Hours Spent Decreasing Mental Health

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Introduction

The topic being researched is the association between social media use and poor mental health. Social media is a huge part in everyone's lives and is all around us. Because of the prevalence of social media in our lives, it is certainly affecting us whether the effect is positive or negative. It can have a negative effect on mental health, specifically increasing depression. Depression is a mental health disorder I feel is typically closely related to social media use because of feeling left out of fun plans, feelings of loneliness because less in-person social interaction, wanting to look like someone else online, not being able to escape bullies or harassment even when at home, etc. My study seeks to find a correlation between social media use and experiencing poor mental health.

Literature Review

The prevalence of social media has increased at an accelerated rate and continues to increase rapidly. Much of the research on this topic has to do with adolescents since that is the age group that grew up in a society of advancing technology. However, people of all ages are being affected by social media with increased exposure, and I want to look at general trends on the effects of social media on mental health. It's been found that people spend an average of nine hours a day on social media (Medrut, 1989). Modern society relies on technology for a sense of social connectedness, but it has the opposite effect, which is creating loneliness and isolation (Pittman, 2015; Turkle, 2011). Alongside the increase in social media use and presence comes a decrease in mental health. (Babic et al., 2017; Do et al., 2013; George et al., 2017; Houghton et al., 2018; Ma et al., 2021; Medrut, 1989; Mendes et al., 2023). Does the amount of time spent on social media cause decreasing mental health symptoms? This literature review will be exploring how the amount of time spent on social media, what social media they are using, and how gender difference affects mental health symptoms negatively.

Even if social media itself does not have a negative effect on mental health, the high volume at which it is used is taking time away from positive contributions towards mental health. Feelings of loneliness and sadness rose at the same time smartphones and social media started to be on the rise and soon everywhere around us (Leonhardt, 2024). The amount of time spent on social media takes away from both physical and cognitively stimulating activities (Babic et al., 2017; George et al., 2017). Social media even takes time away from hours and quality of sleep which is an important contributing factor for mental health (Do et al., 2013; Garett et al., 2016; Leonhardt, 2024; Pagano et al., 2023). This is what is referred to as a social displacement model because social media is replacing in-person interactions (George et al., 2017; Hall et al., 2018; Houghton et al., 2018). Research conducted by Houghton et al. (2018) found that participants who reported that their depression had gone from low to high in the three-year study had a tremendously large increase in screen time (an almost 2-hour increase). It's unclear which was the cause and which was the effect, but there does appear to be a correlation. Different platforms of social media produce different levels of addiction based on their algorithm and their popularity (Sun & Zhang, 2021). Most social media platforms work by detecting what someone is interested in and engages with, and then other content like that is suggested to them. TikTok is a contemporary platform on social media that is known to be highly addictive, which could then contribute to suicidal ideation (Mendes et al., 2023). This can lead to going down a path of seeing harmful content frequently that could induce behaviors such as self-harm (Mendes et al., 2023). Another negative outcome of social media is the cyberbullying and online aggression that occurs, which has become so normalized that the trend will continue (Craig et al., 2020; Ferguson, 2021; van Laer, 2013). The safety of being behind a screen allows for more aggressive conversations and polarizing content (Ferguson, 2021). Social media usage and experiences differ based on gender as Houghton et al. (2018) found that females have a higher screen time overall than males. This could be due to many factors, such as females posting more content, such as pictures and videos, or just communicating with their friends over text (Krasnova et al., 2017). Social media platforms are different depending on gender: males spend more time gaming, and females spend more time on social media (Houghton et al., 2018; Krasnova et al., 2017; Twenge & Martin, 2020). Females spending more time on social media rather than gaming can put them at risk for decreased mental health, as there is a correlation between social media specifically and mental health (Twenge & Farley, 2021). With females spending more time on social media and interacting with strangers more than boys, they are more likely to be exposed to cyber-bullying and even engage in it themselves (Craig et al., 2020).

The literature gives me more information on the topic of social media affecting mental health as well as the specific questions I am seeking answers to. Increasing screen time (especially time on social media) appears to have a negative impact on mental health. This could be because of the direct effects of social media, such as the content it promotes and the cyberbullying it introduces, or that increasing screen time leaves less time for positive in-person interactions, or a combination of both.

Methods

Research Question: Does spending time on social media relate to increased poor mental health?

Social media can be a toxic place because there is a lot of comparison, bullying, arguments, and more. Social media has grown so much and so rapidly since the start and now it is all around us. Does this make people numb to social media, or impact their mental health in a negative way? In this research I am looking at how many days of poor mental health respondents experience per month.

My hypothesis is that higher internet use is associated with more days of poor mental health per month. To test this hypothesis specifically amongst college students, I created an anonymous online survey using Microsoft forms and sent it to a random sample of 500 students at SUNY Oneonta. The random sample was supplied by the Office of Institutional Research and their emails were not attached to their responses. This survey could not be sent out until it received IRB approval and, in the meantime, I conducted a pilot study reaching out to some organizations I am a part of on campus. Although I am part of these organizations, I still cannot see which response each respondent put so their confidentiality remained protected. I then compared both the pilot data and the IRB approved data which became useful for this particular study.

Analysis

Descriptive Analysis

The goal of this study is to see how screen time, particularly time spent on social media, correlates with mental health. There are many elements of mental health which are broken down by the Kessler-6. A high score on the Kessler-6 indicates psychological distress in any or multiple of the indicated fields such as nervousness, fidgety or restless, feelings of worthlessness, etc.

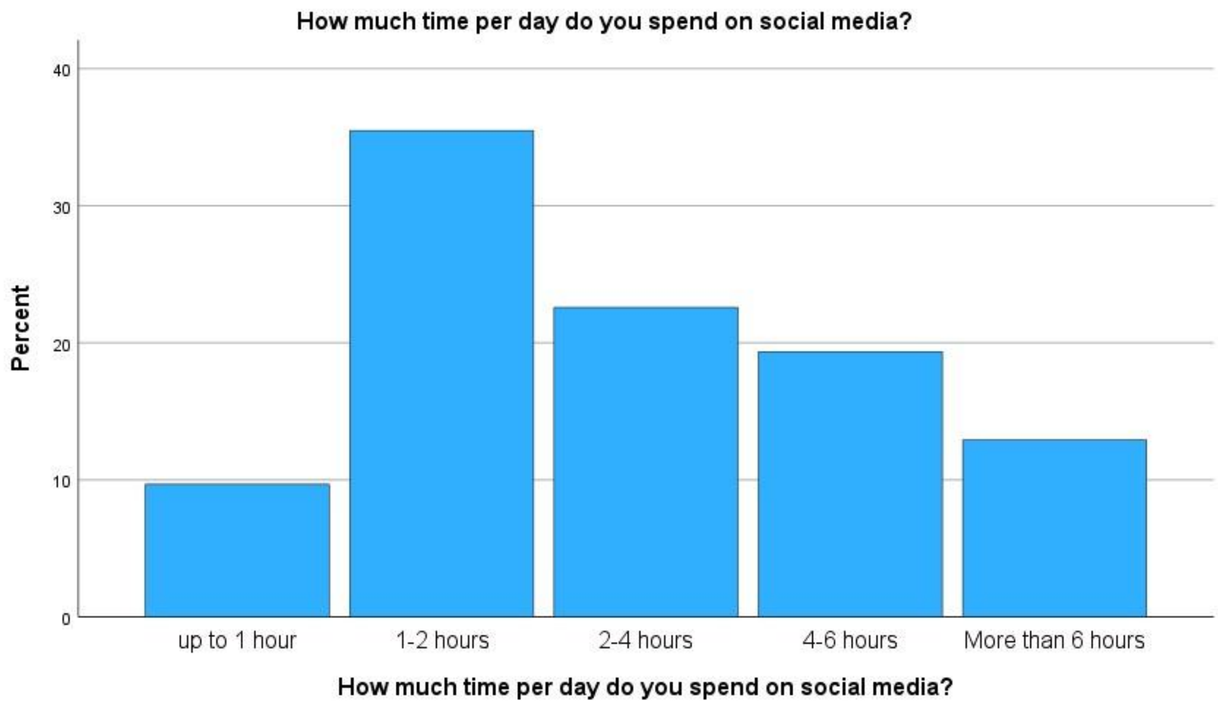
We will look at a crosstabulation which shows how the amount of time spent on social media correlates with Kessler-6 scores.

How much time per day do you spend on social media? * Kessler 6 in Three Categories Crosstabulation

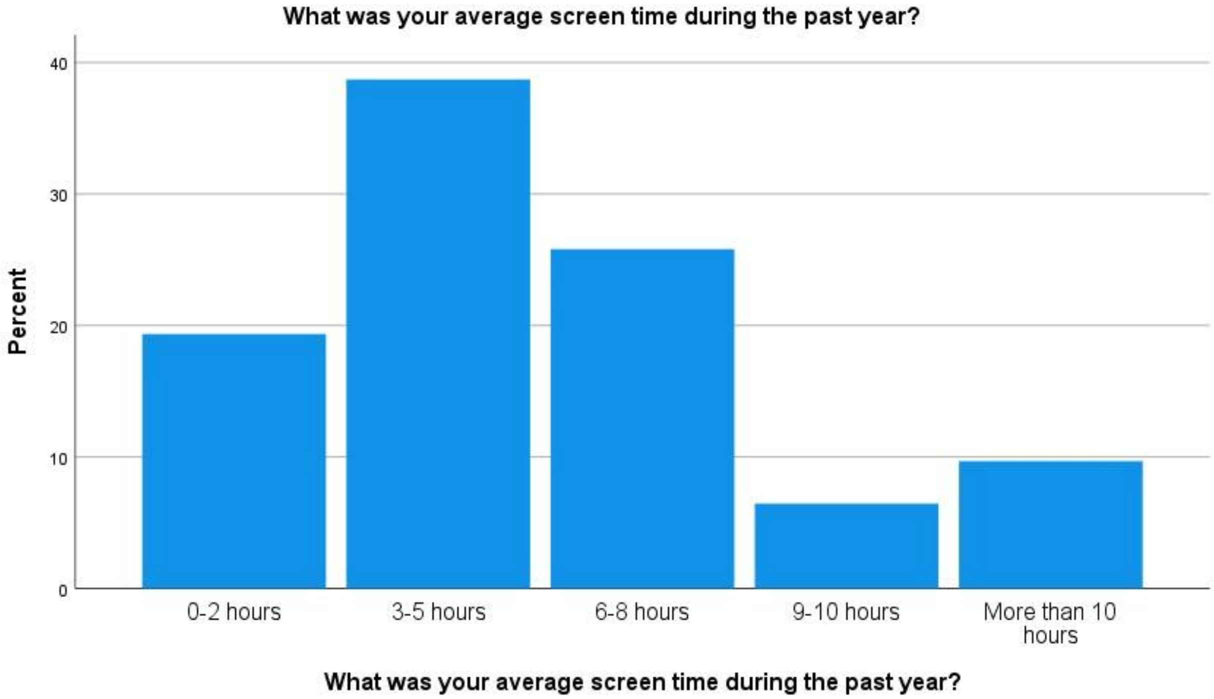
			Kessler 6 in Three Categories			
			Not Concerning	Moderate Concern	High Concern	Total
How much time per day do you spend on social media?	up to 1 hour	Count	2	1	0	3
		% within How much time per day do you spend on social media?	66.7%	33.3%	0.0%	100.0%
	1-2 hours	Count	6	5	0	11
		% within How much time per day do you spend on social media?	54.5%	45.5%	0.0%	100.0%
	2-4 hours	Count	4	0	3	7
		% within How much time per day do you spend on social media?	57.1%	0.0%	42.9%	100.0%
	4-6 hours	Count	1	2	2	5
		% within How much time per day do you spend on social media?	20.0%	40.0%	40.0%	100.0%
	More than 6 hours	Count	0	2	2	4
		% within How much time per day do you spend on social media?	0.0%	50.0%	50.0%	100.0%
Total		Count	13	10	7	30
		% within How much time per day do you spend on social media?	43.3%	33.3%	23.3%	100.0%

A moderate Kessler-6 score is within the 8-12 range and anything above 12 indicates a high concern for psychological distress. This crosstabulation shows that those who use social media for up to 1 hour per day or 1-2 hours per day do not have highly concerning Kessler-6 scores. When increasing the number of hours spent on social media past 2 hours, respondents now fall into the high concern category for their Kessler-6 scores. Those who use social media for more than 6 hours per day do not have a score below 8 and all respondents in this category either have moderately concerning scores or highly concerning scores.

Bar Charts:



This histogram demonstrates that most people spend about 1-2 hours on social media alone per day.



Average screen time for the majority of respondents is 3-5 hours. If 1-2 of those hours are spent on social media, this is a considerable amount of time spent on screens for social media purposes. For instance, if someone has an average screen time of 3 hours and one of those hours is dedicated to social media, this means one third of their screen time is for social media.

Summary of descriptive statistics

Much of respondents' screen time is spent on social media as the majority of respondents reported they have an average screen time of 3-5 hours and an average social media use of 1-2 hours per day. The Kessler-6 scores which indicate psychological distress became highly concerning with an increase in social media use per day. High screen time indicates a high amount of time on social media which relates to an increased Kessler-6 score.

Group Comparison Analysis

I am looking to see if average screen time and Kessler-6 scores have an effect on each other. I hypothesize that those with higher screen time will also have higher Kessler-6 scores.

Group Statistics

	Screen Time in the Past Year (2 Categories	N	Mean	Std. Deviation	Std. Error Mean
Kessler 6	0-5 hours	18	7.7222	5.14273	1.21215
	6 or more hours	12	10.8333	4.95128	1.42931

I used a T-test to compare current screen time within the past year with Kessler-6 scores. A score within 8-12 represents moderate psychological distress and anything above 12 is concerning. This T-test shows that those who have an average screen time of 0-5 hours score a mean of 7.7222 on the Kessler-6 and those who have an average screen time of 6 hours or more score a mean of 10.8333 on the Kessler-6. This clearly represents that respondents with 0-5 hours of average screen time are below the moderate psychological distress range for Kessler-6 scores while those with an average screen time of 6 hours or more are within that range. Similar findings were also indicated in my pilot study using preliminary data (Lettich, 2024).

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means							
						Significance				95% Confidence Interval of the Difference	
		F	Sig.	t	df	One-Sided p	Two-Sided p	Mean Difference	Std. Error Difference	Lower	Upper
Kessler 6	Equal variances assumed	.097	.758	-1.647	28	.055	.111	-3.11111	1.88887	-6.98029	.75807
	Equal variances not assumed			-1.660	24.360	.055	.110	-3.11111	1.87410	-6.97604	.75382

Statistical significance was not found for this data as both the one-sided and two-sided p values are above 0.05. We fail to reject the null hypothesis. Significance was found in the pilot study (Lettich, 2024), however, that sample was not selected at random and therefore not generalizable to the wider population.

Test summary

The T-test showed that higher screen time correlates with higher scores on the Kessler-6 which is within the moderate concern range of scores. However, this finding is not statistically significant so it cannot be generalized to the wider population. With more respondents, a statistically significant value could've been possible as the one-sided p value is not much greater than 0.05. Now we'll be looking at the data from a causality perspective.

Causal Analysis

My research is seeking out the relationship between hours of screen time and mental health and psychological distress measured using the Kessler-6. I expect to see higher screen times to be correlated with more days of poor mental health and higher Kessler-6 scores. Correlation tables do not determine causality although they can represent the strength and direction of a correlation between two variables, as well as if the correlation is statistically significant.

This next table is a piece of a larger bivariate correlation.

		Kessler 6
Kessler 6	Pearson Correlation	1
	Sig. (2-tailed)	
	N	30
Nervous	Pearson Correlation	.675**
	Sig. (2-tailed)	.000
	N	30
Hopeless	Pearson Correlation	.845**
	Sig. (2-tailed)	.000
	N	30
Restless	Pearson Correlation	.761**
	Sig. (2-tailed)	.000
	N	30
Depressed	Pearson Correlation	.819**
	Sig. (2-tailed)	.000
	N	30
Effort	Pearson Correlation	.864**
	Sig. (2-tailed)	.000
	N	30
Worthless	Pearson Correlation	.702**
	Sig. (2-tailed)	.000
	N	30
How many days of poor mental health do you experience per month?	Pearson Correlation	.740**
	Sig. (2-tailed)	.000
	N	30
How much time per day do you spend on social media?	Pearson Correlation	.474**
	Sig. (2-tailed)	.008
	N	30

This correlations table shows us that time spent on social media per day is positively correlated with the Kessler-6. This moderate correlation at 0.474 indicates that higher screen time on social media alone is associated with a higher score on the Kessler-6 which measures psychological distress. This correlation is also found to be statistically significant which means this finding is generalizable to the wider population.

Contrary to the original hypothesis which stated that higher average screen time correlates with more days of poor mental health per month, the data shows that these two variables were not highly associated with one another with a weak correlation coefficient of 0.083. This finding is also not statistically significant and fails to reject the null hypothesis. However, average current screen time was moderately correlated with Kessler-6 scores at a value of 0.439. Respondents are reporting frequent psychological distress using the Kessler-6, but are not reporting a high number of days of poor mental health per month. This is interesting because it could be assumed that high Kessler-6 scores indicate more days of poor mental health per month (which is true being that it has a strong correlation coefficient value of 0.740). This breach could be that each respondent identifies a poor mental health day differently from one another. The measure of hopelessness from the Kessler-6 was found to be more highly correlated with high social media usage than it was with high screen time. Hopelessness and time spent per day on social media alone has a correlation coefficient of 0.427 and is statistically significant. Hopelessness and average screen time per day has a correlation coefficient of 0.180 and was not found to be statistically significant. These coefficients have a 0.247 difference which shows that high screen time is not the main enemy when it comes to poor mental health, but rather what the screen time is being used for – in this case, social media. Other domains of the Kessler-6 had similar correlation coefficients for both social media screen time and overall screen time except for the measure of hopelessness.

Causality Summary

Daily screen time and time spent on social media are two measures that are both moderately correlated with the Kessler-6 and are statistically significant. This proves my hypothesis to be true that high screen time, particularly using social media, correlates with more psychological distress. However, screen time had a weak correlation to days of poor mental health per month. Perhaps days of poor mental health per month is not a good measurement for psychological distress. Respondents can define a day of poor mental health differently as the term is very broad. That's why we can see a clearer correlation to the Kessler-6 because it asks more specific questions that keep the results concrete and comparable. The domain of hopelessness on the Kessler-6 appeared to be more highly correlated with social media usage rather than overall screen time usage. This again relates back to my original hypothesis that it is specifically time spent on social media that decreases mental health, not necessarily average screen time. Average screen time is a broad term and screen time could be used in positive and creative ways.

Discussion and Conclusions

Overall, my research was aimed at seeing if there is a correlation or even a causation between screen time and increased poor mental health. I specifically wanted to see if higher screen time correlated with more days of poor mental health per month. This correlation was found to be weak and not statistically significant, but scores from the Kessler-6 still proved my hypothesis of high screen time and poor mental health to be correct. The correlations between screen time as well as time spent on social media were both moderately correlated with Kessler-6 scores and statistically significant. Time spent on social media alone had a slightly higher correlation with the Kessler-6 than average screen time with a difference of 0.035. A larger difference I found between the two different types of screen times was within the domain of hopeless on the Kessler-6. Time spent on social media alone was more highly correlated with hopelessness than overall average screen time and hopelessness with a difference of 0.247. This difference represents that it is *how* we use our screens that correlates with our mental health. Although I anticipated to see more correlations with days of poor mental health per month, the Kessler-6 scores gave concrete and numerical values to compare the responses from participants and allowed us to look deeper into specific domains of psychological distress.

I experienced some limitations along the way during my research. I only had the semester to collect data and analyze it, which is a short amount of time to do so. If I had more time, I could've had more responses and therefore more representative data to conduct analysis. The data was also collected using a survey as opposed to an interview and this modality of data collection could be a limitation because it is not as in-depth as an interview or other forms of data collection. Before I sent out the survey, I felt my questions were sufficient, but it wasn't until after it was sent that I found myself wanting to know more. This relates to the short time span of this research because if I had more time, I would've updated the survey to reflect those questions I wanted answered and sent out the survey to a new sample. A limitation about surveys and mental health especially, is that people define things differently. One respondent's definition of anxious may be different from the other and since surveys are self-evaluation, there's no way to objectively compare the different definitions.

Limitations aside, I feel this research is relative to modern society and can be expanded upon in many different areas. This research could dive deeper into how specific types of social media influence mental health rather than just grouping them all into one category, how online bullying and harassment affects a participant's feelings and self-esteem, how high screen time both increases anxious feelings and how anxious feelings causes people to use their screens more, etc. This research opened a lot of new questions that can be answered with future research and also gave some insight about how screen time and specifically what it is being used for – in this study, social media – can correlate to different domains of mental health.

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