

University of Mississippi

eGrove

Honors Theses

Honors College (Sally McDonnell Barksdale
Honors College)

Spring 5-9-2020

Through the Screen: Examining Peer Relationships, Social Anxiety, Loneliness, and Social Media in Undergraduates

Lindsay Sappington

Follow this and additional works at: https://egrove.olemiss.edu/hon_thesis



Part of the [Psychology Commons](#)

Recommended Citation

Sappington, Lindsay, "Through the Screen: Examining Peer Relationships, Social Anxiety, Loneliness, and Social Media in Undergraduates" (2020). *Honors Theses*. 1522.

https://egrove.olemiss.edu/hon_thesis/1522

This Undergraduate Thesis is brought to you for free and open access by the Honors College (Sally McDonnell Barksdale Honors College) at eGrove. It has been accepted for inclusion in Honors Theses by an authorized administrator of eGrove. For more information, please contact egrove@olemiss.edu.

THROUGH THE SCREEN: EXAMINING PEER RELATIONSHIPS, SOCIAL
ANXIETY, LONELINESS, AND SOCIAL MEDIA IN UNDERGRADUATES

by

Lindsay Sappington

A thesis submitted to the faculty of The University of Mississippi in partial fulfillment of
the requirements of the Sally McDonnell Barksdale Honors College.

Oxford

May 2020

Approved by:

Advisor: Professor Laura J. Dixon

Reader: Professor Stefan E. Schulenberg

Reader: Professor Jennifer L. Parsons

© 2020

Lindsay Brooke Sappington

ALL RIGHTS RESERVED

ACKNOWLEDGEMENTS

To begin, I would like to thank Dr. Laura J. Dixon for her compassionate support and guidance through not only this project, but helping me develop as student and person along the way. I would also like to give special thanks to Sara Witcraft and the other HART Lab members for all their encouragement and assistance to complete this project.

Next, I would like to give thanks to all of my wonderful friends who have supported and encouraged me throughout not only this project, but also my undergraduate career. I can never repay any of you always being there to listen, to encourage, and to make memories.

Lastly, I want offer heartfelt thanks to my loving family, even if words could never do it justice. I know these last four years have been a long journey for us, but despite any difficulties that came my way, I always made it through with your love, support, and prayers. Momma and Daddy, thank you for all your sacrifices that made receiving a college education possible. I truly could not have done this without you and I am forever grateful. From the bottom of my heart, thank you and I love you so much.

Abstract

Interpersonal connections are a fundamental human need, and as technology becomes more ubiquitous, these connections have shifted to frequently occur online through social media platforms. Two factors that independently influence peer relations are loneliness and social anxiety. However, no study to date has concurrently examined the relation of these psychological factors, social media use, and peer relationships. As such, the aims of the current study were to 1) examine the associations between peer relationships, social media use, loneliness, and social anxiety; 2) investigate the moderating role of quality of peer relationships in the relation of social anxiety and loneliness; and 3) examine the contribution of social anxiety symptoms and loneliness in social media use. Participants were 442 undergraduate students ($18.79 M_{age}$; 58.3% female; 64.8% White) who completed self-report measures online. Preference for online social interaction was significantly associated with quality of peer, social anxiety, and loneliness in the expected directions, with social anxiety and loneliness accounting for significant variance in social media use. However, quality of peer relationships was not a significant moderator of social anxiety and loneliness. The results indicate that individuals who are socially anxious and/or lonely may use social media as a proxy for in-person peer relationships. As social interactions and communication continue to increase across myriad online platforms, future work may consider identifying and developing interventions for at-risk individuals who prefer interacting with peers online.

Table of Contents

Introduction.....	1
Methods.....	7
Results.....	11
Discussion.....	13
References.....	16
Tables.....	28
Appendices.....	31

Introduction

Connections with others and interpersonal attachments represent fundamental human needs (Eshbaugh, 2010). Attachments to others provide an opportunity for interpersonal interaction, which influences a wide range of behaviors and thoughts, such as levels of aggression (Bagwell & Coie, 2004; Dodge et al., 2003), attitudes toward romantic relationships (Allen et al., 2020; Schacter et al., 2019; Soller, 2015), and life experiences (Rubin et al., 2006). As such, peer attachments and interactions contribute individuals' psychosocial development, such as symptoms of anxiety and depression (Allen et al., 2005; Narr et al., 2019), as well as the development of coping mechanisms (Gardner et al., 2020; Shi et al., 2019). The importance of peer relationships does not diminish with age, as some studies have suggested that "peer relations play a significant role for adolescents' mental health" (Tillfors et al., 2012). Peer relationships have also been found to play a crucial role in the transition to college for young adults (Swenson et al., 2008) and have even been found to be associated with a healthier diet and better long-term wellbeing for these students (Klaiber et al., 2018).

Peer relationships are most commonly found in the form of friendships, which can have many adaptive qualities and have been linked to higher life satisfaction (Pradhan et al., 2018). In particular, within these relationships communication is a key ingredient (Goodman-Deane et al., 2016). A study conducted by Burke and colleagues (2016), more intimate conversations to maintain relationships are beneficial to the well-being of the student. Both Cutrona (1982) and Jones (1981) have indicated that subjective satisfaction ratings of social relationships are more reliable predictors of loneliness than the frequency of contacting the individuals involved in these relationships. In addition to the positive functions of peer relationships, there is also evidence that communication may produce negative outcomes. Multiple studies have shown that

a lower rate of acceptance among peers has predicted a higher level of anxiety in both males and females (Erath et al., 2007; Teachman & Allen, 2007; Tillfors et al., 2012). Additionally, relational victimization, or the peer rejection, between peers is associated with outcomes such as depression, loneliness, and low self-esteem, particularly in girls (Prinstein et al., 2001).

Due to the integral role of peer relationships in psychosocial well-being, it is important to understand the contexts in which peer interactions occur. Notably, interactions with peers do not only occur in person. National data demonstrate 85% of young adults own a smartphone and 91% use social media at least once per week (Smith, 2015a; Smith, 2015b); thus, it may be an important next step to examine the characteristics and functions of social media use as a proxy for in-person interactions with peers. As digital and online media advances, peer relationships and interactions may be maintained or developed in previously non-traditional methods, such as social networking sites.

In the 1970s, many of the first recognizable social networking sites were launched (Edosomwan et al., 2011). Since then, many more social networking sites, herein termed social media, have become integrated into the lives of 246.7 million individuals in the United States alone (Statista, 2019). Of these users in the United States, Facebook has 221 million users, with other social media platforms, such as Instagram (107.2 million users) and TikTok (37.2 million users) rising in popularity (eMarketer, 2020; eMarketer, 2020; Statista, 2019). Albeit diverse in functionality and interface, social media is comprised of web-based services that are characterized by the ability to create a profile and maintain pre-existing connections or create new connections with other platform users (Boyd et al., 2007). A study conducted by Whiting and Williams (2013) identified ten motivations for social media usage, and of these ten motivations, social interaction was endorsed by 88% of the sample. Additionally, social media

platforms may be used to facilitate factors, such as trust and reciprocity that engender prosocial behavior (Coleman, 1988; Ellison et al., 2007), and may be an avenue by which to supplement or create additional relationships (Peplau & Perlman, 1979; Uusiautti & Määttä, 2014; Wellman et al., 2001). Such functions have been found to benefit the user by increasing feelings of connectedness (Tobin et al., 2015).

Social media use provides the opportunity to foster peer interactions and improve relationships, but it may also lead to a preference for online social interaction for individuals with insufficient in-person support systems (Caplan, 2003; Leung & Liang, 2016). Individuals may prefer online social interaction due to the beliefs that one may be safer, more confident, and more comfortable online than in face-to face interactions (Caplan, 2003, 2007). Although this preference for online interaction may mitigate the lack of offline social support, it may be characterized by deficient self-regulation of Internet use, which is associated with psychosocial issues (Caplan, 2010). Heightened levels of depression and anxiety have been found in adults who use a greater number of different social media platforms (Primack et al., 2017; Vannucci et al., 2018). Reciprocally, loneliness and social anxiety symptoms have been shown to predict this online preference (Caplan 2007). For instance, people who report feeling unhappy and lonely also report increased social media use (Ye, 2015). As social media platforms become more integrated into peer relationships, it is important to understand how the reliance on and preference for online interactions may affect psychosocial wellbeing including loneliness.

Loneliness is typically experienced when an individual is not satisfied with either the quantity or the quality of one's relationships (Qualter et al., 2015). Loneliness may occur when one is physically alone or when experiencing the sensation of being alone when around others (American Psychiatric Association [APA], 2013). Loneliness is most prominent during late

adolescence and young adulthood, with college students being an especially at-risk population due to large social transitioning (Qualter et al., 2015; Russell, 1982). With the increasing prevalence of social media, these populations may try finding more social interactions online to supplement their current relationships and combat loneliness (Ye, 2015).

Loneliness has been identified as a risk factor for a number of physiological and psychological conditions (Hawkley et al., 2008). For instance, loneliness is correlated with elevated risk of mortality and cardiovascular disease (Xia & Li, 2008). Loneliness is also known to cause disruptions in crucial peer relationships (Cavanaugh et al., 2016). In particular, loneliness has been shown to mediate the relationship between neuroticism and social media use, which indicates that loneliness may account for higher levels of social media use in these individuals (Amichai-Hamburger & Ben-Artzi, 2003). This preference for higher social media use and online social interactions yields additional concerns for psychosocial well-being (Caplan, 2007).

Regarding psychological outcomes, there are a number of psychological syndromes that are associated with loneliness. For instance, depressed individuals experience higher levels of loneliness than healthy controls (Eisemann, 1984). Additionally, many studies have found associations between loneliness and anxiety, and in particular, social anxiety (Anderson & Harvey, 1988; Mijuskovic, 1986; Moore & Schultz, 1983). For instance, both lonely and socially anxious individuals are more easily able to express themselves on a social media platform than in a face-to-face encounter (Bargh et al., 2002). Over the long-term, loneliness may result in the development of cognitive biases such as a hypervigilance to social threat, which increases negative perspective on the behaviors of others, hindering further social interaction and thereby

increasing levels of loneliness (Qualter, 2015). The cognitive biases developed with loneliness are also the core cognitive biases associated with social anxiety disorder (Hofmann, 2007).

Social anxiety disorder (SAD), formerly social phobia, is a highly prevalent anxiety disorder that affects approximately 6.7% of the general population (Kessler et al., 2012) and approximately 9.6% of college students (Bella & Omigbodun, 2009; Izgiç et al., 2004; Tillfors & Furmark, 2007). According to the 5th edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-5), SAD is characterized by fear or anxiety of social situations in which scrutiny is possible, such as public speaking or meeting new people (APA, 2013). Social anxiety disorder can be a chronic mental health condition that may onset as early as 11-years-old or younger and continue throughout the lifespan (Abidin, 1992; Beesdo et al., 2007; Beesdo et al., 2012; Bruce et al., 2005; Burstein et al., 2011; Kessler et al., 2012; Wittchen & Fehm, 2001). Social anxiety disorder can also result in impairment of leisure activities, such as hobbies and recreation, is associated with relationship difficulties (APA, 2013), and has a strong negative influence on employment, such as a higher rate of underperformance at work and even unemployment (Moitra et al., 2011; Stein & Kean, 2000; Tolman et al., 2009). In addition, SAD is associated with psychosocial impairments such as loneliness, depression, and other anxiety disorders (Burstein et al., 2011; Lim et al., 2016; Wittchen et al., 1999).

According to Lim et al. (2016), the anxiety symptoms and avoidance of social situations associated with SAD is a contributing factor to increased levels of loneliness. Additionally, the fear of negative evaluation in social contexts was predicted by loneliness and indirectly influenced by social anxiety (Lim et al., 2016). Additionally, social anxiety disorder is influenced and possibly maintained by negative peer experiences (Blöte et al., 2015; Levinson et al., 2013). These negative peer experiences are a result of peer rejection and social anxiety which

was mediated by subject appearance, which is deemed unattractive by peers when facial expressions indicate social anxiety symptoms (Blöte et al., 2015; Harrigan & O'Connell, 1996). Thus, being rejected by one's peers may foster higher levels of social anxiety symptoms and loneliness.

Due to the advancement of technological forms of communication, there is an increase in peer relationships being maintained and/or created using social media platforms. Given the importance of peer relationships on psychosocial functioning and outcomes (Tillfors et al., 2012), it is important to understand how this modern shift in interactions may affect individuals and their relationships. Although the current body of knowledge acknowledges the associations between peer relationships and social media use, loneliness, and social anxiety independently, studies examining the associations between these concepts are lacking.

The purpose of this study is to further the understanding on peer relationships, social media use, loneliness, and social anxiety symptoms within a sample of college students. The first aim of this study was to examine the associations between peer relationships, social media use, loneliness, and social anxiety. We predicted that a positive correlation would exist between lower quality peer relationships, social media use, loneliness, and social anxiety. The second aim was to investigate the relationship between social anxiety symptoms and loneliness in relation to relationship security. We predicted a significant association between social anxiety symptoms and loneliness at low, but not high, levels of relationship security. The final aim was to examine the amount of variance in social media use that is accounted for by social anxiety symptoms and loneliness. It was predicted that social anxiety symptoms and loneliness would account for a significant amount of variance in social media use.

Method

Participants and Procedure

The University of Mississippi's Department of Psychology Sona Systems research pool was used to recruit undergraduate students currently enrolled in a psychology course. Students completed the general screening questionnaire, and participants were then allowed to self-select to participate in a study entitled "Examining Stress, Social Media, and Social Interactions". In the current study, participants ranged from 18 to 68 years old. Any self-reported measures that were more than 75% incomplete were excluded, and incorrect responses to attention questions led to participant exclusion, which included 145 participants. An additional 10 participants were removed for not responding correctly to validity check questions, resulting in a sample size of 447. Three participants were removed for missing data on the main scales ($n = 444$). Data were normally distributed; however, 2 outliers were removed (1 for the Social Phobia Inventory measure and 1 for the UCLA measure). The final sample was composed of 442 participants (58.3% female). The majority of participants were freshman undergraduate students (58.1%). The mean age was 18.79 years ($SD = 2.49$), and the predominant ethnicity in the sample was White (64.8%) with the following representation of other racial/ethnic backgrounds: 10.8% African American; 1.2% Mexican/Mexican-American/Chicano; and 1.2% Native American/American Indian.

This study was approved by the University of Mississippi's Institutional Review Board. The current study began collecting data on October 17, 2019 and was completed on December 5, 2019. After self-selecting to participate in the current study, the participants assessed the study

through Qualtrics, a completely online tool for data collection. The participants were asked to review and consent to the study procedures before completing a battery of self-report measures. Following the completion of the measures, participants were redirected to and credited 0.5 course credits through the University Sona System for their participation.

Measures

Social Phobia Inventory (SPIN). The SPIN is a 17-item self-report questionnaire in which participants indicate their avoidance, fear, and physiological symptoms associated with social anxiety (Connor et al., 2000). The SPIN utilizes a 5-point Likert-type scale with items ranging from 0 = “not at all,” to 4 = “extremely,” with total scores ranging from 0 to 68. The SPIN is scored by summing each of the items, and a total of 19 or higher is considered clinically significant (Connor et. al., 2000). The SPIN has demonstrated good test-retest reliability in a sample of 353 participants ($r = 0.89$) and adolescent samples ($r = .86$; Johnson et al., 2006), and excellent internal consistency ($\alpha = 0.94$; Connor et al., 2000). The SPIN displayed excellent internal consistency in the current study ($\alpha = .94$).

UCLA Loneliness Scale-Revised (UCLA-R). The UCLA Loneliness Scale-Revised (UCLA-R) is a 20-item self-report questionnaire that instructs participants to identify how often they feel the way described in each question (Russell, 1996). The rating system is a 4-point Likert-type scale which ranges from 1 = Never, to 4 = Always. Russell found that the UCLA Loneliness Scale-Revised had adequate test-retest reliability ($r = .73$) within the elderly sample of the study and had good internal consistency (Cronbach’s $\alpha = .89 - .94$). The UCLA-R displayed excellent internal consistency in the current study ($\alpha = .91$).

Inventory of Parental and Peer Attachment-Peer Attachment Section (IPPA). The Inventory of Parental and Peer Attachment is a 53-item self-report questionnaire on which participants report how frequently they find the given statements to be true (Armsden & Greenberg, 1987). Each statement was rated on a 5-point Likert-type scale, ranging from almost always true to almost never true (Armsden & Greenberg, 1987). While the IPPA is divided into two sections-parent attachment and peer attachment, the current study only employed the peer attachment section. The peer attachment section assesses the participant's attachment to peers (i.e., friends) and is also divided into three subscales: communication (8 items), mutual trust (10 items) and alienation (7 items). Each of these subscales exhibited varying degrees of internal validity. The trust subscale exhibited excellent internal reliability ($\alpha = .91$), while the communication subscale had good internal reliability ($\alpha = .87$), and the alienation subscale had adequate internal reliability ($\alpha = .72$). Additionally, the peer attachment section exhibits moderate convergent validity with the TSCS social self-concept subscale ($r = .57$). The IPPA-Peer Subscale demonstrated excellent internal consistency in the current study ($\alpha = .94$).

Generalized Problematic Internet Use Scale 2 (GPIU2). The Generalized Problematic Internet Use Scale-2 is a 15-item self-report measure that identifies the presence of problematic internet use and associated behaviors (Caplan, 2010). The GPIU-2 is an 8-point Likert-type scale that spans from 1 = definitely disagree to 8 = definitely agree, and is also divided into 7 subscales: mood alterations, social benefits, negative outcomes, compulsivity, excessive time, withdrawal, and interpersonal control. Caplan (2010) found that the subscales demonstrated acceptable to good internal consistency scores (Cronbach's $\alpha = .78-.85$). The GPIU2 demonstrated excellent internal consistency while the GPIU-Preference for Online Social Interaction subscale demonstrated good internal consistency in the current study.

Background and Sociodemographic Questionnaire. Participants reported various aspects of demographic data such as age, sex, gender identity, sexual orientation, nationality and ethnicity. Participants were additionally asked to report their undergraduate classification and GPA, and current housing status (e.g., on-campus residence hall, Greek-affiliated house, off-campus apartment).

Social Media and Communication. Participants reported which forms of social media that they currently use out of a list of ten popular social media platforms (i.e., Facebook, Instagram, TikTok). Participants were also able to utilize an “other” option which allowed them to identify any additional platforms they currently use. Additionally, participants were asked to identify their most preferred method of social media and how much time (in hours) they spend engaged in these forms of social media. Next, participants reported which forms of communication they currently use out of a list of ten popular forms of communication (i.e., Facebook Messenger, In-person, Telephone Calls). An “other” option was also provided so that participants could report any forms of communication that were unlisted. Participants were asked to provide the number of hours they spend utilizing these forms of communications on a typical day and which method they prefer when communicating with close friends, their social network, and with their family, respectively. Lastly, participants reported the time (in hours) they spend browsing network content created by others on a typical day (i.e., watching videos, viewing photos) and the time (in hours) they spend participating in content creations on an average day (i.e., sharing information, posting/uploading videos and photos).

Results

Descriptive Statistics

On the SPIN, the mean score was 18.71 ($SD = 13.45$). Additionally, 48.6% of participants ($n = 215$) scored below the clinical cutoff. In regard to loneliness, the mean UCLA-R was 63.64 ($SD = 10.69$). The mean score of the IPPA was 53.96 ($SD = 16.9$). Responses regarding internet use (GPIU2) had a mean score of 45.78 ($SD = 19.43$).

See Table 1 for a complete summary of social media use characteristics. Overall, Snapchat (96.8%), Instagram (96.2%), and YouTube (72.6%) were reported as the most commonly used social media platforms among participants. Additionally, participants reported using social media on average for a total of 4.41 hours ($SD = 3.15$) on a typical day. Of these 4.41 hours, participants reported on average 3.1 hours of active social media use and 4.14 hours of passive social media use.

Examination of Study Hypotheses

Pearson correlations were used to test the hypothesis that peer attachment, loneliness, social media use, and social anxiety were significantly associated. As expected, preference for online social interaction was significantly associated with communications with peers ($r = -.241$), social anxiety ($r = .313$), and loneliness ($r = .241$). See Table 2.

With regard to hypothesis two, a moderation analysis was conducted using the PROCESS macro for SPSS (Hayes & Rockwood, 2017). The overall model accounted for 55.4% of the variance [$F(442) = 181.36$; $p < 0.0000$]. Inconsistent with the hypothesis, the loneliness \times peer relationships interaction term was not significant ($B = -.0019$, $SE = 0.0015$, $p = 0.1944$), indicating no moderating relationship occurred.

Finally, a multiple linear regression was utilized to test the final hypothesis that social anxiety and loneliness would account for significant variance in social media use. Social anxiety and loneliness scores were entered into the model, which accounted for 11.1% of the variance in social media use, $F(442) = 27.39, p < .000$. See Table 3.

Discussion

The goals of the current study were to examine the associations proposed by previous studies between peer relationships, social anxiety, loneliness, and social media use in an undergraduate sample. This sample reported using social media almost 4.5 hours per day, consisting of both elevated passive and active use. Social anxiety symptoms were also common, with almost half of the sample reporting clinically significant social anxiety symptoms. Findings suggest that social anxiety and loneliness may partially account for students' preference for interacting with peers online. However, contrary to expectations, levels of attachment in peer relationships did not moderate the relationship between social anxiety and loneliness. These results suggest that social anxiety and loneliness may be important aspects of young adult college students' preference for interacting with peers online rather than in person.

Consistent with extant studies (Erath et al., 2007; Teachman & Allen, 2007; Tillfors et al., 2012; Ye 2015), social media use (specifically preference for online interaction), peer relationships, loneliness, and social anxiety were found to be significantly correlated with one another in the expected directions. Participants endorsing loneliness also reported preference of online social interaction and heightened social anxiety symptoms, while they described their relationships as lower quality characterized by isolation. Conversely, higher quality peer relationships, characterized by trust and communication, were associated with lower levels of social anxiety and loneliness and lower preference for interacting online.

Social anxiety and loneliness accounted for a significant amount of variance in preference for online interactions. These findings are consistent with the findings of a significant correlation between preference for online social interaction and social anxiety in previous studies (Caplan,

2007; McCord, 2014). These results indicate that social anxiety and loneliness both influence an individual's preference to engage in social interaction in person or online.

Quality of peer relationships was not found to be a moderating variable in the relationship between social anxiety symptoms and loneliness. If this relationship had been significant, we would have interpreted the result as low quality relationships moderating the relationship between social anxiety and loneliness. One explanation for this finding is the current usage of the Inventory of Parental and Peer Attachment. Previous studies have primarily focused on utilizing the three subscales of attachment and comparing between parent and peer responses (Laghi et al., 2016; Lepp & Barkley, 2016). This difference in methodology may suggest that the measure may be better suited for analyzing the differences in responses to parent and peer attachment rather than to provide an assessment for peer attachment alone. Another reason for the lack of significance may be in the relationship between social anxiety and peer relationships. Social anxiety disorder can cause a decrease in the number of positive peer experiences (Rubin et al., 2009). Additionally, there is evidence to suggest that peer experiences may aid in the development and maintenance of social anxiety disorder (Blöte, 2015). Given the comorbidity of these two concepts, those with social anxiety disorder may already have poorer peer relationships than others resulting in no influence of poorer relationships on the moderation of social anxiety and loneliness.

The current study did have limitations within its design that could be improved in future research. Firstly, the study utilized retrospective self-report measures for all study variables. Future studies may consider including repetitive measures of social media use, such as a daily diary study (Hall et al., 2019; Robinson, 2011). Another limitation is the cross-sectional design, which precludes a dynamic assessment of social media use and its relationships with other study

variables. Future studies could benefit from a longitudinal design or ecological momentary assessment, such as daily diary. Finally, the sample was comprised of young college students who were primarily female and White, which limits the generalizability of the findings and precludes inferences to males, ethnic and racial minorities, and young adults who are not enrolled in college. Future studies could benefit from examining the study variables among a more diverse sample.

Despite the limitations, the current study provides additional support for previous research and highlights areas where further research is needed. Implications of the current study are that loneliness and social anxiety have a significant influence on social media use, which is consistent with prior literature (Caplan, 2007; McCord, 2014). We can use this data to further understand the interactions between social anxiety and loneliness, in particular that these individuals may prefer online social interactions to supplement peer interactions that are often difficult to facilitate for individuals with social anxiety symptoms (Erwin et al., 2004). Integrating this knowledge of this interaction could allow for more evidence-based treatment programs and perhaps the identification of preference for online social interaction as a maladaptive behavior in those with social anxiety symptoms.

In conclusion, peer relationships are a prominent influence on many psychosocial adaptations and as well as life satisfaction (Pradhan et al., 2018). As communication transitions to more online platforms, individuals facing loneliness and social anxiety may develop a tendency to prefer online social interaction. It is crucial for further research to examine this phenomenon to further understanding of the evolving nature of peer relationships in the age of social media.

References

- Abidin, R. R., Jenkins, C. L., & McGaughey, M. C. (1992). The relationship of early family variables to children's subsequent behavioral adjustment. *Journal of Clinical Child Psychology, 21*(1), 60–69. https://doi-org.umiss.idm.oclc.org/10.1207/s15374424jccp2101_9
- Allen, J. P., Porter, M. R., & McFarland, F. C. (2006). Leaders and followers in adolescent close friendships: Susceptibility to peer influence as a predictor of risky behavior, friendship instability, and depression. *Development and Psychopathology, 18*(1), 155–172. <https://doi-org.umiss.idm.oclc.org/10.1017/S0954579406060093>
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Washington, DC: Author.
- Amichai-Hamburger, Y., & Ben-Artzi, E. (2003). Loneliness and Internet use. *Computers in Human Behavior, 19*(1), 71–80. [https://doi-org.umiss.idm.oclc.org/10.1016/S0747-5632\(02\)00014-6](https://doi-org.umiss.idm.oclc.org/10.1016/S0747-5632(02)00014-6)
- Anderson, C. A., & Harvey, R. J. (1988). Discriminating between problems in living: An examination of measures of depression, loneliness, shyness, and social anxiety. *Journal of Social and Clinical Psychology, 6*(3–4), 482–491. <https://doi-org.umiss.idm.oclc.org/10.1521/jscp.1988.6.3-4.482>
- APA Dictionary of Psychology. (n.d.). Retrieved January 24, 2020, from <https://dictionary.apa.org/peer-group>
- Armsden, G. C., & Greenberg, M. T. (1987). The Inventory of Parent and Peer Attachment: Individual differences and their relationship to psychological well-being in adolescence.

- Journal of Youth and Adolescence*, 16(5), 427–454.
<https://doi.org.umiss.idm.oclc.org/10.1007/BF02202939>.
- Bagwell, C.L., & Coie, J.D. (2004). The best friendships of aggressive boys: Relationship quality, conflict management, and rule-breaking behavior. *Journal of Experimental Child Psychology*, 88, 1, 5-24.
- Bargh, J. A., McKenna, K. Y. A., & Fitzsimons, G. M. (2002). Can you see the real me? Activation and expression of the “true self” on the Internet. *Journal of Social Issues*, 58(1), 33–48. <https://doi-org.umiss.idm.oclc.org/10.1111/1540-4560.00247>
- Beesdo, K., Bittner, A., Pine, D. S., Stein, M. B., Hofler, M., Lieb, R., & Wittchen, H.-U. (2007). Incidence of social anxiety disorder and the consistent risk for secondary depression in the first three decades of life. *Archives of General Psychiatry*, 64(8), 903–912.
<https://doi-org.umiss.idm.oclc.org/10.1001/archpsyc.64.8.903>
- Beesdo, B. K., Knappe, S., Fehm, L., Höfler, M., Lieb, R., Hofmann, S. G., & Wittchen, H. -U. (2012). The natural course of social anxiety disorder among adolescents and young adults. *Acta Psychiatrica Scandinavica*, 126(6), 411–425. <https://doi-org.umiss.idm.oclc.org/10.1111/j.1600-0447.2012.01886.x>
- Bella, T. T., & Omigbodun, O. O. (2009). Social phobia in Nigerian university students: Prevalence, correlates and co-morbidity. *Social Psychiatry and Psychiatric Epidemiology: The International Journal for Research in Social and Genetic Epidemiology and Mental Health Services*, 44(6), 458–463. <https://doi-org.umiss.idm.oclc.org/10.1007/s00127-008-0457-3>

- Blöte, A. W., Miers, A. C., & Westenberg, P. M. (2015). The role of social performance and physical attractiveness in peer rejection of socially anxious adolescents. *Journal of Research on Adolescence*, 25(1), 189-200.
- Boyd, Danah M., & Ellison, N. B. (2007). Social network sites: Definition, history, and scholarship. *Journal of Computer-Mediated Communication*, 13(1), 210–230. <https://doi-org.umiss.idm.oclc.org/10.1111/j.1083-6101.2007.00393.x>
- Bruce, S. E., Yonkers, K. A., Otto, M. W., Eisen, J. L., Weisberg, R. B., Pagano, M., Shea, M. T., & Keller, M. B. (2005). Influence of psychiatric comorbidity on recovery and recurrence in Generalized Anxiety Disorder, Social Phobia, and Panic Disorder: A 12-year prospective study. *The American Journal of Psychiatry*, 162(6), 1179–1187. <https://doi-org.umiss.idm.oclc.org/10.1176/appi.ajp.162.6.1179>
- Burke, T. J., Ruppel, E. K., & Dinsmore, D. R. (2016). Moving away and reaching out: Young adults' relational maintenance and psychosocial well-being during the transition to college. *Journal of Family Communication*, 16(2), 180–187. <https://doi-org.umiss.idm.oclc.org/10.1080/15267431.2016.1146724>
- Burstein, M., He, J. P., Kattan, G., Albano, A. M., Avenevoli, S., & Merikangas, K. R. (2011). Social phobia and subtypes in the National Comorbidity Survey–Adolescent Supplement: prevalence, correlates, and comorbidity. *Journal of the American Academy of Child & Adolescent Psychiatry*, 50(9), 870-880.
- Caplan, S. E. (2003). Preference for online social interaction: A theory of problematic Internet use and psychosocial well-being. *Communication Research*, 30, 625–648.
- Caplan, S. E. (2007). Relations among loneliness, social anxiety, and problematic Internet use. *CyberPsychology & Behavior*, 10, 234–241.

- Caplan, S. E. (2010). Theory and measurement of generalized problematic internet use: A two-step approach. *Computers in Human Behavior*, 26(5), 1089–1097. <https://doi-org.umiss.idm.oclc.org/10.1016/j.chb.2010.03.012>
- Cavanaugh, A. M., & Buehler, C. (2016). Adolescent loneliness and social anxiety: The role of multiple sources of support. *Journal of Social and Personal Relationships*, 33, 149–170. <http://dx.doi.org/10.1177/0265407514567837>
- Coleman, J. S. (1988). Social capital in the creation of human capital. *American Journal of Sociology*, 94, S95-S120.
- Connor, K. M., Davidson, J. R. T., Churchill, L. E., Sherwood, A., Foa, E., & Weisler, R. H. (2000). Psychometric properties of the Social Phobia Inventory (SPIN): New self-rating scale. *The British Journal of Psychiatry*, 176, 379–386. <https://doi-org.umiss.idm.oclc.org/10.1192/bjp.176.4.379>
- Dodge, K.A., Lansford, J.E., Burks, V.S., Bates, J.E., Pettit, G.S., Fontaine, R., & Price, J.M. (2003). Peer rejection and social information-processing factors in the development of aggressive behavior problems in children. *Child Development*, 74, 2, 374-393.
- Edosomwan, S., Prakasan, S. K., Kouame, D., Watson, J., & Seymour, T. (2011). The history of social media and its impact on business. *Journal of Applied Management and Entrepreneurship*, 16(3), 79-91.
- Eismann M: Contact difficulties and experience of loneliness in depressed patients and non-psychiatric controls. *Acta Psychiatry Scan* 70:160-165, 1984
- Ellison, N. B., Steinfield, C., & Lampe, C. (2007). The benefits of Facebook “friends:” Social capital and college students’ use of online social network sites. *Journal of Computer-*

Mediated Communication, 12(4), 1143–1168.

<https://doi.org.umiss.idm.oclc.org/10.1111/j.1083-6101.2007.00367.x>

eMarketer. (February 26, 2020). Number of TikTok users in the United States from 2019 to 2024 (in millions) [Graph]. In Statista. Retrieved April 08, 2020, from <https://www-statista-com.umiss.idm.oclc.org/statistics/1100836/number-of-us-tiktok-users/>

Erath, S. A., Flanagan, K. S., & Bierman, K. L. (2007). Social anxiety and peer relations in early adolescence: Behavioral and cognitive factors. *Journal of Abnormal Child Psychology*, 35(3), 405-416.

Erwin, B. A., Turk, C. L., Heimberg, R. G., Fresco, D. M., & Hantula, D. A. (2004). The Internet: Home to a severe population of individuals with social anxiety disorder. *Journal of Anxiety Disorders*, 18(5), 629-646.

Eshbaugh, E. M. (2010). Friend and family support as moderators of the effects of low romantic partner support on loneliness among college women. *Individual Differences Research*, 8(1), 8–16

Gardner, A. A., Zimmer, G. M. J., & Campbell, S. M. (2020). Attachment and emotion regulation: A person-centred examination and relations with coping with rejection, friendship closeness, and emotional adjustment. *British Journal of Developmental Psychology*, 38(1), 125–143. <https://doi-org.umiss.idm.oclc.org/10.1111/bjdp.12310>

Goodman-Deane, J., Mieczakowski, A., Johnson, D., Goldhaber, T., & Clarkson, P. J. (2016). The impact of communication technologies on life and relationship satisfaction. *Computers in Human Behavior*, 57, 219–229. <https://doi-org.umiss.idm.oclc.org/10.1016/j.chb.2015.11.053>

- Hall, J. A., Johnson, R. M., & Ross, E. M. (2019). Where does the time go? An experimental test of what social media displaces and displaced activities' associations with affective well-being and quality of day. *New Media & Society*, 21(3), 674–692. <https://doi-org.umiss.idm.oclc.org/10.1177/1461444818804775>
- Harrigan, J. A., & O'Connell, D. M. (1996). How do you look when feeling anxious? Facial displays of anxiety. *Personality and Individual Differences*, 21, 205–212. doi:10.1016/0191-8869(96)00050-5
- Hawkey, L. C., Hughes, M. E., Waite, L. J., Masi, C. M., Thisted, R.A., & Cacioppo, J. T. (2008). From social structural factors to perceptions of relationship quality and loneliness: The Chicago health, aging, and social relations study. *Journal of Gerontology: Social Sciences*, 63B, S375–S384. doi:10.1093/geronb/63.6.s375.
- Hayes, A. F., & Rockwood, N. J. (2017). Regression-based statistical mediation and moderation analysis in clinical research: Observations, recommendations, and implementation. *Behaviour Research and Therapy*, 98, 39-57.
- Hofmann, S. G. (2007). Cognitive factors that maintain social anxiety disorder: A comprehensive model and its treatment implications. *Cognitive Behaviour Therapy*, 36(4), 193-209.
- Izgiç, F., Akyüz, G., Doğan, O., & Kuğu, N. (2004). Social Phobia among university students and its relation to self-esteem and body image. *The Canadian Journal of Psychiatry*, 49(9), 630–634. <https://doi.org/10.1177/070674370404900910>
- Johnson, H. S., Inderbitzen-Nolan, H. M., & Anderson, E. R. (2006). The Social Phobia Inventory: Validity and reliability in an adolescent community sample. *Psychological Assessment*, 18(3), 269–277. <https://doi-org.umiss.idm.oclc.org/10.1037/1040-3590.18.3.269>

- Kessler, R. C., Petukhova, M., Sampson, N. A., Zaslavsky, A. M., & Wittchen, H. (2012). Twelve-month and lifetime prevalence and lifetime morbid risk of anxiety and mood disorders in the United States. *International Journal of Methods in Psychiatric Research*, 21(3), 169–184. <https://doi-org.umiss.idm.oclc.org/10.1002/mpr.1359>
- Klaiber, P., Whillans, A. V., & Chen, F. S. (2018). Long-term health implications of students' friendship formation during the transition to university. *Applied Psychology: Health and Well-Being*, 10(2), 290–308. <https://doi-org.umiss.idm.oclc.org/10.1111/aphw.12131>
- Laghi, F., Pallini, S., Baumgartner, E., Guarino, A., & Baiocco, R. (2016). Parent and peer attachment relationships and time perspective in adolescence: Are they related to satisfaction with life? *Time & Society*, 25(1), 24–39. <https://doi-org.umiss.idm.oclc.org/10.1177/0961463X15577282>
- Lepp, A., Li, J., & Barkley, J. E. (2016). College students' cell phone use and attachment to parents and peers. *Computers in Human Behavior*, 64, 401–408. <https://doi-org.umiss.idm.oclc.org/10.1016/j.chb.2016.07.021>
- Leung, L., & Liang, J. (2016). Psychological traits, addiction symptoms, and feature usage as predictors of problematic smartphone use among university students in China. *International Journal of Cyber Behavior, Psychology and Learning*, 6(4), 57–74. <https://doi-org.umiss.idm.oclc.org/10.4018/IJCBPL.2016100105>
- Levinson, C. A., Langer, J. K., & Rodebaugh, T. L. (2013). Reactivity to exclusion prospectively predicts social anxiety symptoms in young adults. *Behavior Therapy*, 44(3), 470–478.
- Lim, M. H., Rodebaugh, T. L., Zyphur, M. J., & Gleeson, J. F. (2016). Loneliness over time: The crucial role of social anxiety. *Journal of Abnormal Psychology*, 125(5), 620–630. doi:10.1037/abn0000162

- McCord, B., Rodebaugh, T. L., & Levinson, C. A. (2014). Facebook: Social uses and anxiety. *Computers in Human Behavior*, 34, 23-27.
- Mijuskovic, B. (1986). Loneliness, anxiety, hostility, and communication. *Child Study Journal*, 16(3), 227–240.
- Moitra, E., Beard, C., Weisberg, R. B., & Keller, M. B. (2011). Occupational impairment and social anxiety disorder in a sample of primary care patients. *Journal of Affective Disorders*, 130(1-2), 209-212.
- Moore, D., & Schultz, N. R. (1983). Loneliness at adolescence: Correlates, attributions, and coping. *Journal of Youth and Adolescence*, 12(2), 95–100. <https://doi-org.umiss.idm.oclc.org/10.1007/BF02088307>
- Narr, R. K., Allen, J. P., Tan, J. S., & Loeb, E. L. (2019). Close friendship strength and broader peer group desirability as differential predictors of adult mental health. *Child Development*, 90(1), 298–313. <https://doi-org.umiss.idm.oclc.org/10.1111/cdev.12905>
- Peplau, L. A., & Perlman, D. (1979). Blueprint for a social psychological theory of loneliness. In *Love and attraction: An interpersonal conference* (pp. 101-110).
- Pradhan, R. K., Bhattacharyya, P., & Goswami, S. (2018). Perceived quality of friendship and life satisfaction of students: Moderating role of emotional intelligence. *Journal of the Indian Academy of Applied Psychology*, 44(2), 208–217.
- Primack, B. A., Shensa, A., Escobar-Viera, C. G., Barrett, E. L., Sidani, J. E., Colditz, J. B., & James, A. E. (2017). Use of multiple social media platforms and symptoms of depression and anxiety: A nationally-representative study among US young adults. *Computers in Human Behavior*, 69, 1–9. <https://doi-org.umiss.idm.oclc.org/10.1016/j.chb.2016.11.013>

- Prinstein, M. J., Boergers, J., & Vernberg, E. M. (2001). Overt and relational aggression in adolescents: Social-psychological adjustment of aggressors and victims. *Journal of Clinical Child Psychology, 30*(4), 479–491.
https://doi.org.umiss.idm.oclc.org/10.1207/S15374424JCCP3004_05
- Qualter, P., Vanhalst, J., Harris, R., Van Roekel, E., Lodder, G., Bangee, M., . . . Verhagen, M. (2015). Loneliness across the life span. *Perspectives on Psychological Science, 10*, 250 – 264. <http://dx.doi.org/10.1177/1745691615568999>
- Robinson, J. P. (2011). IT use and leisure time displacement. *Information, Communication & Society, 14*(4), 495–509. <https://doi-org.umiss.idm.oclc.org/10.1080/1369118X.2011.562223>
- Rubin, K. H., Bukowski, W. M., & Parker, J. G. (2006). Peer interactions, relationships, and groups. In N. Eisenberg, W. Damon, & R. M. Lerner (Eds.), *Handbook of child psychology: Social, emotional, and personality development* (p. 571–645).
- Russell, D. W. (1996). UCLA Loneliness Scale (Version 3): Reliability, validity, and factor structure. *Journal of Personality Assessment, 66*(1), 20–40.
- Schacter, H. L., Lessard, L. M., & Juvonen, J. (2019). Peer rejection as a precursor of romantic dysfunction in adolescence: Can friendships protect? *Journal of Adolescence, 77*, 70–80.
<https://doi-org.umiss.idm.oclc.org/10.1016/j.adolescence.2019.10.004>
- Shi, R., Wang, K. T., Xie, Z., Zhang, R., & Liu, C. (2019). The mediating role of friendship quality in the relationship between anger coping styles and mental health in Chinese adolescents. *Journal of Social and Personal Relationships, 36*(11–12), 3796–3813.
<https://doi-org.umiss.idm.oclc.org/10.1177/0265407519839146>

- Smith, A. (2019, December 31)a. A "Week in the Life" Analysis of Smartphone Users. Retrieved from <https://www.pewresearch.org/internet/2015/04/01/chapter-three-a-week-in-the-life-analysis-of-smartphone-users/>
- Smith, A. (2019, December 31)b. A Portrait of Smartphone Ownership. Retrieved from <https://www.pewresearch.org/internet/2015/04/01/chapter-one-a-portrait-of-smartphone-ownership/>
- Soller, B. (2015). "I did not do it my way": The peer context of inauthentic romantic relationships. *Sociological Perspectives*, 58(3), 337–357. <https://doi-org.umiss.idm.oclc.org/10.1177/0731121415576578>
- Statista. (February 18, 2019). Number of social network users in the United States from 2017 to 2023 (in millions) [Graph]. In Statista. Retrieved April 10, 2020, from <https://www-statista-com.umiss.idm.oclc.org/statistics/278409/number-of-social-network-users-in-the-united-states/>
- Statista. (February 18, 2019). Number of Facebook users in the United States from 2017 to 2023 (in millions) [Graph]. In Statista. Retrieved April 08, 2020, from <https://www-statista-com.umiss.idm.oclc.org/statistics/408971/number-of-us-facebook-users/>
- Stein, M. B., & Kean, Y. M. (2000). Disability and quality of life in social phobia: Epidemiologic findings. *American Journal of Psychiatry*, 157(10), 1606-1613.
- Swenson, L. M., Nordstrom, A., & Hiester, M. (2008). The role of peer relationships in adjustment to college. *Journal of College Student Development*, 49(6), 551-567.
- Teachman, B. A., & Allen, J. P. (2007). Development of social anxiety: Social interaction predictors of implicit and explicit fear of negative evaluation. *Journal of Abnormal Child Psychology*, 35(1).

- Tillfors, M., & Furmark, T. (2007). Social phobia in Swedish university students: Prevalence, subgroups and avoidant behavior. *Social Psychiatry and Psychiatric Epidemiology*, 42(1), 79-86.
- Tillfors, M., Persson, S., Willén, M., & Burk, W. J. (2012). Prospective links between social anxiety and adolescent peer relations. *Journal of Adolescence*, 35(5), 1255–1263.
<https://doi-org.umiss.idm.oclc.org/10.1016/j.adolescence.2012.04.008>
- Tobin, S. J., Vanman, E. J., Verreynne, M., & Saeri, A. K. (2015). Threats to belonging on Facebook: Lurking and ostracism. *Social Influence*, 4510, 1–12
- Tolman, R. M., Himle, J., Bybee, D., Abelson, J. L., Hoffman, J., & Van Etten-Lee, M. (2009). Impact of social anxiety disorder on employment among women receiving welfare benefits. *Psychiatric Services*, 60(1), 61-66.
- Uusiautti, S., & Määttä, K. (2014). I am no longer alone—How do university students perceive the possibilities of social media. *International Journal of Adolescence and Youth*, 19(3), 293-305.
- Vannucci, A., Ohannessian, C. M., & Gagnon, S. (2018). Use of multiple social media platforms in relation to psychological functioning in emerging adults. *Emerging Adulthood*.
- Wellman, B., Quan Haase, A., Witte, J., & Hampton, K. (2001). Does the Internet increase, decrease, or supplement social capital? Social networks, participation, and community commitment. *American Behavioral Scientist*, 45(3), 436–455. <https://doi-org.umiss.idm.oclc.org/10.1177/00027640121957286>
- Whiting, A., & Williams, D. (2013). Why people use social media: A uses and gratifications approach. *Qualitative Market Research: An International Journal*, 16, 362–369

Wittchen, H.-U., & Fehm, L. (2001). Epidemiology, patterns of comorbidity, and associated disabilities of social phobia. *Psychiatric Clinics of North America*, 24(4), 617–641.

[https://doi-org.umiss.idm.oclc.org/10.1016/S0193-953X\(05\)70254-9](https://doi-org.umiss.idm.oclc.org/10.1016/S0193-953X(05)70254-9).

Xia, N., & Li, H. (2018). Loneliness, social isolation, and cardiovascular health. *Antioxidants & redox signaling*, 28(9), 837–851. [https://doi-](https://doi-org.umiss.idm.oclc.org/10.1089/ars.2017.7312)

[org.umiss.idm.oclc.org/10.1089/ars.2017.7312](https://doi-org.umiss.idm.oclc.org/10.1089/ars.2017.7312)

Ye, Lin L. (2015). Examining relations between locus of control, loneliness, subjective well-being, and preference for online social interaction. *Psychological Reports*, 116(1):164–175.

Table 1
Social Media Characteristics ($N = 442$)

Social Media Platforms	% (n)	<i>Preferred Platform</i>
Snapchat	96.8 (428)	53.8 (238)
Instagram	96.2 (425)	29.0 (128)
YouTube	72.6 (321)	2.5 (11)
Facebook	71.7 (317)	3.6 (16)
Twitter	65.8 (291)	11.3 (50)
TikTok	52.9 (234)	1.6 (7)
Pinterest	41.9 (185)	0.2 (1)
Reddit	5.7 (25)	0.2 (1)
LinkedIn	5.4 (24)	0.0 (0)
Tumblr	4.8 (21)	0.0 (0)
Other	1.4 (6)	0.0 (0)
Time Spent on Social Media Daily		
0 – 3 hours	46.8 (207)	
4 – 7 hours	42.5 (188)	
8 – 11 hours	6.3 (28)	
12 – 15 hours	2.71 (12)	
16+ hours	1.58 (7)	
Daily Active Social Media Use		
0 – 3 hours	67.4 (298)	
4 – 7 hours	24.2 (107)	
8 – 11 hours	6.8 (30)	
12 – 15 hours	0.7 (3)	
16+ hours	0.9 (4)	
Daily Passive Social Media Use		
0 – 3 hours	53.8 (238)	
4 – 7 hours	36.4 (161)	
8 – 11 hours	5.4 (24)	
12 – 15 hours	2.9 (13)	
16+ hours	1.4 (6)	

Table 2.
Means, Standard Deviations, and Correlations between Study Variables

	<i>M</i> (SD)	1	2	3	4	5	6
1. Trust	19.13 (8.12)	-	.408**	.647**	-.199**	-.268**	-.573**
2. Alienation	17.45 (4.96)	.408**	-	.376**	-.179**	-.288**	-.542
3. Communication	17.37 (6.17)	.647**	.376**	-	-.241**	-.211**	-.529**
4. POSI	9.14 (4.99)	-.199**	-.179**	-.241**	-	.313**	.241**
5. Social Anxiety	18.71 (13.45)	-.268**	-.288**	-.211**	.313**	-	.442**
6. Loneliness	36.64 (10.69)	-.573**	-.542**	-.529**	.241**	.442**	-

Note. Trust, Alienation, Communication = three subscales of the IPPA Peer Section, POSI = GPIU2 Preference for Online Interaction Subscale, Social Anxiety = SPIN total, Loneliness = UCLA-R Total.

Table 3.

Multiple linear regression social anxiety and loneliness in social media use among undergraduate students ($N = 442$)

	R^2	B	$SE(B)$	p
	.111			<.001
Loneliness		.059	.023	.011
Social Anxiety		.095	.019	<.001

Note. Loneliness = UCLA-R Total, Social Anxiety = SPIN Total.

Appendix A

SPIN

name _____

date _____

Beside each statement below, please tick the box that best describes how you have been feeling during the last week or other agreed time period:

		<i>0: not at all</i>	<i>1: a little bit</i>	<i>2: some -what</i>	<i>3: very much</i>	<i>4: extre -mely</i>
1	I am afraid of people in authority					
2	I am bothered by blushing in front of people					
3	parties and social events scare me					
4	I avoid talking to people I don't know					
5	being criticized scares me a lot					
6	I avoid doing things or speaking to people for fear of embarrassment					
7	sweating in front of people causes me distress					
8	I avoid going to parties					
9	I avoid activities in which I am the centre of attention					
10	talking to strangers scares me					
11	I avoid having to give speeches					
12	I would do anything to avoid being criticized					
13	heart palpitations bother me when I am around people					
14	I am afraid of doing things when people might be watching					
15	being embarrassed or looking stupid are among my worse fears					
16	I avoid speaking to anyone in authority					
17	trembling or shaking in front of others is distressing to me					

Appendix B

TABLE 1
UCLA Loneliness Scale (Version 3)

Instructions: The following statements describe how people sometimes feel. For each statement, please indicate how often you feel the way described by writing a number in the space provided. Here is an example:

How often do you feel happy?

If you never felt happy, you would respond "never"; if you always feel happy, you would respond "always."

<u>NEVER</u>	<u>RARELY</u>	<u>SOMETIMES</u>	<u>ALWAYS</u>
<u>1</u>	<u>2</u>	<u>3</u>	<u>4</u>
*1. How often do you feel that you are "in tune" with the people around you?			_____
2. How often do you feel that you lack companionship?			_____
3. How often do you feel that there is no one you can turn to?			_____
4. How often do you feel alone?			_____
*5. How often do you feel part of a group of friends?			_____
*6. How often do you feel that you have a lot in common with the people around you?			_____
7. How often do you feel that you are no longer close to anyone?			_____
8. How often do you feel that your interests and ideas are not shared by those around you?			_____
*9. How often do you feel outgoing and friendly?			_____
*10. How often do you feel close to people?			_____
11. How often do you feel left out?			_____
12. How often do you feel that your relationships with others are not meaningful?			_____
13. How often do you feel that no one really knows you well?			_____
14. How often do you feel isolated from others?			_____
*15. How often do you feel you can find companionship when you want it?			_____
*16. How often do you feel that there are people who really understand you?			_____
17. How often do you feel shy?			_____
18. How often do you feel that people are around you but not with you?			_____
*19. How often do you feel that there are people you can talk to?			_____
*20. How often do you feel that there are people you can turn to?			_____

Scoring:

Items that are asterisked should be reversed (i.e., 1 = 4, 2 = 3, 3 = 2, 4 = 1), and the scores for each item then summed together. Higher scores indicate greater degrees of loneliness.

Note. Copyright 1994 by Daniel W. Russell. Reprinted with permission.

*Appendix C***Inventory of Parent and Peer Attachment**

Respondents indicate whether the following items are *almost or always true, often true, sometimes true, seldom true, or almost never or never true.*

Section II

1. I like to get my friends' point of view on things I'm concerned about.
2. My friends sense when I'm upset about something.
3. When we discuss things, my friends consider my point of view.
4. Talking over my problems with my friends make me feel foolish.
5. I wish I had different friends.
6. My friends understand me.
7. My friends encourage me to talk about my difficulties.
8. My friends accept me as I am.
9. I feel the need to be in touch with my friends more often.
10. My friends don't understand what I'm going through these days.
11. I feel alone or apart when I am with my friends.
12. My friends listened to what I have to say.
13. I feel my friends are good friends.
14. My friends are fairly easy to talk to.
15. When I am angry about something, my friends try to be understanding.
16. My friends help me to understand myself better.
17. My friends are concerned about my well-being.
18. I feel angry with my friends.
19. I can count on my friends when I need to get something off my chest.
20. I trust my friends.
21. My friends respect my feelings.
22. I get upset a lot more than my friends know about.
23. It seems as if my friends are irritated with me for no reason.
24. I tell my friends about my problems and troubles.
25. If my friends know something is bothering me, they ask me about it.

Appendix D

Generalized Problematic Internet Use-Version 2 (GPIU2)

Please rate the extent to which you agree with each item according to the scale below.

1 2 3 4 5 6 7 8
(Definitely disagree) (Definitely agree)

1. I prefer online social interaction over face-to-face communication.
2. Online social interaction is more comfortable for me than face-to-face.
3. I prefer communicating with people online rather than face-to-face.
4. I have used the Internet to talk with others when I feel isolated.
5. I have used the Internet to make myself feel better when I was down.
6. I have used the Internet to make myself feel better when I've felt upset.
7. When I haven't been online for some time, I become preoccupied with the thought of going online.
8. I would feel lost if I was unable to go online.
9. I think obsessively about going online when I am offline.
10. I have difficulty controlling the amount of time I spend online.
11. I find it difficult to control my Internet use.
12. When offline, I have a hard time trying to resist the urge to go online.
13. My internet use has made it difficult for me to manage my life.
14. I have missed social engagements or activities because of my Internet use.
15. My Internet use has created problems for me in my life.

*Appendix E***Background and Sociodemographic Information**

What was your sex at birth?

0 = Male

1 = Female

2 = Other (Please Specify): _____

Which of the following best describes your gender identity?

1 = Female/Woman

2 = Male/Man

3 = Transgender

4 = Other Genders (Please specify): _____

What is your date of birth? _____

What is your age (in years)? _____

Is English a second language for you?

0 = No

1 = Yes

Were you born in the United States?

0 = No

1 = Yes

If NO:

How long have you been living here? _____

Where were you born? _____

What is your ethnic background?

- 1 = White
- 2 = Native American / American Indian
- 3 = Black / African-American
- 4 = Chinese or Chinese-American
- 5 = Japanese or Japanese-American
- 6 = Korean or Korean-American
- 7 = Other Asian or Asian-American
- 8 = Mexican, Mexican American, or Chicano
- 9 = Puerto Rican
- 10 = Other Hispanic / Latino
- 11 = East Indian
- 12 = Middle Eastern / Arab
- 13 = Other (Please specify): _____

How do you self-identify?

- 1 = Gay
- 2 = Lesbian
- 3 = Bisexual
- 4 = Queer
- 5 = Questioning
- 6 = Heterosexual / Straight
- 7 = Asexual
- 8 = Other (Please specify): _____

Year in school

- a) Freshman (1st year)
- b) Sophomore (2nd year)
- c) Junior (3rd year)
- d) Senior (4th year)

e) Other: _____

Current GPA: _____

Number of credit hours enrolled in this semester: _____

Major: _____

Housing Status

a) On-campus dorm

b) Greek-affiliated house

c) Alone in off-campus apartment or house

d) With roommate in off-campus apartment or house

e) With parent(s) or family member

f) Other: _____

*Appendix F***Social Media and Communication**

What forms of social media do you use? Check all that apply.

- ☐ Facebook
- ☐ Instagram
- ☐ Snapchat
- ☐ TikTok
- ☐ Reddit
- ☐ Tumblr
- ☐ Twitter
- ☐ Pinterest
- ☐ YouTube
- ☐ LinkedIn
- ☐ Other (Please specify): _____

What is your most preferred method of social media? _____

Thinking on an average day, how much time (in hours) do you spend engaged in these forms of social media? _____

What forms of communication do you use? Check all that apply.

- ☐ E-mail
- ☐ Text Messaging
- ☐ Twitter
- ☐ Facebook Messenger
- ☐ G-chat Messenger / Hangouts
- ☐ Skype
- ☐ In-person
- ☐ Telephone Calls
- ☐ Other Chat or Messenger Apps
- ☐ Other (Please Specify): _____

Thinking of an average day, how much time (in hours) do you spend communicating with others using these forms of communications? _____

What is your most preferred method of communicating with close friends? _____

What is your most preferred method of communicating with your social network? _____

What is your most preferred method of communicating with your family? _____

Thinking of an average day, how much time (in hours) do you spend browsing social network content created by others? (Examples: Watching videos, Viewing photos, Scrolling through social network sites, etc.) _____

Thinking of an average day, how much time (in hours) do you spend participating in content creations? (Examples: Sharing information, Meeting new people, Talking to other people, Talking about hobbies and personal interests, Posting/uploading videos and photos, etc.) _____