Original Paper

The Relationship of Online Social Networking and Various Psychological Behaviors

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Abstract

The basis of this study is to evaluate and measure the correlation between the amount of time an individual spends online social networking and their self-reported levels of loneliness, depression, anxiety, and stress. With societies having increased connectivity, the researchers wanted to investigate how this affects our psychological functioning. This research is a follow-up study that targets a sample population of 189 people, over the age of 24, using a final scale that combined the UCLA Loneliness and DASS-21 scales. The final scale was created via Google Forms and was later published on Amazon Mechanical Turk. Results for statistical significance were analyzed through Spearman Rank Order Correlations, ANOVAS and descriptive statistics to indicate correlations between social networking and self-reported levels of loneliness, depression, anxiety, and stress from using both Facebook and YouTube platforms.

Keywords

Social media, social connectedness, emotional wellness, mental health

1. Introduction

We are living in a society where technology is everywhere. Society has become highly dependent on the use of technology that it is inevitable for people to not use them. Furthermore, technology has allowed people to take advantage of social media and social networking sites (SNS) and is used in every part of our lives (e.g., in our personal relationships, for entertainment, at work, and in our studies). Newberry (2019) stated that 45% of the total world population are using social networks. Likewise, digital consumers spend nearly 2.5 hours on social networks and social messaging every day, with a substantial 88% of Americans 18 to 29-year-olds using social media (Newberry, 2019). Smith

and Anderson (2018) found that 78% of those that are 30-to-49 years of age use social media. For those that are 50 to 64 years of age, 64% use social media, and 37% of 65-year-olds and older were found to use social media (Smith & Anderson, 2018). Social media can take form in various ways (e.g., Instagram, Facebook, Snapchat, Twitter, and YouTube) with more being developed on a regular basis.

One area social media has transformed us is through our communication skills. Friedman (2014) discussed how social media is about connecting people-to-people, following people, and interacting with them on social media will work to build relationships. In other words, social media is allowing people from all over the world to connect. Likewise, social media gives you an opportunity to talk about what you know and what you want to be known for. Also, social media allows you to enhance what you really care about and what you really want to read (Friedman, 2014). This means that social media is a great way to learn about what is going on around you; may it be events and even local news. Although SNS allows for better communication and other benefits, there are still the negatives of SNS and how they affect people mentally. Amatenstein (2019) stated that according to a new survey of approximately 20,000 Americans, loneliness is at epidemic proportions and found that it depends on how you interact with the Internet, thus spending every minute of every hour on SNS can likely worsen your feelings of loneliness. Furthermore, Ali (2018) stated it was found that individuals who spent more time on social media every day felt lonelier than those who spent less time engaged in social media. In addition, social media can inflict envy and jealousy. Falling prey to social comparison, individuals who were otherwise content could develop a sense of dissatisfaction by labeling themselves as less successful, happy, or adventurous.

To define different forms of social activities, Burke, Marlow and Lento (2010) found that the first kind is directed communication with individual friends. Here, this activity consists of personal, one-on-one exchanges (Burke, Kraut, & Marlow, 2011). Furthermore, Burke, Marlow and Lento (2010) found that the directed communication and consumption consists of interaction such as photo tagging. Yang and Brown (2013) noted that this is also called electronic interactions with friends, such as posting, commenting or replying to messages. In this research, this type of social activity is identified as *interactive* and 67.7% of the participants chose to classify with this type of activity.

Burke, Kraut and Marlow (2011) stated that passive consumption is when an individual reads others' updates. Yang and Brown (2013) found that it is also an activity of stalking and lurking. This is identified as *inactive* activity. In the survey, 25.4% classified with this. The last type of activity is called broadcasting, when an individual write for others' consumption (Burke, Kraut, & Marlow, 2011). In this study, the definition for the first type is interactive, the second type is inactive, and the third type is active. Broadcasting, for this research, is identified as an *active* social activity and 6.9% of the total participants identified with this activity.

There is various past literature that studied the relationship between social media and loneliness. Within these previous literatures, there are also other psychological behaviors that social media can lead to. Psychological behaviors such as depression, stress, and anxiety were noted in the studies. Yao and

Zhong (2014) stated that excessive and unhealthy Internet use would increase feelings of loneliness over time. In their study, they measured the levels of internet addiction, feelings of depression and loneliness, and social contact. Simple correlational analysis found that there were moderate and positive relationships between loneliness and Internet addiction at each time point. The fourth hypothesis, in relation to this study, suggested that Internet addiction would have a negative impact on offline social contact and that it can lead to loneliness and depression; this hypothesis was partially supported.

Kraut et al. (1998) tested the psychological well-being of participants and had them complete questionnaires to assess such factors. They included four measures of social involvement: family communication, size of local social network, size of distant social network and social support. Three measures of psychological well-being that have been associated with social involvement were loneliness, stress, and depression. People who used the Internet more reported larger increases in loneliness. In addition, Kraut et al. (1998) stated that the greater the use of the Internet, there was an increased rise in depression at a subsequent period, even holding constant initial depression and demographic, stress, and support variables that are often associated with depression. Yang (2016) found a correlation between loneliness and SNS. The results found that there was a significant correlation between Instagram broadcasting and loneliness. Instagram broadcasting meant sharing information that was not directed to specific individuals. In other words, broadcasting is defined by posting on your own profile without tagging anyone.

Taking a different approach in finding the correlation between social media and loneliness, researchers Nitzburg and Farber (2013) used attachment styles to find the relationship. As for their results, the researchers found that higher age significantly predicted feeling more insincere when using social networking sites above and beyond the influence of gender, ethnicity, and attachment status. Higher degrees of attachment anxiety were found to be significantly predictive of higher levels of feeling intimate with others while using SNS. Likewise, both disorganized attachment and anxious-ambivalent attachment had higher levels of attachment insecurity (Nitzburg & Farber, 2013).

For this particular study, we look into the upward social comparison theory. Looking at Festinger's first hypothesis, there exists, in the human organism, a drive to evaluate his opinions and his abilities (Festinger, 1954). Festinger went on to say that a person's cognition (his opinions and beliefs) about the situation in which he exists and his appraisals of what he is capable of doing (his evaluation of his abilities) will together have bearing on his behavior. The second hypothesis also stated that to the extent that objective, non-social means are not available, people evaluate their opinions and abilities by comparison respectively with the opinions and abilities of others. Kin to the social comparison theory, the social exchange theory also guides this research study. According to Cherry (2019), social exchange theory, developed by sociologist George Homans, proposes that social behavior is the result of an exchange process; people weigh the potential benefits and risks of social relationships.

Based on prior research presented, there is a significant increase in various psychological behaviors

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such as loneliness, depression, anxiety, and stress, when using social media, although there were limitations that could have influenced research. The topic that should be taken into consideration is the correlation between social media, also known as SNS, and various psychological behaviors. Does the use of social media networks lead to negative psychological behaviors? Whereas some are convinced that social media leads to more positive outlooks, others maintain that we need to consider the negatives of mental health that social media can lead to.

2. Method

In this study, 189 participants completed an online survey via Amazon Turks. For the participants to take part in the experiment, they are required to be at least 24 years of age upon starting the online survey. The ages of the participants ranged from 24 years of age to 60-plus. The participants then identified their social networking accounts and the average amount of hours spent on the sites. The majority of the participants spent 0-3 hours per day on Instagram (122 people), Facebook (119 people), YouTube (105 people), and Twitter (99 people). The reported number of contacts, friends, and followers were 0-100 on Instagram, YouTube, Twitter, Snapchat, and on their other social networking sites. Of those contacts, friends, and followers, the participants know around 0 -10 people on a personal level. For Facebook, on the other hand, 79 participants claimed to know more than 50 plus of their friends.
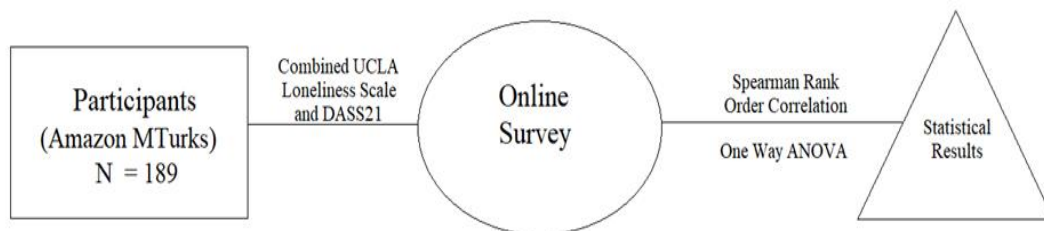

Figure 1. Research Procedures

The UCLA Loneliness Scale Version 3 was used. It is a 20-item scale designed to measure one's subjective feelings of loneliness as well as feelings of social isolation (Russell, 1996). This measure is a revised version of both the original UCLA Loneliness Scale and the Revised UCLA Loneliness Scale. The Depression, Anxiety and Stress Scale, DASS-21 was also used. Lovibond and Lovibond (1995) explained that the DASS-21 has 21 items containing a set of three self-report scales designed to measure the emotional states of depression, anxiety, and stress. The DASS-21 is based on a dimensional rather than a categorical conception of psychological disorder.

The combined UCLA Loneliness Scale and the DASS-21, along with demographics was then published on MTurks for a duration of seven days with the required filters of 24 years of age and older, must have a Facebook account, and a Mturks worker's account. Upon completion of the survey, the researchers

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checked to see if all surveys were finished properly. When done so, the participants were given $.50 as a stipend.

3. Result

The results from Table 1 demonstrate there is a significantly positive correlation at the .001 level between the number of hours spent on Facebook and YouTube with elevated scores on loneliness, depression, and anxiety. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity.

Table 1. Spearman Rank Order Correlation between Perceived Loneliness, Depression, Anxiety and Stress and SNS Hours Spent Daily

Scale	Instagram	Facebook	YouTube	Twitter	Snapchat	Other
1. Loneliness	-.007	.186*	.247**	-.043	-.094	-.181
2. Depression	.093	.330**	.278**	.023	-.105	-.169
3. Anxiety	.129	.420**	.264**	.096	-.068	-.118
4. Stress	.102	.385**	.265**	.033	-.046	-.061

* . Correlation is significant at the 0.05 level (2-tailed)

** . Correlation is significant at the 001 level (2-tailed)

The results from Table 2 demonstrate there is a significant positive correlation at the .001 level between the number of contacts, friends, and followers on Instagram, YouTube, Twitter, and other SNS. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity.

Table 2. Spearman Rank Order Correlation between the Number of Contacts, Friends, and Followers on SNS

Scale	Instagram	Facebook	YouTube	Twitter	Snapchat	Other
1. Loneliness	.064	-.104	.131	.093	.106	.120
2. Depression	.223**	.047	.338**	.265**	.279**	.303**
3. Anxiety	.280**	.160*	.403**	.288**	.340**	.323**
4. Stress	.276**	.126	.343**	.242**	.296**	.264**

* . Correlation is significant at the 0.05 level (2-tailed)

** . Correlation is significant at the 001 level (2-tailed)

The results from Table 3 demonstrate there is a significant negative correlation at the .001 level between the people you personally know on your SNS accounts and reported scores for loneliness,

depression, anxiety, and stress with Facebook users. Other SNS platforms, including YouTube, Twitter, Snapchat, and other data results, demonstrate a significant positive correlation at the .001 level between the people you personally know on your SNS accounts and reported scores for depression, anxiety, and stress. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity.

Table 3. Spearman Rank Order Correlation between Personally Known Contacts, Friends and Followers and SNS

Scale	Instagram	Facebook	YouTube	Twitter	Snapchat	Other
1. Loneliness	0.43	-.279**	.046	.027	.086	.142
2. Depression	.018	-.237**	.202**	.205**	.277**	.301**
3. Anxiety	.244**	-.205**	.329**	.255**	.291**	.337**
4. Stress	.235**	-.168*	.232**	.230**	.309**	.294**

* . Correlation is significant at the 0.05 level (2-tailed)

** . Correlation is significant at the 001 level (2-tailed)

The results from Table 4 demonstrate one-way between groups analysis of variance was conducted to explore the impact of SNS user type and anxiety scores, as measured by the DASS-21. Participants were divided in their SNS user type. Group 1 was direct messaging, Group 2 was viewing of news and Group 3 was updating of status. There was a significant level in anxiety scores with the three groups, F (2, 186) = 6.445 with p at the .05. The effect size calculated using eta squared was .06 (medium effect). Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 1 ($M = 7.37$, $SD = 5.91$) was significantly different from Group 2 ($M = 4.90$, $SD = 3.77$) and significantly different from Group 3 ($M = 3.08$, $SD = 4.51$) did not differ significantly from either Group 1 or 3. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity.

Table 4. One-Way ANOVA between User Type and Anxiety

ANOVA

TotalScoreStress

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	252.923	2	126.462	4.505	.012
Within Groups	5221.405	186	28.072		
Total	5474.328	188			

The results from Table 5 demonstrate one-way between groups analysis of variance was conducted to explore the impact of SNS user type and stress scores, as measured by the DASS-21. Participants were divided in their SNS user type. Group 1 was direct messaging, Group 2 was viewing of news and Group 3 was updating of status. There was a significant level in stress scores with the three groups, F $(2, 186) = 4.505$ with p at the .05.

Table 5. One-Way ANOVA between User Type and Stress

ANOVA

TotalScoreAnxiety

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	371.522	2	185.761	6.445	.002
Within Groups	5361.144	186	28.823		
Total	5732.667	188			

The effect size calculated using eta squared was .04 (small effect). Post-hoc comparisons using the Tukey HSD test indicated that the mean score for Group 1 ($M = 9.02$, $SD = 5.45$) was significantly different from Group 3 ($M = 4.69$, $SD = 5.39$). Group 2 ($M = 7.67$, $SD = 4.81$) did not differ significantly from either Group 1 or 3. Preliminary analyses were performed to ensure no violation of the assumptions of normality, linearity, and homoscedasticity.

4. Discussion and Conclusion

This study was conducted to deepen our understanding of the relationship between social networking sites, loneliness, depression, anxiety, and stress. By combining the UCLA Loneliness Scale Version 3 and the DASS-21, this research used a survey-based data collection using Amazon Mechanical Turks. What the researchers found supported the findings of Halston, Iwamoto, Junker and Chun (2019), which found no correlation between social networking sites and loneliness. However, this study is significant because it suggests that social media communication is superficial to the extent that there is no deep connection to change a person's emotion. Similar to Halston et al. (2019) and Iwamoto and Chun (2019), the amount of people a person has on their social networking site creates an increase in anxiety and stress. If a person is using social networking sites as a support system, findings suggest that true social connectedness (i.e., face-to-face or telephone call) is needed for improved mental health and wellness.

Furthermore, the results suggest that judging systems (i.e., a like or thumbs up) are linked to higher levels of depression, anxiety, and stress. With this type of system, it puts people on edge because the people are seeking validation and attention. While people are becoming more fearful of being judged, social networking sites put the spotlight on them. This subsequently leads to the increase in depression,

anxiety, and stress levels due to people's sense of threat to innate their need for social belonging.

The findings of this study also align with the social comparison theory. As a person starts to see other people's lives through a third-party perspective, it then allows him or her to feel isolated and lonely, and it can also build up depression, anxiety, and stress. It is important that when dealing with social networking sites, having a social connectedness matters.

4.1 Limitations and Future Research

There were minimal limitations while conducting the study. The researchers used MTurks as the source for gathering the participants. One limitation is that MTurks had several filters that could have been added-on to gain a more specific population related to the study. The researchers chose a filter that gave access to those that must have at least a Facebook account. With this, the researchers wanted more filters with various social networking sites. Future research could try using other filters or no filters to see if there would be differences in population count and data results.

Another limitation was that the majority of the population sample was female (66.7%). This was considered a limitation because it would have been biased for one sex category. In future research, having a bigger, more diverse population might have slightly different results. Recommendations for future studies is to look at limitations and conduct further research to help better the understanding of social networking sites and the various psychological behaviors.

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