Model 3), or the interaction between Time 1

depression and gender ($B = 0.15$, $t = 0.90$, $p = 0.37$; see Table 2, Model 3) were significant predictors of changes in social media use over time.

Lastly, consistent with H3, independent samples t -tests found that females ($M = 6.16$, $SD = 1.20$) used social media significantly more frequently than males ($M = 5.55$, $SD = 1.37$) did, but only at Time 2, $t(339) = -3.61$, $p = 0.00$. In contrast, there was no significant gender difference in social media use at Time 1 (Female $M = 5.60$, $SD = 1.38$ and Male $M = 5.38$, $SD = 1.54$), $t(340) = -1.15$, $p = 0.25$. Furthermore, consistent with H3, females ($M = 1.57$, $SD = 0.98$) had significantly higher depression scores than males ($M = 1.27$, $SD = 1.04$), but only at Time 2, $t(341) = -2.27$, $p = 0.02$. Again, there was no significant gender difference in depression at Time 1 (Female $M = 1.86$, $SD = 1.01$ and Male $M = 1.59$, $SD = 1.04$), $t(329) = -1.90$, $p = 0.06$. Therefore, H3 was only partly supported.

Discussion

The goal of this study was to determine whether social media use predicted depression in adolescents during the COVID-19 pandemic, and whether or not this relationship was dependent on gender. Overall, links between social media use and depression were established, specifically for females; however, social media use did not predict increases in depression over time, from Time 1 (April 2020) to Time 2 (August 2020). Furthermore, evidence was provided to suggest females experienced more social media use and depression than males, specifically during the middle of the pandemic (August 2020). These results emphasize adolescent females' need for support during the COVID-19 pandemic, especially concerning their mental health and social media behaviours.

Societal restrictions have been consistently fluctuating throughout the COVID-19 pandemic, specifically in Ontario, Canada. After COVID-19 was declared a worldwide pandemic on March 11th, 2020, the initial lockdown took place in Ontario, marking the first of many during

the course of the COVID-19 pandemic. Many people did not know exactly how serious the pandemic would become, since Canada was suddenly following in the footsteps of many other countries that were already in lockdown. This lockdown affected people of all ages alike; however, there were unique consequences for adolescents due to the importance of peer socialization (Dwivedi et al., 2018; Pfefferbaum & North, 2020). In line with the results of the current study, adolescents are not indifferent to the negative psychological effects that this pandemic caused amongst Canadians (Imran et al., 2020). The rapid changes across Canada resulted in substantial shifts to the routines of adolescents as they transitioned to online learning overnight (Imran et al., 2020). This caused uncertainty and fear amongst many teens (Imran et al., 2020). Furthermore, many had to witness their parents under a high level of stress, while adolescents were battling with their own stressors caused by the social and physical isolation (Imran et al., 2020).

Adolescents then began their summer break while the restrictions were still in place, albeit starting to loosen slightly before they were significantly reduced in the summer months. As a result of the restrictions being drastically loosened in the summer, people were able to socialize again, eat outside on patios, and attend exercise classes. Life was almost back to normal as people knew it prior to the lockdown. Moreover, mood generally increases when the weather is warm, regardless of whether or not there is a pandemic and gathering restrictions in place (Keller et al., 2005). This combination of loosened restrictions and warmer weather may explain why depression rates in this study were somewhat lower at the end of the summer (Time 2) than they were during the first formal lockdown period (Time 1).

Moreover, many adolescents have part-time jobs at local grocery stores, fast food chains, and retail stores (Skorikov & Vondracek, 2011). Since these services were considered essential, they would have been open and therefore adolescents would have been working throughout the

lockdown. As such, working outside of their home would have created some normalcy for adolescents. This would be especially true in the summer when they would have been working and interacting with others more frequently as opposed to being isolated at home. These trends in loosening restrictions and increased social interaction over the course of this study and the stable, somewhat decreasing average level of depression from Time 1 to Time 2, may have made it difficult to identify predictors of increases in depression from Time 1 to Time 2. Although social media use during the pandemic predicted Time 2 depression, specifically for females, H1, that social media use would predict increases in depression from Time 1 to Time 2, was not supported.

If this same study was conducted where Time 1 was accounted for in the summer and Time 2 was accounted for in the fall during the second lockdown, depression rates may have gone up significantly, and social media use rates may have been a considerable factor in depression rates rising as people were forced to stay home for weeks on end, thus supporting H1. This emphasizes the importance of looking at the relationship between social media use and depression in the long term due to the multiple lockdowns and the fluctuating emotions of Ontarians, especially as citizens are now facing the third provincial lockdown.

Consistent with H2, however, social media use during the pandemic did predict greater depression for females. Furthermore, in line with H3, depression and social media use were higher for females than for males at Time 2. These gender differences are important as the results replicated the findings of previous literature that found females are at a greater risk of depression and that their increased social media use may be the cause of their escalated depression risk (Marengo et al., 2018; Twenge et al., 2018). It is important to note that this finding further demonstrates that it is social media use *during the pandemic* in particular that is associated with higher reported levels of depression, rather than increased social media use in general, as pre-

pandemic use of social media was controlled for. This finding thus emphasizes the need for additional focus on adolescent social media use during the pandemic.

These results could be used as educational tools for adolescents, specifically female adolescents. One way this could be done could be by teaching adolescents about the difference between active versus passive social media use. According to Thorisdottir et al. (2019), active social media use is defined as actively having a conversation with someone over text or social media, sharing photos, or posting content for others to view. Conversely, passive social media use is defined as consuming information that other users post through browsing, scrolling, and reposting links that are not meant to be seen by anyone in particular (Thorisdottir et al., 2019). The researchers found in a study of adolescents ($N = 10\,563$), that passive use was associated with greater depressive symptoms, whereas active use was associated with fewer depressive symptoms in adolescents (Thorisdottir et al., 2019). This research indicates that exactly how adolescents are using social media can play a role in their depressive symptoms. The research by Thorisdottir et al. (2019) compliments this current study as it was found that females use social media more often and also suffer from depression more commonly than males do. As such, further research would benefit from looking into whether or not females engage in passive internet use more frequently and thus suffer from depression at a higher rate.

If adolescents were taught about the implications of social media use on their mental health, education may help to moderate associations with depressive symptoms. Mindfulness would be a key component to this type of intervention. According to Malinowski (2008), being mindful is a state of awareness and attention that acts as self-regulation and orientation toward one's present experience. Self-regulation is a central component to mindfulness (Weaver & Swank, 2019). The routine and habitual task of signing into one's social media account can become an impulsive and unregulated action (Baker et al., 2016). If adolescents were taught to be

intentional and mindful with their time and what they are doing during that time, they may become more conscientious and aware of their behaviour while engaging in social media use (Weaver & Swank, 2019). Typically, adolescents are focused on immediate gratification, with no thought of how their actions could affect them later (Toh et al., 2019). Unfortunately, social media is not an exception to this (Toh et al., 2019). Therefore, if adolescents were more mindful with their time and activities, it may also decrease depression (Toh et al., 2019; Weaver & Swank, 2019). Furthermore, mindfulness can enhance self-esteem in adolescents by enhancing moment-to-moment experiences as they become more aware of themselves and their actions (Brown & Ryan, 2003, Weaver & Swank, 2019). The results of this study could be used to implicate gender specific interventions to buffer the negative effects of social media on the mental health of adolescents, particularly in female adolescents. Weaver and Swank (2019) found that by using a mindfulness-based approach to social media, such as being aware of exactly how one is using social media, adolescent users were able to better buffer the negative effects of using social media. Therefore, this indicates that mindfulness techniques are imperative to the health and wellbeing of adolescents while they are using social media.

The limitations of this study should also be acknowledged. First, self-report surveys were used, which are known to result in self-report biases (Miller, 2011). Some adolescents may not have been comfortable answering the questions in the study truthfully even though the survey was strictly anonymous (Tarrant et al., 2011). This may have hindered the accuracy of social media use and depression rates. Moreover, mental health remains a taboo topic in many families and educational systems (Swartz et al., 2010). As such, some adolescents experiencing depression may have felt ashamed or embarrassed and therefore chose not to answer the survey questions accurately. Conversely, an adolescent may have exaggerated their answers to some of the survey questions, potentially due to a lack of self-understanding (Gorber & Tremblay, 2016;

Tarrant et al., 2011). As a result, self-report surveys are not always the most accurate way to collect data, but many times are the only feasible way to do so, especially during a time of restricted social interaction. Secondly, there may have been a lack of statistical power to detect significant results for males as compared to females given there was a vastly different male ($N = 67$) to female ($N = 276$) ratio. Females accounted for almost 81% of the participant sample. Therefore, this sample is not representative of the entire adolescent population and future research should replicate the analyses of the present study with a larger sample of adolescent males.

To conclude, this study expanded on previous findings by linking social media use, depression, gender, and the recent COVID-19 pandemic through a longitudinal design. The results found that social media use during the pandemic was linked to later depression in females only. These findings have important implications and emphasize the importance of addressing adolescent females' social media use in efforts to support adolescent mental health during the pandemic. Future researchers may wish to consider the ways in which adolescents are using social media to examine whether this has an impact on depression. Since the COVID-19 pandemic is so recent and is currently on-going, there is still much to learn before it is truly known in what ways increased social media use is affecting adolescents and their mental health.

Table 1. *Descriptive Statistics: means, standard deviations, average social media score, social media use at Time 1 and Time 2, average depression scores at Time 1 and Time 2, correlations.*

	<i>M (SD)</i>	1	2	3	4	5
1. Average Social Media Use	4.81 (1.24)	--	0.47***	0.15**	0.69***	0.10
2. Social Media Use (T1)	5.56 (1.40)	--	--	0.17**	0.48***	0.17**
3. Depression (T1)	1.84 (1.03)	--	--	--	0.28***	0.64***
4. Social Media Use (T2)	6.04 (1.26)	--	--	--	--	0.15**
5. Depression (T2)	1.53 (0.99)	--	--	--	--	--

Note: * $p \leq 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 2. Results of Regression Analysis Predicting Depression Increasing Due to Increased Social Media Use.

	Model 1		Model 2		Model 3	
	T2 Depression		T2 Depression (Controlling for T1 Depression)		Predicting T2 Social Media Use	
	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>	<i>B</i>	<i>SE</i>
Gender	-1.43	0.64	-0.78	0.54	--	
Average Social Media Use	-0.05	0.11	-0.11	0.09	--	
T1 Social Media Use	--		--		0.30***	0.08
T1 Depression	--		0.61***	0.04	-0.03	0.15
Social Media Average X Gender	0.30**	2.66	0.17	0.09	--	
T2 Social Media Use X Gender	--		--		0.32***	0.08
T1 Depression X Gender	--		--		0.15	0.17

Note: * $p \leq 0.05$, ** $p < 0.01$, *** $p < 0.001$

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