LONLEY Zs: EXAMINING THE RELATIONSHIPS AMONG TIME SPENT ON SOCIAL NETWORKING SITES, THE FEAR OF MISSING OUT (FOMO), AND LONELINESS AMONG UNDERGRADUATE COLLEGE STUDENTS

by

Chantelle Elam Bernard

Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

School of Behavioral Sciences

Liberty University, Lynchburg, VA

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APPROVED BY:

Dr. Angel Golson, Committee Chair

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ABSTRACT

Time spent on social networking sites has become an essential part of the Gen Z's social experience, and the fear of missing out (FoMO), and loneliness have become three well known topics among today's college students. It is suspected that emerging adults are spending an excessive amount of time on SNSs, which is contributing to the increasing psychological decline and the epidemic of loneliness on college campuses around the world. The research conducted sought to determine if there is a predictive relationship between multiple variables, including time spent on social networking sites, the fear of missing out (FoMO), and loneliness among undergraduate college students. The study included collection of demographic characteristics including (age, gender, ethnicity, and number of SNSs owed), along with the related period(s) and (e) motives of use, specifically (a) academic (b) public places, (c) relaxation/free, and (d) stress. The results indicated there is a predictive relationship between time spent on social networking sites, loneliness, and the fear of missing out (FoMO). Further, it was found that loneliness was predictive of FoMO and related periods of use, specifically during stressful times and in public places was predictive of loneliness and FoMO. Results also revealed that demographic characteristics, specifically number of social networking accounts owned was predictive of FoMO and loneliness, and ethnicity was predictive of FoMO.

Keywords: social networking sites, loneliness, FoMO, periods, motives, well-being

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Dedication

To: Roman Christopher Bernard

"My Muse, My Motivation, My Son"

As your mother, I promise you that I will always be in one of three places; in front of you to cheer you on, behind you to have your back, and next to you so that you are never alone~

Acknowledgments

There is so much truth in the arduous process of a doctoral journey. Yet somehow, I persisted

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make the largest impact on me daily, my son Roman Bernard and my puggle Shadow. I love you

both for being so patient and loving me through this crazy ride!

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List of Abbreviations

Application (App)

Emerging Adult (EA)

Fear of Missing Out (FoMO)

Fear of Being Alone (FoBO)

Generation Z (Gen Zs)

Liberty University (LU)

Pre-Frontal Cortex (PFC)

Integrated Post-Secondary Data System (IPEDS)

Quick Response Code (QR)

Self Determination Theory (SDT)

Social Networking Time Use Scale Social Networking Sites SNSs (SONTUS)

The University of Richmond (UR)

Uses and Gratification Theory (UGT)

CHAPTER ONE: INTRODUCTION

Overview

The emergence of online social networking sites has played a significant role in the social and emotional development of young adults in the 21st century. Unlike earlier generations, today's emerging adult is confronted with a growing number of social and emotional challenges that are extraordinarily diverse and complex. The popularity of cell phones and the evolution of social networking platforms has contributed to increases in compulsive checking behaviors and the excessive time college students spend engaging between various platforms. Social networking site participation has become so deeply in grained into the lived experience of college students that many are reporting increases in unpleasant psychological symptoms, such as FoMO and loneliness. The purpose of this chapter is to outline the details of the research study, and to provide information about the prevalence of social networking site (SNS) participation in college students, as well as the impact that the fear of missing out (FoMO) and loneliness have on their social and emotional well-being.

Background

Researchers, educators, and mental health professionals are beginning to ask the questions regarding the effects of online media and declining mental health among emerging adults (Arnett, 2000). Studies have shown that college students are spending an exceptional amount of time on SNSs, which has contributed to a decreased interest in face to face activities, increased feelings of social inadequacy, and increased feelings of social isolation (Wilson, Fornasier, & White, 2010). The principal concern for higher education leaders is the growing epidemic of social anxieties, such as FoMO and intense loneliness on college campus around the world (Markham, 2018). FoMO is a relatively new phenomenon in young adults, characterized

by a feeling of anxiety regarding one's own sense of social connectedness (Baker, Krieger, & LeRoy, 2016). Loneliness or the feeling of being alone is not a new topic of interest, as it is commonly understood across all species and it is widely recognized as a universal emotion (Markham, 2018). The development of online social networking sites has succeeded at addressing the need for constant inclusion by providing unlimited opportunities for young adults to quickly and efficiently resolve the feelings of loneliness and FoMO derived from unpleasant SNS interactions (Hogan, 2018). Conversely, there are times when the SNS experiences are substantially affirming and positive, which can increase the engagement cycle, and produce addictive social networking behaviors (James, Lowry, Wallace, Warkentin, & Rouse, 2007; Hogan, 2018). Despite the instantaneous resolution of psychological distress from affirming online content, and the positive interactions from peers; studies have shown that college students are feeling lonelier and more disconnected than ever (Hogan, 2018).

Considering that loneliness is a normal emotional response, and FoMO is still sorely under researched, researchers have called for further examination of the relationships between the amount of time college students are spending on various SNSs, and the manifestation of psychological distress (Alt, 2015; Barker, 2009; Belk, 2013). Therefore, this quantitative research study examined the relationships among the time spent on social networking sites (SNSs), the fear of missing out (FoMO), and loneliness in undergraduate college students. The study also sought to determine if the related period(s) and motive(s) for SNS use are related to FoMO and loneliness. The following sections will provide additional information about the study variables, the identified problem, the purpose, and the significance of the proposed study.

The History of Social Networking Use in College Aged Students

Long before social networking sites were established, traditional interactions, such as written letters, telephone calls, and face-to-face communication were coveted, and even valued forms of establishing social ties and interpersonal relationships (Boyd & Ellison, 2007). The first identifiable form of social networking involved more primitive designs, where developers sought to enhance and consolidate information amongst individuals and social groups (Barker, 2009; Sanchez, 2004). However, it was not until the early 1990's that systems such as MySpace, Facebook, and AOL Instant Messenger evolved and truly revolutionized modern communication for millions of SNS users around the world (Sanchez, 2004; Upreti & Musalay, 2017). The most significant change in paradigm of social networking was the evolution of the most popular SNS platform Facebook, which was originally designed to appeal to undergraduate college students (Hon & Chua, 2016).

Today, there are more than a dozen social networking sites available, affording users the opportunity to communicate in short form, such as texting, instant messaging (IM), posting, tweeting, likes, pings and pokes, as well as video exchange and messaging (Belk, 2013; Plowman, McPake & Stephen, 2010). Ranked first in the world, over China and India, 81% of the U.S. population owns at least one social media platform, and 70% of these user's report maintaining active participation on one or more social media accounts daily (NCES, 2018). According to NCES (2019), social networking technologies have grown to more than 2.23 billion users worldwide, and the number is expected to climb to 3.02 billion by 2021. Given the billions of users on social media, there is clear evidence that Americans are spending an exceptional amount of time engaging on social networking sites, and young adult's make-up the highest percentage of the millions of social networking site users around the world (DeAndrea, Ellison, Larose, Steinfield, & Fiore, 2012).

Related Periods and Motives for SNS Use in College Students

Human beings possess an intrinsic need to belong, and a strong desire to establish social connections with one another (Van Rompay, De Jong & Wiesner, 2017). In a recent study, 73% of Americans reported they participate on more than one social networking platforms, such as Facebook, Twitter, Instagram, Pinterest, and LinkedIn (Genner & Suss, 2017). Plowman, et al. (2010), contend that college students are major participants and collaborators on social networking applications and mobile devices, with 91% of this population possessing a cell phone to engage in various SNS activities, such as, text messages, Internet access, or gaming systems. For some, the emergence of social networking sites has fulfilled the need for social connectedness, social engagement, and mitigated feelings of loneliness during their transition to college (Van Rompay et al., 2017). In fact, some college leaders have begun to take full advantage of social networking applications to communicate with students and improve campus-wide engagement (Adams, Williford, Vaccaro, Kisler, Francis, & Newman, 2017). Today, college students have become so proficient on social networking applications (Apps), they use them quite extensively for communicating with faculty, campus peers, and friends from home (Reich, Subrahmanyam, & Espinoza, 2012).

Self-determination theorists argue that critical periods of development, such as emerging adulthood contributes to the degree of SNS use in college students (Lin, 2016). Elhai, Levine, Dvorak and Hall (2016) highlighted the importance of making friends and social status among college students and contend that the establishment of friendships is underestimated and under researched. Studies have shown that SNSs have become a significant part of the social invitation, and students often use it for social research or even for subtle retaliation (Kalpidou, Costin & Morris, 2011). Moreno et al. (2011) suggests the integration of SNSs into everyday life, and the

high degree of overlap in student's daily connectivity habits, makes it nearly impossible for emerging adults to sustain attention and focus on academic studies. In their study, Valkenburg and Peter (2008) suggests the process of establishing social competence is a primary function and motive for social networking site participation in college students, which involves social searching, impression management, social recommendation and social communication. Ellison, Steinfield, and Lampe (2007) found that college students reported SNSs as a critical component of academic collaboration, and a significant resource to buffer emotional discomfort during stressful situations (Ellison, et al., 2007). Wang, Jackson, Gaskin and Wang, (2014) agree that SNSs serve as an immediate resource to help students decrease feelings of social disconnectedness and loneliness, particularly when trusted and expected support systems are deficient.

Franchina, Abeele, De Mare, Lo Coco and van Rooij (2018) examined the motives for SNS use and found that users demonstrated significant differences in the level of gratification received from using different platforms, such as Facebook, Instagram, Twitter and Snapchat. Abeele, et al. (2018) suggests that Facebook and Instagram provide a more personal social networking experience, which enables young adults to feel a sense of deep connection, while still limiting content to only friends and friends of friends (Abeele, et al., 2008). This supports Olufadi (2015) belief that there must be further examination regarding the amount of time users are spending on SNSs, because of the variances in user expectation and gratification from different social networking platforms. Olufadi (2015) invited future researchers to include related periods and motives for use in future studies to gain greater insight into SNS use, and to calculate the amount of time college students spend between various platforms to build resilience and satisfy psychological needs (Olufadi, 2015).

In his study, Olufadi (2015) confirmed that examining the amount of time emerging adults spend between various SNS platforms is a good way to determine what motivates the user and how it influences their well-being. Olufadi (2016) believes the integration of SNSs in young adult's daily lives contributes to a lack of awareness regarding the amount of time being spent on SNSs and the under reporting of SNS engagement on questionnaires in prior studies. Olufadi (2015) states that certain periods of SNS use (during academic, relaxation-free times, in public places, and stressful times), as well as motives of use are significant factors to consider when re-examining the amount of time college students are spending on SNSs. Olufadi (2016) also contends this re-examination may be the key to truly validating the impact that excessive SNS use has on the social, emotional, and psychological well-being of young adults.

SNS Use the Fear of Missing Out, and Loneliness in College Students

Given the regular access and consistent participation on SNSs, emerging adults are increasingly becoming connected to anxiety related diagnoses, such as the fear of missing out (FoMO) and the fear of being alone (FoBO) (Salim, Rahardjo, Tanaya & Qurani, 2017). In college students FoMO is characterized as a type of social anxiety that presents as an unpleasant psychological state of being, where students perceive their peers are engaging in a more abundant life as compared to themselves (Przybylski, Murayamab, DeHaanc, & Gladwell, 2013; Salim et al., 2017). Wiederhold (2017) states, "when we have the entire world at our fingertips, the waking world feels small by comparison—and people are compelled to compare" (p. 661). According to Jood (2017) this type of pre-occupation is most often experienced by college students who are at the threshold of adulthood and attempting to integrate their past with an evolving identity. In recent years, FoMO has gained the attention of researchers who are interested in the connection between FoMO, excessive SNS participation, and psychological

well-being (Abel & Buff, 2016; Elhai, et al., 2016). In a recent study, Upreti & Marsaly (2017) confirmed that 70% of young adults in developing countries suffer from this "scary, frenzied or frantic feeling that something is happening around them and that they are not a part of it" (p. 39). Weiderhold (2017) suggests characteristics of FoMO are particularly insidious because of its ties to loneliness, and the fear of being alone. There has also been some speculation that FoMO has the tendency to exacerbate pre-existing feelings of loneliness, causing sufferers to feel more extreme levels of loneliness after engaging on SNSs for extended periods of time (Markham, 2018).

In *Time Magazine's* March 2018, special edition issue on Mental Health, Markham (2018) highlighted changes in the origin and intensity of loneliness in Generation Zs as compared to older generations. Markham (2018) suggests that loneliness is no longer a relatively benign emotion that can be accepted as a normal part of the human experience. Markham (2018) also states that loneliness is now being recognized as one of America's most serious health epidemics. This is a daunting realization for emerging adults whom are oblivious to their symbiotic relationship with SNSs, the reckoning of their generational crisis, and the unforeseen social and emotional consequences of excessive social networking site participation (SNS) (Boyd & Ellison, 2007; Weiderhold, 2017). This also poses greater challenges ahead for educational leaders, clinicians, parents, and researchers, seeking solutions to improve social resilience, and slow down the growing epidemic of loneliness and social disconnection in young adults around the world (Upreti & Musalay, 2017).

Problem Statement

The transition to college is a stressful time for emerging adults, and it has the potential to threaten many students sense of psychological and emotional well-being. Gratification seeking

behaviors are a common set of activities performed during SNS engagement as well as times of stress. The compulsive searching and social analyzing behaviors are explicative of an emerging adult attempting to reduce emotional distress during times of uncertainty. Increased participation on SNSs has become more apparent and contributory to the popularity of SNS use and overuse behaviors (Chakraborty, 2017). Abel and Buff (2016) suggests depression, loneliness, and FoMO are significant mental health concerns among college students, and Hunt, Lipson, Marx, and Young, 2018 (2018) states that 70% of college aged students admit to having FoMO and accept it as a natural a part of college life. The immediacy of feedback and reinforcement received from SNSs, has decreased young adults' ability to sustain feelings of psychological well-being, particularly when the feedback received is frequent, unsubstantiated, and at times unpleasant. Wiederhold (2017) reports that teen depression and suicide have doubled since 2011, and researchers believe that Generation Zs are on the brink of the worst mental-health crisis in decades (Beyens, Frison & Eggermont, 2016; Wiederhold, 2017).

College student health and wellbeing has become a significant focus among higher education leaders at many colleges and universities in the United States (ACHA, 2016; Hunt, et al., 2018). In 2016, the American College Health Association (ACHA) conducted its annual national survey of more than 5099 graduate and professional students across thirty-four schools. Results over a 12-month span, revealed that 41.5% of students reported feeling things were "hopeless, and 51.8% suggested they felt very lonely, while 55.3% reported "feeling a sense of overwhelming anxiety." Finally, the survey revealed that 33.5% of the respondents reported "feeling so depressed that it was difficult to function" (ACHA, 2016). This problem is clearly related to the amount of time emerging adults are spending on social networking sites, and their

tendency toward using social networking platforms to ward off the psychological symptoms related to their fear of missing out and social loneliness (Wiederhold, 2017).

Hunt, et al. (2018), conducted an experimental study on undergraduate college students at Penn State University, to determine if limiting SNS use for an extended period would improve well-being. According to Hunt, et al. (2018), their study revealed a significant association between the amount of time spent on SNSs and decreased well-being. However, the researchers admitted their measurement was not inclusive of multiple SNSs, because they only measured three SNSs (Facebook, Snapchat, and Instagram) (Hunt, et al., 2018). Hunt, et al. (2018) also suggested future studies include a measurement tool that is inclusive of time being spent across multiple platforms simultaneously. This recent study by Hunt, et al. (2018) proves there is significant gap in literature regarding the efficacy of results related to SNS use in earlier studies. The proposed study will address this gap in SNS measurement and may provide additional information about the connection between time spent on SNSs, FoMO, and loneliness among undergraduate college students (Olufadi, 2016).

Understanding the impact of SNS use among college students and establishing accuracy in the reported levels of SNS participation will further validate existing study results regarding the relationship between the amount of time spent on SNSs and psychological distress (Beyens et al, 2016). This research study examined the growing epidemic of excessive SNS use, FoMO, and loneliness among undergraduate college students, and addressed the existing limitations in research regarding the amount of time emerging adults report spending on SNS. Further, this study supported the belief that periods, and motives of use may be associated with symptoms of FoMO and loneliness among undergraduate college students.

Purpose Statement

The primary purpose of this study was to examine the relationships among time spent on social networking sites, FoMO, and loneliness in undergraduate college students. The study sought to determine if the periods and motives for use are associated with the presence of FoMO and loneliness in the study population. The proposed study used a newer instrument named the Social Networking Time Use Scale (SONTUS) to address existing gaps in literature regarding the measurement of time being spent on SNSs. By using the SONTUS, the researcher was able to better evaluate the amount of time spent on SNSs, the periods and motives for use, and determine if these variables are related to the evocation of FoMO and loneliness in undergraduate college students (Olufadi, 2015).

Significance of the Study

College students have grown to rely on SNSs to replace authentic interpersonal relationships, and as a result, have become socially insecure and desperate to mitigate feelings of anxiety and social isolation (Wiederhold, 2017). Over the past five years, studies have emerged regarding the significant relationship between smart phone addiction, excessive social media use, the fear of missing out, and decreased well-being (Hunt, et al., 2018; Upreti & Musalay, 2017). In a recent study, Dienlin, Masur and Trepte (2017) found there is a significant relationship between loneliness, lower moods, and lower life satisfaction, as well as the increased need to check social media, text messages, and other forms of online applications. A common deficiency noted in previous studies was the singular focus placed on one instrument of measurement that was based on one social networking platform (Olufadi, 2015). The older instruments, such as the SMUS (Social Media Use Scale) only focused on the purpose of SNS use, failing to account for the amount of time spent accessing the wide array of features available on SNSs, and the time

spent posting photos, videos, posting status updates, chatting, private messaging, or lurking (Buglass, et al., 2017).

Today, college students rely heavily on technology to sustain and strengthen interpersonal relationship, and the feedback received has a powerful influence on the way users perceive themselves as compared to the rest of the world (Elhai, et al., 2016). The feedback received from various online sources can be extraordinarily complex, leaving users to internally reconcile whether they have established gains or losses in social relatedness within their chosen group (Chou & Edge, 2012). Negative responses have the potential to increase anxiety, and stress within the individual, as well as, lower self-esteem and resilience in the emerging adult (Gray,Vitak, Easton & Ellison, 2013). This study is an important addition to research, as it will further discussions regarding the negative effects of excessive SNSs use on the health and well-being of emerging adults (Santarossa, & Woodruff, 2017). Additionally, this studies results will validate earlier claims regarding the steady decline in life satisfaction and negative consequences in EA's personal, social, and emotional well-being (Salim, et al., 2017; Seo, Park, Kim & Park, 2016).

To this point, Lou, Yan, Nickerson and McMorris (2012) argue that Gen Zs possess lower levels of resilience toward relational stressors and maintain a lower self-esteem as compared to earlier generations. Studies have also shown that SNSs not only impacts EA's ability to establish healthy interpersonal relationships with their peers; it affects their relationship with themselves, as well as how they perceive the larger world around them (Lou, et al., 2012; Salim, et al., 2017). James, et al. (2007), found that compulsive SNS users are lonelier and more depressed than casual users, and that compulsive users possess poorer social skills, higher

anxiety, and admit that their excessive time spent on SNSs is exacerbated by SNS participation (Lowry et al., 2007).

Conducting this study sought to address a significant gap in literature regarding excessive time spent on SNSs, the periods, and motives for use, as well as the way psychological needs drive SNS overuse and contribute the negative mental health consequences. This study was significant because it directly addressed the amount of time undergraduate students are spending on SNSs, and provided additional context regarding the degree to which the periods and motives of use relate to characteristics of psychological distress, such as loneliness and FoMO (Olufadi, 2015; Abel & Buff, 2016). Further, this study expanded upon findings in existing literature related to the onset of FoMO and loneliness and amplified the need for actionable steps to decrease excessive SNS use among emerging adults in a residential college setting (DeAndrea et al., 2012). This research study will also provide knowledge about the uses and gratification behaviors in college students, along with the role SNSs use plays in sustaining, academic achievement, resilience, and psychological functioning in a higher education setting (La Guardia & Patrick, 2008).

In addition, outcomes from this study will provide statistically significant results that are generalizable to other higher education institutions, with similar demographic characteristics, enrollment size, and residential participation data. According Buchanan et al. (2017), comparisons between a target population and study sample should be inclusive of differences in population characteristics (exchangeability), patterns of interference, as well as opportunities to replicate the study. The colleges selected as the study site (UR) and (LU) were chosen over more than thirty peer institutions with comparable demographic data, academic admissions standards, and socialization characteristics. These college were selected because of proximity and

accessibility to the researcher (IPEDS, 2018). Providing generalizable results may also allow this study to serve as a seminal resource regarding anxiety, and loneliness norms in higher education, and potentially inform leaders about how often, and on what grounds, emerging adults choose to use SNSs to enhance or augment their social and emotional well-being (Hogan, 2018).

Lastly, this study may provide insight into the reasons emerging adults choose to increase the amount of time they spend on SNSs rather than invest time in more salient and satisfying activities in their face to face relationships (Nabi, Prestin, & So, 2013; Weiderhold, 2017). Paul, Baker and Cochran (2012) and Baker, et al. (2016) contends that reframing social norms and providing literary resources on social resilience may improve perceptions of loneliness and generate a healthier desire for face to face experiences. With continued research, higher education leaders may also be able to use outcomes from this study to develop strategies or interventions that discourage the attractiveness of anxiety provoking, inauthentic, and impersonal online social relationships, and encourage opportunities for face to face interactions and authentic social connection (Baker, 2009).

Research Questions

RQ1: How does the amount of time undergraduate college students spend on the social networking sites relate to the fear of missing out and loneliness?

RQ2: Do the related periods of SNS use (academic, public, relaxation-free, stressful periods, and motives for use) relate to loneliness in undergraduate college students?

RQ3: Do the related periods of SNS use (academic, public, relaxation-free, stressful periods, and motives for use) relate to the fear of missing out (FoMO) in undergraduate college students?

RQ4: To what extent are the students' demographic characteristics (age, gender, ethnicity, and number of SNS accounts) correlated with loneliness, FoMO, and time spent on social networking sites?

Definitions

In closing of the introduction section, the following definitions are provided to understand the terminology used within the study, and for clarification purposes regarding terms of reference within the literature review, data analysis, or discussion sections of this research.

1. *Blog (mico-blogging* - Blog is a word that was created from two words: "web log." Blogs are usually maintained by an individual or a business with regular entries of content on a specific topic, descriptions of events, or other resources such as graphics or video. "Blog" can also be used as a verb, meaning *to maintain or add content to a blog* SM data is typically in the form of textual content (e.g. in blogs, reviews, and status updates) (Gyberg & Lunde, 2015).

2. *Chat* - Chat can refer to any kind of communication over the internet but traditionally refers to one-to-one communication through a text-based chat application, commonly referred to as instant messaging (IM) applications (Gyberg & Lunde, 2015).

3. *Connections* - The LinkedIn equivalent of a Facebook 'friend' is a 'connection.' Because LinkedIn is a social networking site, the people you are *connecting* with are not necessarily people you are friends with, but rather professional contacts that you've met, heard speak, done business with, or know through another connection. Connections are categorized by: 1st degree, 2nd degree, and 3rd degree (Imran, Castillo, Diaz, & Vieweg, 2014).

4. *Digital Native*- A generation of individuals who were born in the age of online

technology

5. (Arnett, 2000).

6. *Direct Message* - Direct messages -- also referred to as "DMs" -- are private conversations that occur on Twitter. Both parties must be following one another to send a message Polonski, & College, 2017).

7. *Emerging Adult*- Emerging adulthood (EA) is a developmental period that is distinguished by a time that is filled with uncertainty and independence; yet is apart from childhood and adolescence (Arnett, 2000).

8. *Engagement Rate* - Engagement rate is a popular social media metric used to describe the amount of interaction -- likes, shares, comments -- a piece of content receives.

9. Friends - Friends is the term used on Facebook to represent the connections you make and the people you follow. These are individuals you consider to be friendly enough with you to see your Facebook profile and engage with you (Michot, Blancot, Bourdon, & Munoz, n.d.).

10. *FoMO*- Fear of missing out (FoMO) is a pervasive apprehension that others might be having

11. rewarding experiences from which one is absent. It is characterized by the desire to stay continually connected with what others are doing (Przybylski, et al., 2013).

12. *Gen Z's*- the generation after Millennials, Generation Z, which they defined as people born from the mid-1990s to the early 2000s, made up 25% of the U.S. population, making them a larger cohort than the Baby Boomers or Millennials (Bradbury, R, 2017).

13. *Mean* – Sum of group values divided by the number of values in the group (Warner, 2013).

14. *Median* – The midpoint in a set of scores (Warner, 2013).

15. *Mode* – The most frequently occurring value (Warner, 2013).

16. Multicollinearity – the degree in which there is intercorrelation among the predictor variables (Warner, 2013).

17. *Multiple Regression* – more than one predictor or dependent variable is used to predict a quantitative variable independent or outcome variable (Warner, 2013).

18. *Pearson's r* – a parametric statistical correlation which provides information pertaining to the strength of a relationship between two quantitative variables (Warner, 2013).

19. *Pinterest* - Pinterest is a photo sharing social network that provides users with a platform for uploading, saving, and categorizing "pins" through collections called "boards." Boards are typically organized by theme, such as: Food & Drink, Women's Fashion, Gardening, etc. Users have the ability to "pin" and "repin" content that they like to their respective boards.

20. *Reply* - A reply is a Twitter action that allows a user to respond to a tweet through a separate tweet that begins with the other user's @username. This differs from a mention, because tweets that start with an @username only appears in the timelines of users who follow both parties (Polonski, & College, 2017).

21. *Snapchat* - Snapchat is a social app that allows users to send and receive time-sensitive photos and videos known as "snaps," which are hidden from the recipients once the time limit expires (images and videos still remain on the Snapchat server). Users can add text and drawings to their snaps and control the list of recipients in which they send them to (Pittman, 2017).

22. *Social Media Site (SM)*- Social media sites allow for the ability to connect with a wide

range of people, through a series of social connection and on various platforms or apps accessible on the internet (Jensen, 2018).

23. *Social Network Site (SNSs)*-to describe this phenomenon, the term "social networking sites" also appears in public discourse, and the two terms are often used interchangeably. We chose not to employ the term "networking" for two reasons: emphasis and scope. "Networking" emphasizes relationship initiation, often between strangers. While networking is possible on these sites, it is not the primary practice on many of them, nor is it what differentiates them from other forms of computer-mediated communication (CMC) (Wohn, Ellison, Khan, Fewins-Bliss, & Gray, 2013).

24. *Standard Deviation* – In a set of scores, the standard deviation is the amount of variability (Warner, 2013).

25. *Tag*- Tagging is a social media functionality commonly used on Facebook and Instagram that allows users to create a link back to the profile of the person shown in the picture or targeted by the update (Lee & Ma, 2012).

26. *Twitter* - Twitter is a real-time social network that allows users to share 140-character updates with their following. Users can favorite and retweet the posts of other users, as well as engage in conversations using @ mentions, replies, and hashtags for categorizing their content (Lee & Ma, 2012).

27. *Variation* – a measure used to evaluate how scores are different from one another (Warner, 2013).

28. *Viral* - Viral is a term used to describe an instance in which a piece of content -- YouTube video, blog article, photo, etc. -- achieves noteworthy awareness. Viral distribution relies heavily on word of mouth and the frequent sharing of one piece of

content all over the internet (Strickland, 2014).

Summary

Social networking sites have become an integral part of young adult life, and it serves as one of the primary sources of communication for academic, social, and psychological development (Hon & Chua, 2016). In the past decade, research studies have confirmed there is an increasing problem with the level of SNS participation in emerging adults, and that this level of engagement is based upon the need for a sense of belonging, social connectedness, and social efficacy (Esen, Aktas, & Tuncer, 2013; Walton, Cohen, Cwir & Spencer, 2012). The benefits of SNS participation and the ease of use has driven emerging adults to navigate between multiple social media platforms simultaneously, thus remaining unaware of how much time they are spending between SNSs (Olufadi, 2015; Quan-Haase & Young, 2010). Researchers suggests that measurements such as (the Facebook Intensity Scale and Social Media Use Scale) has its limitations, causing earlier studies to produce findings that underrepresented the amount of time participants actually spent between social media platforms (Hunt, et al., 2018; Olufadi, 2016). This research study was designed to address the gap in measurement of SNS use, and to determine if the amount of time spent on SNSs is associated with anxiety disorders such as FoMO, and the growing epidemic of loneliness in college students (Eieslan & Sandvik, 2017). Further, this study examined specific periods and motives of use, and determined if these characteristics contribute to excessive time spent on SNSs.

CHAPTER TWO: LITERATURE REVIEW

Overview

For many, the pursuit of an undergraduate college degree is an educational experience that plays out on a unique social island and is mostly set apart from the rest of society (Arnett,

2000). Traditionally, emerging adults in college anticipate that this setting will be a safe place to explore their evolving identities, expand their worldview, and to learn about the endless possibilities in love, work, play (Arnett, 2000). College students have become a particular demographic of interests among researchers because compared to earlier generations, their reports of inattention, lack of focus, and low motivation have become significant barrier to academic success and life satisfaction (Hunt, et al., 2018). The proportion of young adults obtaining tertiary education is rising, and certain characteristics of emerging adults in college must be recognized as a distinctive lane of development, because these near adults are electronically connected all day long (Arnett, 2000, p. 195). In recent years, studies have emerged regarding the degree to which online social media has impacted the traditional college experience and posed negative consequences on the health and well-being of young adults around the world.

Emerging adults today present themselves as confident, innovative, and creative; however, college students are finding that it takes more than an active imagination to adjust to a college environment, while sustaining achievement (Selwyn, 2009). Researchers have found that the once "coveted" co-ed college experience, has become a complicated process of existential reconciliation, a pursuit of perfection, and an elusive chase for social adequacy (Arnett, 2000; Subrahmanyam, et al., 2008). Studies have shown that the most recent generation of "digital natives" participate so excessively on SNSs that they rely on it heavily to make choices, establish behavioral markers, and to validate life satisfaction (Arnett, 2000, p. 200). It is estimated that the typical emerging adult is engaged in some type of online media for about 12 hours a day, or for most of their waking hours (Arnett, 2000). Thus, psychological symptoms, such as FoMO and loneliness have become prevalent psychological symptoms among college students, as well as an

accepted psychological consequence for a life tethered to online social media (Mrazek, Franklin, Phillips, Baird & Schooler, 2013). Researchers, Teppers Luyckx, Klimstra and Goossens (2014) believe todays college students are also demonstrating lower levels of social resilience and decreased levels of tolerance for loneliness or perceived social isolation, despite opportunities for in person social engagement. Given the abundance of time EAs in college devote to their chosen digital diversion, future research must consider the impact that excessive participation has on their ability tolerate the process of identity development and sustain long-term resilience (Arnett, 2000).

The review of literature will highlight the emergence of research regarding the amount of time college students spend on SNSs, their related periods of use (academic, relax/free, public, stressful periods), as well as their motives for use. The review of literature will transition into an examination of the conceptual and theoretical framework for this study, along with an exploration of FoMO, the epidemic of loneliness, and the negative consequences experienced by emerging adults in a college setting. The literature review will conclude with a summary of the research and confirming evidence for the research questions in the study and study hypotheses.

Conceptual/Theoretical Framework

When examining the link between social behaviors and the fulfillment of psychological needs, there are several theoretical frameworks that can be used to highlight the role social networking sites play in contributing to the different patterns of online media use, and the amount of time spent between different social media platforms. Over the years, various studies included theoretical frameworks, such as the uses and gratification (UG) and self-determination (SD) theories to best conceptualize the predictive relationship between many variables that were believed to contribute to the amount of time different types of people spend on SNSs (Chen,

2011; Ryan & Deci, 2000; Olufadi, 2015). In earlier studies, the U&G theory was the most common theoretical framework used to explain the needs and motives of media users; suggesting they were seeking to support for ongoing social and emotional needs (Chen, 2011; Quan-Haase, & Young, 2010). Self-determination theory was also referenced in early studies, suggesting that developmental deficiencies were the driver for social behavior and emotional needs, as well as a motivator for the attainment of extrinsic and intrinsic rewards (Ryan & Deci, 2000).

In conceptualizing this research study, neither the UG or SD theory was enough on its own to provide a full understanding of the related periods and motives for SNS use (Ryan & Deci, 2000 Chen, 2011). However, together the UG and SD theories provide a conceptual framework that may explain why emerging adults spend excessive amounts of time on SNSs, and if the time spent satisfies a perceived psychological deficit, despite the potential negative consequences related to the immediate gratification of those needs (Chen, 2011).

Uses and Gratification Theory

Uses and gratification theory (U&G) was conceptualized by sociologist and communication scientist Elihu Katz around the early 1940's (Katz, Blumler & Gurevitch, 1973). The conception of Katz's U&G theory was primarily based upon early theories of mass media communication and was designed to examine traditional media use behaviors (Katz, et al., 1973). The early UG theory aligned closely with the needs and motivations theory (NMT) developed by Abraham Maslow in 1954, which believed that man was impressionable, easily influenced, and highly susceptible to mass media with very little will power (Edwards, 2017; Quan-Haase, & Young, 2010). Conceptualizing the U & G theory in this manner eventually became too limiting, causing newer developments to emerge and shed light on the notion of there being specific

attributes which motivated individuals to switch between platforms, and to determine what kind of needs these platform would provide (Quan-Haase, & Young, 2010; Ruggiero, 2000).

Contrary to early theories, the modern U&G approach suggests that people use social media to their benefit, and are quite active, discerning, and motivated in their media use (Quan-Haase, & Young, 2010). Today, the modern U&G theory helps to provide information on why people use social media the way they do, and what benefits are derived from its use (Quan-Haase, & Young, 2010). Evolving alongside the surge of social media platforms, the U&G approach is becoming a preeminent theory discussed in research, because researchers and stakeholders require more insight into how users navigate various online channels, and how these platforms satisfy their needs (Chen, 2011). Kee Kerk, Park and Valenzuela (2009) believe certain social networking sites mediate different social outcomes, such as social, civic and political involvement (Kee, Kerk, Park, Valenzuela, 2009). Since humans are innately wired for social connection; researchers argue that emerging adults today must become fully educated about the benefits and deficits of social networking engagement (Scott & Woods, 2018).

According to Polonski and College (2017) social and informational gratifications have a strong effect across all four SNSs, and user commitment is primarily driven by repeated habit-forming experiences (Polonski & College, 2017). Researchers have found that emerging adults accept the ephemeral satisfaction provided by social media, which gives them a sense of temporary happiness (Bradbury, 2017; Polonski & College, 2017). In this way, the U&G theory considers the need for happiness as a motive that influences repeated or even excessive media use, and this contributes to the consequences that follow from those met needs. Acknowledging the U & G perspective in research supports the notion of excessive SNS participation being used as a tool to augment emotional deficits, and to attempt to enhance social and emotional well-

being (Chen, 2011). Another domain of acknowledgement from the uses and gratifications perspective, suggests that heavy media use actively engages the brain and ignites a cognitive needs and rewards cycle, which also promotes maladaptive behaviors (i.e. excessive SNS checking) (Chen, 2011). Collectively, the various perspectives of U &G provide a great deal of efficacy regarding the manner in which excessive SNS participation can quickly evolve into a vicious cycle of pointless interactions that ultimately lead to an even greater sense of loneliness. (Boehmer, Carpenter & Fico, 2018).

Characteristics of the uses and gratifications theory are also directly connected to the research questions of this study, suggesting the related periods of SNS use and motives of use are directly related to FoMO, loneliness, and the existential emptiness felt by thousands of emerging adults in colleges around the world (Deandrea, et al., 2012). Boehmer, et al. (2018) suggests that today's EA maintain a uses and gratification mindset, which causes a lack distress tolerance, and an inability to emotionally navigate the slightest sense of deprivation. Conducting seminal research highlighting the relationships between related periods of SNS use, motives of use, FoMO, and loneliness in emerging adults will only further support the efficacy of the U&G approach. This research will also add to the existing body of knowledge about the way people use online media to meet specific psychological needs and are motivated to participate excessively to evade emotional distress (Bemardon, Babb, Hakim-Larson & Gragg, 2011).

Self-Determination Theory

Self-determination theory was developed by Edward Deci and Richard Ryan (2000), and it provides a sound theoretical framework for conceptualizing the criterion variables of the study, FoMO and loneliness in undergraduate college students. SD theory focuses primarily on human motivation, emotions, and personality (Ryan & Deci, 2000). The central concept of the SD

theory suggests there are three basic psychological needs that underlie growth and development: autonomy, competence, and relatedness (Ryan & Deci, 2000; Lin, 2016). Autonomy is defined as the way one, self-rules and practices self-initiation, as well as volition of one's own behavior (La Guardia & Patrick, 2008). Competence refers to an individual's ability to experience a challenge and master the challenge (La Guardia & Patrick, 2008). However, relatedness refers to the need to belong, and one's central tendency to lean toward the formation of strong and stable interpersonal relationships (La Guardia & Patrick, 2008). SD theorists contend that the need for social connection is a universal desire, and the attainment of interpersonal support provides the foundation for healthy social relationships (Ryan & Deci, 2000; La Guardia & Patrick, 2008). From an attributional perspective, SD theory is a perfect framework to conceptualize the criterion variables, the fear of missing out (FoMO) and loneliness because it offers a broad perspective on the manner in which developmental, social, and relational functioning influences the behaviors of an emerging adult population (La Guardia & Patrick, 2008).

Over the years, researchers have made attempts to add to the self-determination theory creating mini theories to compliment the SD framework (La Guardia & Patrick, 2008 Vansteenkiste, Niemiec & Soenens, 2010). One of the earlier versions of SDT, was a mini theory known as the Cognitive Evaluation Theory (CET), which included the dynamic interplay between external events, extrinsic motivators (ie. rewarding experiences), and intrinsic motivators (ie. choices made regarding certain tasks of interests) (Niemiec, et al., 2010, p. 146). Another mini theory considered in concert with SDT is the goal content theory (GCT), which suggests people have a natural tendency to move toward intrinsic goals and away from extrinsic goals, with some help from contextual supports that are aligned with basic need satisfaction (La Guardia & Patrick, 2008). Additional mini theories such as OIT, naturally complemented the

work within CET and SDT, indicating there is a greater internalization present than is predictive

of peoples enhanced physical, psychological, and social wellness (Niemiec, et.al, 2008).

Essentially, OIT posited that people possess a natural tendency to transform social norms

and rules into personal values to develop a more elaborate and unified sense of self (Niemiec, et

al., 2008). Today, the modern SD theory includes an examination of different types of intrinsic

and extrinsic aspirations people pursue, along with a tendency for individuals to move toward or

away from their goals depending upon emotions derived from the rewards (La Guardia &

Patrick, 2008). For example, Patrick, Knee, Canavello, and Lonsbary (2007) suggests when

various levels of need are fulfilled, such as in romantic relationships individuals elicit a higher

self-esteem, increased vitality, a positive effect, and overall life satisfaction. This notion directly

supports the trends of excessive time emerging adults are spending on SNSs, their persistent

patterns of SNS engagement, and reported psychological satisfaction derived from SNSs use

among Gen Z's today (Genner & Suss, 2017).

Grounding this research study upon the premise of an SD framework amplifies the

significance of meeting one's basic needs, and the way deficits threaten optimal personal and

social functioning. Outcomes from this research study, observed through an SD lens may provide

further theoretical efficacy regarding the way time spent on SNSs can promote or hinder

motivation, productivity and well-being in emerging adults (La Guardia & Patrick, 2008). Lastly,

the SD theory grounds this study's research question, which suggests there is a strong association

between the periods and motives for SNS use, the amount of time spent on SNS, and FoMO, and

loneliness in a college setting.

Related Literature

Human sociality is such a prominent feature of social and emotional development that 80% of rewarding experiences are reported as being spent with friends, relatives, spouse, children, and coworkers, as compared to time spent alone (Scott & Woods, 2018, p. 99, 100). Social interactions are a significant component in the developmental process, and the absence of adequate social competence has been found to have a direct effect on an individual's cognitive, physical, and emotional well-being (Lin, 2016). Hawkley and Cacioppo (2010) believe when humans feel a heightened sense of social isolation, feelings of vulnerability increase, and a heightened perception of a threat occurs within the individual, which raises the central nervous systems fight or flight response. Emerging adults are particularly vulnerable to social threats because of their ongoing process of existential reconciliation, which is happening in concert with non-normative experiences evolving on SNS platforms (Arnett, 2000).

Gen Z's in college are most often considered emerging adults (EAs), whom are in a formative phase of life between youth and adulthood (Arnett, 2000). Today's college student falls demographically within the developmental stage of emerging adulthood, which is a time apart from childhood and adolescence; but far away from adulthood (Arnett, 2000). The lived experience of college students has situated them so distantly from the expectations and responsibilities of traditional adulthood, that EA's in college often report feelings of psychologically incongruent, and more susceptible to higher levels of distress in the domain of love, work, play, and personal worldview development (Arnett, 2000; Lin, 2016). Scott and Woods (2018) believe that emerging adults have succumbed to using social networking sites to validate their sense of belonging, interpret social schemas, and to make meaning out of their experiences to generate a perceptual context for ongoing adult life (Baumeister, & Leary, 1995; Scott & Woods, 2018).

Recent studies have shown that college students are among a demographic of EAs, whom possess the greatest opportunities for socialization with peers in a residential setting; but they do so more infrequently than ever before (Hunt, et al., 2018, Vasileioua, et al., 2019). Recent studies have proven that there is more evidence regarding college student's inability to secure and sustain healthy face to face social connections, along with decreased interest in campus-related activities (Franchina, et al., 2018; Hunt, et al., 2018). Hawley and Cacioppo (2010) confirm that college students have chosen to reconcile their social and emotional distress by participating on social networking sites, rather than in person, because the risk of rejection is low, and they can receive a steady stream of social and informational rewards online.

Time Spent on SNSs Among Gen Zs in College

Gen Z's are the first generation to originate in a completely digitally driven society, which has created a significant impact on the amount of time they spend on social networking sites, as well as the way they center values, beliefs, and activities around interpersonal relationships (Boehmer, et al., 2018; Origin, 2018). Boehmer, et al. (2018) suggests, Gen Z's are the only pure digital generation, and much can be learned from their motivations, behaviors, and experiences with social networking sites (SNSs). Boehmer, et al. (2018) contends that Gen Z's have been socialized by virtues of instant gratification, causing them to operate socially, emotionally, and psychologically askew from any other generation. For example, Gen Zs are heavily influenced by SNSs, and use it regularly to access information, make decisions about life and to achieve a sense of personal well-being. Having never experienced a world without online connectivity, Gen Z's are largely deficient in their ability to sustain deep and enduring offline relationships, which typically blossoms out of consistent face to face interactions (Boehmer, et al., 2018).

In a review of undergraduate college students, researcher, Christofferson and Palermo (2016) suggested that Gen Z's, attitudes about social connectedness and interpersonal relationships are completely permeated by their online interactions with peers. It is estimated that more than 90% of undergraduates college students possess a variety of SNSs accounts to build social networks, friendships, seek intimate encounters, or simply use it as their sole source of connection to their internal and external worlds (Lai, Altavilla, Ronconi, & Aceto, 2016; Manago, Taylor, & Greenfield, 2012). Edwards (2017) confirms the proliferation of SNS use on college campuses, suggesting that 83% of college students report using social media for nearly every aspect of their daily lives. On average, Kalpidou, et al. (2011) suggests students spend an estimated 100 min on their social networking sites (SNSs) per day. With steady increases in SNS use and social networking site development, newer studies continue to emerge in an attempt to illuminate the consequences of excessive SNS use, and examine the notion Gen Z's relying solely on social networking communities to foster a sense of community and belongingness (Carbonell, Chamarro, Oberst, Rodrigo & Prades, 2018).

Researcher, Olufadi (2016) called for a further examination of the amount of time being spent between various SNSs, and to suggest that future researchers look more closely at the related periods and motives of SNS use to better understand the psychological distress felt by emerging adults. Plowman, et al. (2010) suggests that understanding why users increase participation on SNSs to mitigate emotional and social discomfort, may help to thwart long-term effects on college student's well-being in the future.

Related Periods of SNS Use Among College Students

Social networking site participation is a fluid process that has become a very important part of adolescent and emerging adult life. User engagement in online social networking occurs

during various periods of time, and for various reasons; however, Olufadi (2015) suggests there are specific periods of time that could provide greater context into understanding how and why users spend significant amounts of time on SNSs. Recent studies have found that 21st century users vary in the extent to which they incorporate SNS sites, apps, new information and communication tools, such as mobile connectivity, blogging, and photo/video-sharing into their daily lives (Olufadi, 2015). According to Olufadi (2016) the related periods of SNS use such as (relaxation, stress, academic, free-time, and in public places) bears a significant influence on the amount of time a user spends, as well as how the experience ultimately affects the user. Up to this point, many studies have only examined the frequency or intensity of use between various social networking sites, and researchers have failed to conceptualize SNS use as an integrative process of soul searching and need fulfillment (Lin, 2016).

Recent studies suggest that social networking sites help youth satisfy the enduring sensation of psychosocial and emotional connection, while at the same time attaining the emotional and social support that is gravely important during critical periods of development (Manago, et al., 2012; Quan-Haase, & Young, 2010). During the transition to college, college students are found to possess higher proportions of social networks from their past, in concert with attempts to procure newer and immediate social support on their college campuses (Manago, et al., 2012). Researchers suggest that EAs use SNSs during various periods of the day to reduce distress, and to thwart awkwardness during uncomfortable transitionary periods (Bemardon, et al., 2011; Wright, et al., 2013). Duggan, Ellison, Lampe, Lenhart and Madden (2015) suggests that SNS engagement helps emerging adults strike a delicate balance between self-reliance, social competence, and a level of relatedness that mimics previous longstanding close and intimate relationships from childhood.

SNS use for academic engagement.

Technology has emerged as a powerful force in the context of higher education, both as a tool to enhance students' learning, and to aid in academic preparation. (Gray, Vitak, Easton, & Ellison, 2013). One aspect of technology that is sorely under researched is the significant role it plays in shaping the social and emotional development of emerging adults, as well as how it is used to form and strengthening academic communities (Gray, et al, 2013; Selwyn, 2009). The growing popularity of social networking sites (SNSs) for use in business, advertising, and for educational purposes has been cited as a global phenomenon (Weber, 2012). Gray, et al. (2013) suggested that more than 50% of U.S. college students use SNSs for the purpose of communicating with classmates about course work, and more 25% are reportedly using SNSs to enhance their curricular and co-curricular experiences (Gray, et al., 2013). According to Weber (2012), online social networking apps also provide advantages to the field of education such as anytime /anywhere instruction, lower cost for institutions, facilitation of online collaborative work, and peer-to-peer instruction (Weber, 2012). These statistics lends enormous value to a possible assumption that, SNSs have a positive effect on emerging adults, such as refining knowledge-seeking behavior, as well as developing advanced social networking, and negotiation skills (Gray, et al., 2013).

According to Arnett (2000), new media has provided some benefits that far outweighed the deficits (ie. scores on the NAEP), which are trending up, rather than down. Researchers agree that newer media technologies have changed us in complex ways, with limitless access, and the opportunities to create personal identities, or choose levels of expression that may not have evolved without its creation (Arnett, 2000). Today's emerging adult integrates their media use in ways that promotes social connectedness; while at the same time exposes them to a gapping

realization regarding how alone they may be? (Arnett, 2000, p. 210). Earlier studies by Tinto (1988) and Astin (1984) confirmed the correlation between media use and academic performance. Boateng and Amankwaa (2016) complimented this research with findings to support the amount of physical and psychological energy a student devotes to his or her social and academic endeavors, is positively correlated to levels of academic success, retention, and overall college experiences. For example, Kirschner and Karpinski (2010) found in their study that Facebook users reported lower GPAs and spent fewer hours per week studying than nonusers. Paul, et al. (2012) also found that undergraduates who spent time on Facebook and other SNS was negatively correlated with overall GPA, and slightly negatively correlated to time spent studying.

SNS use for relax/free times.

Many adolescents begin and end their day by checking SNS posts, participating in IM messages, and liking friends' reactions to popular news (Spies Shapiro & Margolin, 2014). Heavy SNS users are more likely to participate with frequency when they are casually looking for information or privately seeking to obtain information for social comparison, belonging, or to validate their sense of purpose (Spies Shapiro & Margolin, 2014). A general assumption among researchers is that patterns of SNS use is related to information acquisition and network building (e.g, online news, topic specific blogs, and virtual networks) (Juris, 2012, William, 2013). In a study, Whiting and Williams (2013) discussed the different domains of social media participation, and found that 64 percent of emerging adults used social media for entertainment purposes, 60 percent used it for relaxation purposes, and 56 percent used SNSs for expressing opinions. However, research suggests, patterns of social networking site use is highly correlated with entertainment and diversionary activities (e.g., online movies, and games) (Juris, 2012).

Juris (2012) contends that SNS users, spend a great deal of time staying current with their social circles, and navigating features from preference feeds generated on their home page (e.g., News Feeds, Mini-Feeds, and a FunWall).

Given the variability and fluidity of SNS engagement, researchers believe the degree of SNS use during relaxation/free periods has the potential to add significantly to the daily/weekly totals of time spent between various social networking platforms (Olufadi, 2015, Juris, 2012). Studies have shown that recreational SNS use often occurs out of boredom and loneliness, which fosters a sense of solidarity; while at the same time it drives up usage patterns and draws users away from the real-world relationships (Kalampokis, 2013; Lai, et al., 2016). Olufadi (2016) contends that because this type of use has the potential to add up quickly to a user's screen time, future studies should include an examination of various periods of use to accurately account for time being spent on multiple SNS platforms.

SNS use in public places.

Extensive literature regarding recreational periods of SNS use has only recently been addressed in studies, and outcomes have revealed that there is a strong association between use in public places, and the composition of people's social networking platforms (Salim, et al., 2017). Examining relax/free periods of SNS use, along with SNS use in public places carries significant implications for determining how much time users spend on SNSs (Hampton, Livio, & Goulet, 2010; Olufadi, 2016). Recent studies suggest that public SNS use often involves searching, texting, IMing, and posting pictures of themselves in a specific social setting (Hampton, Livio, Goulet, 2010). What differentiates public SNS use from other periods of use, is the individual's inability to segregate oneself from other people's lifestyles, values, opinions, gender, ethnicity, and life stage in that setting (Hampton, et al., 2010; Salim, et al., 2017).

Researchers suggests that SNS use within public spaces affords the user opportunities for face to face interactions, while at the same time connecting with distant online social connections (Lange, 2007; Salim, et al., 2017).

Many emerging adults often find themselves checking messages and searching the internet while in the company of friends and loved ones, or in a public place waiting to be served. Thus, the act of a cell phone use and compulsive checking the screen has been referred to as the new yawn, being universally contagious to others (Vink, 2016). SNS use in public places offers a diverse, multi-tasking experience that is very attractive to emerging adults; however, the heads down nature of public place SNS use often causes users to be less attentive to their surroundings and miss opportunities for authentic face to face experiences (Lange, 2007). According to Boyd and Ellison (2007) and Belk (2013), the outward appearance of public space SNS use is one of frustration, tension, and seriousness, whereas other forms of media exchange (e.g. nooks, readers, hard-cover books) are noted as activities that are relaxing and peaceful. Recent studies on differences between public/private media use confirms that public place SNS activity is primarily relegated to "on the go" multi-tasking, business related activities, or simply an exercise of locating information (i.e. accessing health information, finance information, and updating personal profiles) (Salim, et al., 2017).

SNS use during stressful times.

According to Ellison, Steinfield, and Lampe (2007), social networking sites not only afford users the opportunity to engage in relational maintenance activities; but to learn about others, and exchange a variety of personal resources, including emotional support. Ellison, et al. (2007) suggest that when college students engage on SNSs, they may also ameliorate homesickness during their college transition, and decrease the distress felt when missing family

and friends from home. Deandrea, et al. (2012) suggests that openly expressing one's problems and feelings on social networking sites has been found to mitigate distress and improve one's sense of well-being (Deandrea, et al., 2012).

Recent studies have shown that self-disclosure can also elicit social support towards an individual when it would have been unattainable otherwise (Wohn, et.al, 2013). Considering the internet is so deeply woven into the lives of emerging adults, the art of self-disclosure is rampant on social media because college students typically find solace in their personal struggles and the struggles of others (Gray, et al., 2013). While examining the time emerging adults spend on social networking sites, it remains unclear to what extent self-disclosure, photo-sharing, and other forms of communication contributes to psychological distress, and how it impacts emotional well-being (Adams, et al., 2017). A recent study found that time spent on Facebook has an indirect impact on self-esteem and well-being, and that feedback such as (likes or negative comments) tends to exacerbate feelings of loneliness, anxiety, or depression, rather than mitigate them (Zhang, 2017).

Motives for Time Spent on SNSs Among College Students

A plethora of evidence from research has proven that there are many purposes and ways that individuals use SNSs (Pittman, 2017). Whether an individual uses social networking sites (SNSs) for pleasure, entertainment, learning, social enhancement, self-discovery, social presence or to maintain interpersonal connectivity; the root of SNS engagement has proven to be directly connected to the attainment of sense of belonging and social connectedness (Pittman, 2017; Walton, et al., 2012). Research surrounding adolescence development suggests identity development, the formation of friendships, and peer relationships as significant predictors of SNS use and are important topics of study (Van Ryzin, Gravely, & Roseth, 2009).

Researchers have also found that Gen Z's, suffer from living in the void of belonging, which undergirds their motivations and behavior patterns related to online social connection (Boehmer, et al., 2018). Brown (2008), highlights three key tasks in adolescence: standing out, developing an identity, and fitting in. To this point, recent studies on SNS participation suggests that the quest to fit in increases college students desire to engage on SNSs; yet the amount of time spent on SNSs has been shown to neither deepened or extends social ties (Spies, Shapiro & Margolin, 2014). Spies Shapiro and Margolin (2014) suggest that SNS engagement is deficient because enduring relationships require trust, authentic self-disclosure, and loyalty. Spies, et al. (2014) contends that the developing college student is a prime subject for examination regarding social behaviors that are reflective of a desire to gain immediate attention to their basic needs.

According to Barker (2009), today's college student often struggles with a form of existential anxiety, and social media is the instant gratification resource used to tamper down feelings of uneasiness and doubt about living or not living a life of purpose (Boehmer, et al., 2018). As newer studies emerge, outcomes will provide more texture to the degree of influence technology has on students' psychosocial well-being and sense of community in university life (Gray, et al., 2013). Arnett (2000) contends that the opportunity to access information on virtually any imaginable topic has lured us into ignoring this boundary-less enterprise. However, there also evidence which suggest we must carefully weigh any research findings and continue to gather data on whether excessive SNS use is more beneficial than detrimental on young impressionable users (Paul, et al., 2012).

This research study explored areas of psychological discomfort, such as FoMO and loneliness, and examined how these variables relate to excessive SNS use (Duggan, et al., 2015). The study also determined there are motives for time spent on SNSs, and that the motives for use

are most often associated with internalizing feelings, such as stressful times or to relieve discomfort while passing the time in a public places (Duggan, et al., 2015).

The Fear of Missing Out (FoMO) Among College Students

The Antecedents of Fear and FoMO: A Neurobiological Connection

Fear is a ubiquitous emotion that is expressed across all species; however, there are different psychosocial signatures among species, which contributes to the way fear is appraised, and emotional responses are elicited (LeDoux, 1995). LeDoux (1995) urges researchers to consider the origin of the brain's inner-workings and neural processes, when examining the rise of fear regulation and emotion-provoking disorders such as generalized anxiety, FoMO, phobia, and post-traumatic stress disorders. The stress hormone cortisol activates the fight or flight alarm of the brain, and the amygdala weakens the hippocampus, which helps put the brakes on the stress reactions.

LeDoux (1995) highlights that when a stimulus is presented, it triggers the amygdala, which is required to activate appropriate coping responses, and to inform the brain of whether to escape, avoid, or stay with the impending threat. LeDoux (1995) suggests that the amygdala possesses an effective reactionary response system that contributes to various aspects of emotional learning. LeDoux (1995) also suggests that amygdala plays a central role in the brain's circuitry and it is what scientist refer to as the quick-and-dirty thalamic responder. The amygdala also serves the brains in constraining and informing our ideas about the presented emotion itself, and influences all cognitive processes related to our future responses (subconscious, conscious, and unconscious) (Davis & Whalen, 2001). Consequently, in a vicious cycle, stress today makes you more sensitive to stress tomorrow (Hansen, 2011).

From a resilience perspective, the amygdala uses a hierarchal cognitive framework to appraise, process, and inform us on how to cope with unpleasant experiences by way of conditioning and the retention of learned responses occurring overtime (Davis & Whalen, 2001). The amygdala is sufficiently complex and contributory to the development of characteristics that are directly associated with the psychological disorder Fear of Missing Out (FOMO), and is most likely involved in the fear and reward process occurring during social networking site participation (LeDoux, 1995). According to Burt and Masten (2010), neurobiological changes occurring in a developing brain makes the emerging adult more sensitive to changes in their larger environment, which often results in problems with emotional and behavioral regulation (Chamarro, 2017; Lemche, et al., 2006). It is also important to note that some of the difficulties experienced in emerging adulthood are due to lower emotional development in the brain and emotional maturity, which is relative to the EA's stage of development (Arnett, 2000; Dossey, 2014). Essentially, the more time young adults spend on social networking sites, the more active their amygdala and fear appraisal processes become, rendering emerging adults powerless against the impending manifestation of FoMO, feelings loneliness, and social disconnectedness (Vrtička, Andersson, Grandjean, Sander, & Vuilleumier, 2008). Germaine-Bewley (2016) and Przybylski, et al. (2013) validate this point, suggesting that there is perhaps, a cyclical nature to FOMO that is rooted in our neurobiology, and the way that humans are hard-wired to connect.

FoMO Defined

The fear of missing out (FoMO) is a relatively new social disorder, in which persons find themselves anxious and apprehensive about their own social experiences as compared to others (Przybylski, et al., 2013). With FoMO, there is often an excessive pre-occupation regarding others having more rewarding experiences than oneself, and a need to address this need to belong

through constant engagement on social media platforms (Przybylski, et al., 2013). According to Van Rompay, De Jong and Wiesner (2017), FOMO typically manifests in the form of anxiety, or worry while participating in a social networking activity, and during SNS participation the anxiety manifests into a degree of social concern about "other people having more rewarding experiences then they are" (p.11). FoMO may also manifest in the form of a complex cocktail of internalizing emotions, which arises during casual internet surfing or navigation on various social networking sites for extended periods of time (Rifkin, et al., 2015).

Psychological symptoms related to FoMO can vary from brief pangs of envy to a real sense of inferiority, which has now taken the form of social anxiety (Harman, Hansen, Cochran, & Lindsey, 2005). Emotions related to FoMO are often triggered by posts seen on social media websites or comments made about one's photos or profile (Van Rompay, et al., 2017). From a symptomatic perspective, FoMO can exists as an episodic feeling that occurs in mid-conversation with friends and loved ones, as a long-term disposition, or a state of mind that leads the individual to feel a deeper sense of social inferiority, loneliness, or intense rage (Zaslove, 2015, September 17). Social scientist argue that FoMO is deeply ingrained into man's ancient survival instinct, which makes it valid for the disorder to begin with the word "fear", and extraordinarily difficult to counteract (Doster, Cornelissen, Reutskaja, & Valenzuela, 2013). Today, more than ever, people are exposed to a lot of details about what others are doing; and people are faced with the continuous uncertainty about whether they are doing enough or if they are where they should be in terms of their life (Rifkin, Cindy, & Kahn, 2015).

The Prevalence of FoMO Among College Students

The prevalence of FoMO among college students has brought FoMO to the forefront of researchers and mental health practitioners (Doster, et al., 2013). According to Chou and Edge

(2012) emerging adults tend to experience frequent bouts of social exclusion because they can easily be neglected by their peers in person, on SNSs, or in both scenarios simultaneously (Jood, 2017). Jood (2017) suggests the increasing participation in solidary SNS engagement has made FoMO alarmingly prevalent among college students. In this way, FoMO has evolved into an uncanny disorder of learned avoidance, and complementary of our brains normal response to mitigate unpleasant or undesirable responses (LeDoux, 1995). Researchers suggests that FoMO may have always existed; but only recently has it been recognized as a social phenomenon (Jood, 2017). Considering that Gen Z's are growing up distinctively in the age of social media, research suggests emerging adults will remain existentially incongruent because of their nagging desire that all human beings crave; a real connection, an authentic attachment, and an appropriate relational context to nurture a sense of belonging (Greenwood, & Long, 2011; Plowman, et al., 2010).

Chakraborty (2017) agrees that emerging adults are particularly vulnerable to developing maladaptive behaviors, including increasing their time on social networking sites to abate fears loneliness or social disconnection. FoMO has captured the attention of many social scientist and researchers, who are seeking to determine how apprehensions from missing out on social events, interactions, or experiences can illicit various types of negative emotions such as inadequacy, irritability, anxiety, and uneasiness (Abel, & Buff, 2016). Outcomes from a recent study highlighted that increased time spent on social networking sites is directly related to attempts to diminish depressed moods, or to avoid negative emotional states from witnessing the external activities of their peers on SNSs (Dienlin, Masur & Trepte, 2017). By examining the amount of time EA's spend on SNSs, as well as the specific threshold where media use in emerging adults becomes problematic, better guidelines for treatment of anxiety disorders such as FoMO may

emerge (Arnett, 2000, pg. 208). As such, a study involving FoMO as predictive of time spent on SNSs could be an important variable in understanding individual variability in SNS use, excessive use, and its relationship to loneliness, or general life satisfaction (Kalampokis, 2013).

Loneliness Among College Students

Loneliness: A New 21st Century Health Epidemic

Loneliness is a common experience that is defined as a distressing feeling of emptiness, and an awareness of one's own social needs, not being met in quantity or quality by social relationships (Hawkley & Cacioppo, 2010). Loneliness is an intricate process of cognitive reconciliation, occurring within the individual, and can only to be truly understood by the individual (Moody, 2001). Loneliness is also a subjective experience that is perceived differently from person to person, and it varies in severity, duration, and response (Hawkley & Cacioppo, 2010). The concept of human loneliness is not a new area of study, as it has always been part of the human experience (Hawkley & Cacioppo, 2010) However, the examination of loneliness as a topic of psychological investigation or as a predictor of well-being still remains relatively under researched (Lou, Yan, Nickerson, & McMorris, 2012). There is no singular cause for loneliness; but researchers agree that loneliness is now a greater health risk in the adolescents and emerging adult populations than suicide and smoking combined (Lou, et al., 2012).

According to Markham (2018), human beings were designed to live in herds or in collectivist groups. He contends that when humans are deprived of regular contact with companions, a constant state of mild stress occurs within the body (Markham, 2018). The human brain is the largest social organ, and similar to that of fear, a constant state of loneliness can place people at risk for mental and physical health disorders (Markham, 2018). Markham (2018)

also suggests that sustained levels of distress on the frontal regions of the brain can make it difficult for emerging adults to self-regulate and cope with feelings of depression and anxiety felt during periods of developmental transition and change. Buglass, et al. (2017) contends that adolescents and emerging adults are at a slightly higher risk for the development of negative consequences associated with social isolation because they are faced with a significant number of developmental tasks during their life stage. When emerging adults become aware that they are missing out on meaningful experiences, there is seemingly a direct correlation to their desire for more online engagement, and this perhaps increases their awareness of their own sense of loneliness (Lou, et al., 2012).

Recently, problems of loneliness have become so severe that it has been touted as one of the top five health epidemics (Markham, 2018). In a recent public health report, individuals who reported high levels of loneliness, also reported higher levels of inflammation in the body, metabolic abnormalities, high blood pressure, heart disease, cancer, diabetes, and abnormal stress responses (Markham, 2018). Hawkley and Cacioppo (2010) believe loneliness is also responsible for lowered levels of self-regulation and diminished lifestyle behaviors. For this reason, excessive time spent on SNSs have become directly connected to feelings of loneliness and have become a synonymous threat to EAs ability to thrive emotionally, socially, and academically (Bianchi & Phillips, 2005).   Higher education leaders are also reporting significantly higher rates of depression, suicidal ideation, self-harm, and physical ailments amongst college students around the world, and confirms these numbers are higher than ever before (ACHA, 2016).

The Prevalence of Loneliness Among College Students

In conceptualizing the prevalence of loneliness among EAs, it has become clear that an individual's reaction to deficiencies in their social relationships include a lack of warmth and

intimacy, as well as an affirming emotional connection (Weiss, 1973). The experience of loneliness, while common, is generally unpleasant for most, and has become a persistent and alarming norm among emerging adults in college (ACHA, 2016; Hunt, et al., 2018). For today's college student, loneliness is not simply being alone; but it is a painful experience that generates an awareness of one's own sense of belonging, or lack thereof (Alt, 2015; Abarghouei, 2015). Hawkley and Cacioppo (2010) suggests that as many as 80% of respondents in a recent study reporting feeling lonely at least some or most of the time.

Markham (2018) highlights that feelings of loneliness and social isolation are not limited to one area of the world, as leaders in countries such as the U.K. and Asia have begun to acknowledge the deleterious effects of loneliness and are seeking solutions to address the physical and psychological consequences of social isolation (Markham, 2018). For example, the U.K. has taken a bold stance against loneliness by hiring the nation's first Minister of Loneliness to oversee efforts in the country (Markham, 2018). In Asia, rates of loneliness have doubled, particularly among older adults, and which make loneliness a problem that transcends age, gender, ethnicity, and socioeconomic status. In 2018, Markham reported a 26% increase in mortality rates related to loneliness which has caused the diagnosis of loneliness to be surprisingly on par with the morbidity rates of smoking and obesity. These statistics make conceptualizing the prevalence of loneliness within a given demographic group difficult to assess, as loneliness can include a combination of cultural, social, emotional and cognitive perspectives (Abarghouei, 2015).

According to Moody (2001) there are two predominate forms for loneliness: emotional loneliness and social loneliness. Emotional loneliness is felt when an individual perceives that there is void in their ability to sustain a close intimate relationship with one or more people

(Moody, 2001). Social loneliness is realized when an individual believes they are without a network of friends or group of people to have meaning social interactions (Moody, 2001). Moody (2001) suggest EAs often experience a greater degree of social and emotional loneliness because they are most often faced with significant periods of adjustments, such as going to college, graduation, or moving to a new city. Hu (2008) contends transitionary periods such as a college adjustment tends to evoke a level of existential loneliness, which has the potential to increase an individual's desire and expectation for greater authentic social and emotional relationships.

Today, college students have seemingly taken a vigilant stance in addressing these perceived social and emotional deficits, by extending their SNS use and platform presence (Hu, 2008). Recent studies of online interactions suggests that social networking communication is inferior to face to face communication, and is less effective for conveying complex information, such as emotional tone, social presence, and complete information processing in a social context (i.e., facial expression, body language, and tone of voice) (Amichai-Hamburger, et al., 2013; Deandrea, et al., 2012). For this reason, social and emotional loneliness has been considered enough of a motive for excessive social networking site participation among college students (Jensen, 2018). Studies have also shown that when lonely people are not successful in their offline interactions, as they attribute and conceptualize their feelings of loneliness as a lack of inclusion within their real-world social groups (Buote, Wood, & Pratt, 2009). In a recent study of university freshmen, 75% of students reported some degree of loneliness in the first 2 weeks of school, and 47% of these students were identified as having moderate to severe loneliness, despite the various opportunities to engage with peers in their residential setting (Vasileioua, et al., 2019).

For college students, events such as leaving family and friends for college, the breakup of a romantic relationship, problems with friends and roommates, and difficulties with schoolwork, may create a discrepancy between one's actual and desired interpersonal relationships (Vasileioua, et al., 2019). In this way, loneliness has become particularly prevalent among college students, with an estimated 30% of college students reporting loneliness as a problem or life concern (Vasileioua, et al., 2019). The slightest changes in a college students environment or a disruption of a secure social connection can be particularly influential on their emotional development, which may also have causal attributions that promote increased time spent between social media platforms (Jones, 2009; Teppers, et al., 2014). Despite this glaring statistic, SNSs and other forms of online entertainment continues to be more popular than ever among college students who are looking for information that supports their evolving world views (Jones, 2009).

Recent studies examining the relationship between the frequency of SNS use and quality of friendships suggests time spent on social networking sites is highly associated with the intent to enhance relationship quality and intimacy (Spies Shapiro & Margolin, 2014; Walton, Cohen, Cwir & Spencer, 2012). The results from this research study will support the hypotheses regarding the relationships between time spent of SNSs, and its influence on feelings of loneliness and FoMO in emerging adults. Further, outcomes from this study will highlight the notion of SNSs playing a role in the manifestation of loneliness and FoMO among emerging adults (Pittman, 2017).

Consequences of Excessive Time Spent on SNSs Among College Students

Time Spent on SNSs and Psychological Well-Being

Emotional well-being is considered an "optimal psychological experience and denotes a level of functioning, that is complex and measured in a myriad of ways (Lukindo, 2016). Positive and negative emotions are separate components of well-being, and Weinstein (2018) highlights that affective well-being consist of both frequent positive emotions and comparably infrequent negative emotions. Essentially, every person has the potential to feel fearful, out of balance, and lonely at any given time (Weinstein, 2018). Studies have shown that roughly twenty percent of individuals feel sufficiently isolated and acknowledge this emotion as a contributor to the major source of unhappiness in their lives (Jin, 2013, p. 2463). For those connected on SNSs, the perception of happiness and life satisfaction is strongly correlated to psychological indicators that are tied to general well-being (Dienlin, Masur & Trepte, 2017; Weinstein, 2018). For example, Facebook and Instagram have recently added a "Start Live Video" feature where users can stream live footage. Not only is the "Start Live Video" feature creating interactive and active participation, but other users can comment and react to the footage potentially generating connectedness or a sense of community (Santarossa & Woodruff, 2017).

Bradbury (2017), suggests that Gen Zs in college are beginning to experience greater degrees of anxiety, loneliness, social inadequacy, as well as other negative emotions during and after SNS use. Edwards (2017) argues that such internalizations are highly correlated to the downward spiral of traditional socialization and are contributory to the ongoing decline in the enduring social relationships. It is well evidenced that emerging adults ages 18-29 are experiencing more severe mental health issues than any other age demographic around the world (Rosenberg & Feder, 2014). Rosenberg and Feder (2014) also contend that this growing onset of psychiatric problems is concerning, because the presence of these conditions can be predictive of more severe, chronic, and recurrent forms mental health disorders in the future. There is no

denying the influential nature of young adults' social networking experiences, and the way associated outcomes influence social and emotional development (Moreno, et al., 2011). However, despite a growing number of investigations, regarding SNS use and well-being, there remains a source of contention around whether SNSs have a more positive or negative attribute toward mental health (Weinstein, 2018).

When measuring, adolescent's social connectedness across multiple domains, such as family, peers, school, and community, researchers have found that peer connectedness was the most important predictor of well-being in young adults (Moreno, et al., 2011). Considering that emerging adults experience many more developmental tasks than other stage of life; emerging adults are especially prone to the pre-mature onset of mental illness, due to ongoing exposure to negative feedback (Strickland, 2014). From the perspective of physical health, studies have shown that people who suffer from FoMO acknowledge the health deficits associated with the condition; but are not deterred by the potential of poor health outcomes (Strickland, 2014). Dossey (2014) contends that the term social networking is a contradiction of sorts, because it encourages social promotion, while paradoxically resulting in more social isolation, which is precisely the case for FoMO sufferers. Recent recommendations suggest future studies focus on the source of the problem, and expose predictive relationships, such as time spent on SNSs as a contributor to higher levels of FoMO and loneliness among emerging adults (Dorsey, 2014).

Time Spent on SNSs and Academic Achievement Among College Students

In recent years, higher education leaders have begun to acknowledge an increase in time spent on SNSs, lower grade point averages and lower self-esteem, as well as decreasing campus community engagement (Kirschner & Karpinski, 2010; Oberst, Wegmann, Stodt, Brand, &

Chamarro, 2017). There have also been higher reports of depressive symptoms, suicidal ideation, and self-harm among emerging adults (Kirschner & Karpinski, 2010).

In their study, Kim, Larose and Peng (2009) suggests that compulsive SNS use in college students, leads to additional negative life outcomes such as lower academic grades, missing class or work, and missing social engagement opportunities. Barker (2009) confirms that there is evidence between SNS use and lower academic performance, including less time studying, insufficient studying, and poor time management. Another study revealed that two-thirds of the students reported using electronic media during class, or while doing homework, and that their amount of social networking use was negatively associated with self-reported GPA (Margolin & Shapiro, 2014). In a complimentary study, Przybylski, et al. (2013) contends that social networking use, and FOMO mediates the direct relationship between motivational factors and social media engagement in the classroom. Essentially, students who suffer from physical or psychological health related consequences are more likely to lack academic motivation, fall behind on their courses, or even drop out of education altogether (Hunt, et al., 2018).

Summary

Heavy social networking site participation has caused a global impact on health, relationships, and overall well-being of emerging adults. Researchers are calling for additional studies, and interventions that recommend a reduction in the amounts of time spent on SNSs to thwart effects from communication-related mental health disorders. Perhaps, newer data, and updated recommendation will change the acceptable norms related to FoMO and mitigate the development of extreme loneliness and related risks in emerging adults (Kross, et al., 2013). Early studies have shown that SNSs provides a context for adolescents to interact with peers whom they know in person, as well as those that are different from themselves (Kross, et al.,

2013). In this way, there are many positive aspects of social networking site participation, affording young adults the opportunity to join groups that reflect different aspects of their identity, while helping them affirm and connect with others who have common interests (Margolin & Shapiro, 2014). Another benefit is the ability to obtain information, support, and manage social connections beyond those that exist face-to-face (Margolin, 2014).

As with all value-added tools, there is the potential for the pendulum to swing toward negative health consequences (Harman, et al., 2005). More recently, researchers have turned towards social networking site participation to determine if it has deleterious effects on mental health (Strickland, 2014). Evidence suggests that the love for social media has grown to extent that some Gen Z's have become desperate to find other ways to establish a sense of connection outside of social networking sites because of feelings perpetuated by excessive SNS engagement, such as FOMO, stress and anxiety (Bradbury, 2017; Dhir, Yossatorn, Kaur & Chen, 2018). College students today, are desperately seeking solutions regarding how to manage mental health related problems, and learn how to moderate forms of excessive SNS use to sustain an overall healthy college experience (Olufadi, 2015).

Recent studies on Gen Z's have found that more than half of Gen Z's are beginning to seek relief from social media; but are still heavily dependent on its content for connection, socialization, and information (Bradbury, 2017). Miraculously, 34%, a growing percentage, has temporarily deleted or suspended some of their platforms (Bradbury, 2017). Perhaps, it is the growing presence of mental illness that has emerged during a critical period of development that has contributed to the erosion of emerging adults online (Dhir, et al., 2018). The desire to form and maintain social bonds is a universal desire, as well as a powerful motive for engaging on SNSs. This research will emphasize the importance of examining variables such as loneliness

and FOMO and its relationship to time spent on SNSs. In addition, it may contribute to the development of alternative interventions that provide healthy alternatives to the immediate gratification of online social networking site relationships (Rifkin, et al., 2015).

CHAPTER THREE: METHODS

Overview

This quantitative study was conducted using a cross-sectional survey approach to collect the data, and a path analysis to explore the hypothesized predictor variable of time spent on social networking sites, and its relationship to the fear of missing out (FoMO) and loneliness in undergraduate college students (Sedgwick, 2014). A cross sectional approach was used because it is particularly useful in conceptualizing the prevalence of behaviors or disease in a given population (Sedgwick, 2014). In this cross-sectional study, all measurements were acquired on the sample population at a single point in time, as it afforded the researcher an opportunity to infer the degree of prevalence related to the time spent on social networking site, the fear of missing out, and loneliness in the study population (Sedgwick, 2014). The purpose of this chapter is to describe the research design, participants, procedures, data collection procedures, instruments and the data analysis process.

Research Design

The research design is an explanatory non-experimental study, based on cross-sectional survey data, with a correlational approach. The correlational design supported the measurement of the predictive relationships among multiple variables among a sample of undergraduate college students. However, because correlation does not necessarily imply causation, the results of this study did not explain if the relationships between the variables represented realistic causes and effects (Collier, Sekhon, & Stark, 2010). The participants of this study were recruited from a

convenience sample of residential and non-residential undergraduate students at the University of Richmond and Liberty University. Warner (2013) suggests a convenience sample affords the researcher the best opportunity to obtain an appropriate sample size of the population. The researcher administered an anonymous online survey to increase opportunities for generalization of the results to a larger population of college students in the future.

Thus, the predictor variables in this study are time spent on social networking sites, related periods and motives of use. The fear of missing out and loneliness are the criterion variables (Collier, Sekhon, & Stark, 2010). The dependent and predictor variables used in this study are defined in Tables 1 and Table 2. Demographic data was also collected and analyzed alongside the multiple variable measurements and is defined in Table 1.

Table 1
Definitions of Demographic Variables

Variable	Instrument	Level	Functional definition	Operational definition
Age	SONTUS (Olufadi, 2015)	Interval	Independent variable	Age in years
Gender	SONTUS (Olufadi, 2015)	Nominal	Independent variable	0 = Female, 1 = Male
Ethnicity	SONTUS (Olufadi, 2015)	Nominal	Independent variable	1 = White; 0 = Not White
Accounts	SONTUS (Olufadi, 2015)	Interval	Independent variable	Total number of SNS accounts held

Table 2
Definitions of Variables Measured using FOMO scale and SONTUS scale

Variable	Instrument	Level	Functional definition	Operational definition

Fear of missing out (FOMO)	FOMO scale (Przybylski et al., 2013)	Interval	Dependent variable	Average of 10 item scores each with 5-point scale. Range = 1 (not at all true) to 5 (extremely true) Higher scores reflect a higher level of FOMO
Loneliness	UCLA Loneliness Scale (Version 3)	Interval	Dependent variable	Total of 20 item scores, each with 4-point scale (1 = never to 4 = often). Higher scores reflect greater feelings of loneliness.
Time on social networking sites (SNSs)	SONTUS scale (Olufadi, 2015)	Interval	Independent variable	Total of 29 item scores, each with 11-point scale (1 = not used to 11 = more than 30 mins). Higher scores reflect higher time on SNSs.
Relaxation and free periods	SONTUS scale (Olufadi, 2015)	Interval	Independent variable	11-point scale (1 = not used to 11 = 30 mins)
Academic-related	SONTUS scale (Olufadi, 2015)	Interval	Independent variable	11-point scale (1 = not used to 11 = 30 mins)
Public places	SONTUS scale (Olufadi, 2015)	Interval	Independent variable	11-point scale (1 = not used to 11 = 30 mins)
Stress-related	SONTUS scale (Olufadi, 2015)	Interval	Independent variable	11-point scale (1 = not used to 11 = 30 mins)
Motives for use	SONTUS scale (Olufadi, 2015)	Interval	Independent variable	11-point scale (1 = not used to 11 = 30 mins)

Research Questions

As previously noted in Chapter One, this study sought to evaluate if there is a predictive relationship between multiple variables, including time spent on social networking sites (SNSs), the fear of missing out (FoMO), and loneliness in undergraduate college students. The study included an online survey of participant responses, to include demographic data, FoMO, and

loneliness outcomes. The survey responses from the demographic questionnaire, the FoMO and Loneliness questionnaire(s), as the subscales scores regarding related period (s) and motive (s) of use were analyzed to determine if all data was predictive of time spent on social networking sites (SNSs), the fear of missing out (FoMO) and loneliness. The following research questions were considered as components of the study in relation to the data collected and the hypotheses for this research study.

RQ1: How does the amount of time undergraduate college students spend on the social networking sites relate to the fear of missing out and loneliness?

RQ2: Do the related periods of SNS use (academic, public, relaxation-free, stressful periods, and motives for use) relate to the loneliness in undergraduate college students?

RQ3: Do the related periods of SNS use (academic, public, relaxation-free, stressful periods, and motives for use) relate to the fear of missing out (FoMO) in undergraduate college students?

RQ4: To what extent are the students' demographic characteristics (age, gender, ethnicity, and number of SNS accounts) correlated with loneliness, FoMO, and time spent on social networking sites?

Hypotheses

This research study identified that there are significant consequences associated with excessive time spent on SNSs. Researchers have continued to ask questions regarding, how much time do emerging adults spend on SNSs, and to what extent does the time they spend between various platforms affect their social and emotional well-being (Arnett, 2000). Previous

studies have found it difficult to quantify the amount of time spent on SNSs, reporting that older instruments only sought to quantify use of only one or two platforms, and failed to consider the cumulative time spent on all platforms. Further, these studies failed to capture EA's sustained SNS membership, and the way they engage on each platform simultaneously throughout the day. The newer instrument used in this study was inclusive in its questioning regarding overall time spent on SNSs, and the research study anticipated that the tested hypotheses in the study would reveal the following:

The research hypotheses tested in this study were as follows:

H1: Loneliness is a predictor of FoMO

H2: The time undergraduate college students spend on SNSs is a predictor of loneliness

H3: The time undergraduate college students spend on SNSs is a predictor of FoMO

H4: Related periods of SNS use, specifically (a) academic (b) public places, (c) relaxation & free, (d) stress; and (e) motives are predictors of Loneliness.

H5: Related periods of SNS use, specifically (a) academic (b) public places, (c) relaxation & free, (d) stress; and (e) motives are predictors of FoMO.

H6: Demographics, specifically (a) age; (b) gender; (c) ethnicity; and (d) number of SNS accounts are predictors of loneliness.

H7: Demographics, specifically (a) age; (b) gender; (c) ethnicity; and (d) number of SNS accounts are predictors of FoMO.

H8: Demographics, specifically (a) age; (b) gender; (c) ethnicity; and (d) number of SNS accounts are predictors of the time undergraduate college students spend on SNSs.

Setting and Participants

Setting

The setting for the study will take place between two private college campuses in the state of Virginia, and where students could access a computer or electronic device. One of the colleges surveyed was a small private liberal arts college University of Richmond in Richmond, Virginia, and the second college was a larger private evangelical Christian university, Liberty University in Lynchburg, Virginia. The college settings at both colleges consisted of a diverse undergraduate student body from various parts of the world. The ethnic breakdown of the student population at the University of Richmond (UR) includes, 58% Caucasian, 8% Hispanic, 6 % African-American, 4% Bi-racial, and 8% Asian (IPEDS, 2018). The reported binary gender representation at the UR is 53.1% female and 46.9% male, a category of ("non-binary") identifications was included in the demographic survey to offer further inclusivity and to introduce other variable markers that may provide useful data for analysis in the study. The ethnic breakdown of Liberty University includes 67.3% Caucasian, 15.4% African-American, 7.21% Hispanic, and 1.33% (two or more races-Asian),0.477 Pacific Islander. The reported binary gender representation at Liberty is 59.6% female and 40.4% male, the ("non-binary") identification category was made available in the demographic survey to provide further inclusivity for this college as well (Liberty University, 2019).

Participants

The researcher was granted permission from the Office of Institutional Effectiveness at the University of Richmond to use an approved aggregated email listing of undergraduate students ages 18-22 to invite for participation in the study. Similarly, the researcher obtained an approved listing from Liberty University's School of Behavioral Science to recruit a listing of students meeting the study criteria (ages 18-22). The participants were recruited from a convenience sample of residential and online undergraduate students at both colleges by way of

approved research study flyers, posters, social media, and an emailed invitation. The students

received an individual, blind-carbon-copied email from the researcher, inviting them to

participate in the anonymous online research study using a QR code or the provided study link.

The email confirmed that upon access using QR Code, or the online survey link, the participants

were asked to consent to participation (Appendix A), and upon consent would be able to move

forward with the survey. Warner (2013), suggests a convenience sample affords the researcher

the best opportunity to obtain an appropriate sample size of the population (Warner, 2013).

The target sample population for his study was undergraduate college students between

the ages of 18-22, with an anticipated N =375. The sample population was obtained by way of

convenience sampling, allowing the researcher to quickly and economically recruit participants

through an easy and accessible means (Zigmund & Babin, 2007). Convenience samples are

commonly used in studies assessing the behavior of college students, or when projecting findings

to a given population (Warner, 2013; Peterson & Merunka, 2014). Participants varied in age,

gender, ethnicity, and number of social networking accounts owed, as well as class affiliation.

The sample population also included full-time students, with freshman, sophomore, junior, or

senior class affiliation. Class affiliation was not included in the analysis of result for

demographic characteristics because it was collected as a mechanism to support the delimiters in

the study. Delimitations for the study excluded incomplete surveys, unenrolled students, students

younger than age 17, and students older than age 23. Graduate and law school students were a

class affiliation that was excluded, from the survey population.

Conventional power analysis cannot be used to determine the minimum sample size

required to conduct a partial least squares (PLS) path analysis. A calculation was therefore

conducted to estimate the required sample size, based on the population size, margin of error, and confidence level, using the method described by Omair (2014) with the equation:

$$n = \frac{\dfrac{z^2 \times p\,(1-p)}{e^2}}{1 + \left(\dfrac{z^2 \times p\,(1-p)}{e^2 N}\right)}$$

Where n = sample size; N = population size; e = margin of error; z = score used for a given confidence level; p = 0.5 (assuming normally distributed data, where $\sqrt{p/1-\ p}$ is the standard error of a proportion). The margin of error indicates the accuracy of the results (i.e., how close the data in the sample are to the data in the population). The smaller the margin of error, the closer the sample data is to the actual population data at a given confidence level. The z score is a statistic that defines the confidence level where z = 1.645 for 90% level, z = 1.96 for 95% level, z = 2.58 for 99% level. The confidence level indicates how sure the researcher can be that the sample data captured the true proportion of respondents in the population who answered a particular item. Applying the sample size equation, a sample size of n = 179 respondents drawn from a population of N = 375 provides a 95% confidence interval, with a 5% margin of error. This implies, for example, that the researcher can be 95% sure that if 50% of the respondents endorsed a particular score for a survey item, then the true proportion of respondents in the population who would also endorse the same score for this particular item would range from a minimum of 45% (i.e., 50% minus 5%) to a maximum of 55% (i.e., 50% plus 5%).

Instrumentation

Online surveys have become quite common in social science research, and recent studies have proven that results from online research produces significant results that are comparable to those produced in a laboratory setting (Krupnikov & Levine, 2014; McIlwraith, 1998;

Thalmayer, 2011). Furthermore, data from online surveys can be quickly collected and analyzed

immediately upon completion of the survey using statistical software such as Smart PLS

software, with no coding, collation, or compiling necessary (Ringle, Wende & Becker, 2015).

Participants were able to access an online survey including 93 questions that included a consent

question, to gain permission to participate in the study, a demographic questionnaire, and three

behavioral instruments, the FoMO Scale, the UCLA Loneliness Scale (Version 3), and the

SONTUS Scale. The researcher incorporated the demographic questionnaire, the FoMO

questionnaire, and the UCLA Loneliness (Version 3) questionnaires into one comprehensive

survey. The online questionnaire was made available through a shareable Qualtrics survey link

and QR code created by the researcher for ease of access.

The Consent Question

The consent to participation question was the first question of the survey. Participants

were asked to read the approved consent form before moving forward with the study. The

stamped consent form was provided as a .pdf (Appendix A). The .pdf document was embedded

in the survey for ease of access and convenience. Participants were able to click on the pdf.

(Appendix A) and read the consent form in a separate window. Immediately following this

review, participants could return to the survey in the existing survey browser, and answer the

question regarding whether they *consent* to participation or *do not consent* to participation. Those

selected, *I consent to participation*, moved forward to the demographic questionnaire and the

remaining questions, and those who selected, *I do not consent to participation*, where

automatically moved to the survey closing page. This page thanked the prospective participant

for their interest and indicated that they did not meet the criteria for participation in the study.

Demographic Questionnaire

The demographic questionnaire (Appendix E) was included as an informal instrument and appeared in the next set of survey questions. Participants in this study were asked to complete a demographic questionnaire which comprised of five questions: age, gender, ethnicity, class affiliation (freshman, sophomore, junior, senior), and number of social networking accounts owned. The demographic questionnaire included three exclusionary logic components to support the exclusion criteria of the study. When participants were asked to select their age (17,18, 19, 20, 21, 22, 23) and class affiliation (freshman, sophomore, junior, senior, Medical/Law/Graduate); those whom selected ages 17 or younger, 23 and older, or Medical/Law/Graduate where automatically moved to the survey closing page. This page thanked the prospective participant for their interest and indicated that they did not meet the criteria for participation in the study.

The Fear of Missing Out (FoMO)

The fear of missing out (FoMO) scale (Appendix F) was used to measure individual differences in feelings related to the fear of missing out (Przybylski et al., 2013). The 10 items, each answered in a 5-point Likert scale where, 1 indicated "not at all true of me" and 5 indicated "extremely true of me." The scale includes statements like "I fear others have more rewarding experiences than me" and "I get worried when I find out my friends are having fun without me". The total score is computed by averaging the responses of all 10 items. The total scores could range from 1 to 5, with higher scores reflecting a greater tendency to experience fear of missing out. The scale has been found to have high internal consistency with the result of .854 for Cronbach`s alpha (Przybylski et al., 2013). Przybylski, et al. (2013) contends that the fear of missing out scale can be computed by averaging responses to all ten items and forms a reliable composite measure (α = .87 to .90).

The UCLA Loneliness Scale (Version 3)

The UCLA Loneliness Scale (Version 3) (Appendix G) was used to measure the participants` subjective feelings of loneliness and social isolation. The measure consisted of 20 items, each answered on a 4-point Likert scale where 1 indicated "never" and 4 indicated "often". The scale includes questions like "How often do you feel that you lack companionship?" and "How often do you feel outgoing and friendly?" Out of the 20 questions 9 questions were reverse scored. The total score is computed by adding up the responses for the 20 items. Total scores could range from 20 to 80, with higher scores reflecting greater feelings of loneliness. The scale has been found to have high internal consistency with the result of .897 for Cronbach`s alpha (Russell, 1996). In addition, the revised UCLA Loneliness scale (Version-3) passed a very stringent discriminant validity tests, when evaluating mood and personality in both versions of the measurement. Discriminant validity results reflected a high correlation of .91, between both of the original and revised versions of the global loneliness scale (Russell, Peplau, & Cutrona, 1980).

Social Networking Time Use Scale (SONTUS)

The SONTUS Scale (Appendix H) was used to measure time spent on social media. The SONTUS is a 29-item instrument, which exhibits excellent psychometric properties (Olufadi, 2015). In addition, the construct validity of the SONTUS, uses 10 personality and well- being measures, and 2 theoretically related constructs to provide preliminary evidence for the convergent, predictive, and discriminant validity of the SONTUS (Olufadi, 2016, p. 452). The questionnaire consists of two sections (demographic and SNSs use). The demographic information obtained from the respondents will include (age, gender, ethnicity, class (educational level), and number of SNSs accounts owed). Marital status, religion, monthly income, working

status, employment type will be deleted, as this data would not be relevant to the study

population. In the second section (SNS use) the participants will be asked to identify SNS use,

using a scale of 1 (not applicable to me during the past week) to 11 (I used it more than 3 times

during the past week; but spent more than 30 min each time) (Olufadi, 2015).

The creator of the survey deliberately avoided using common Likert scale terms like

''almost never'', ''frequently'', ''almost always'', ''sometimes'' ''often'' etc., because it is too

subjective (Olufadi, 2016). Other items such as (when you are cooking, when you are at the

clinic/hospital receiving treatment, when you wake up in the midnight and could not sleep again

etc.) might not be applicable to all the participants or during the particular week in question, and

participants will be able to skip these questions. The SONTUS maintains good validity and

reliability, with a content validity index score ranging from .88 to 1.00. The internal consistency

and reliability of the SONTUS and its five subscales were examined using Cronbach's Alpha,

revealing a .92 for the full scale and .83 to .91 for the subscales (Olufadi, 2016).

Procedures

The researcher obtained an initial IRB approval from the University of Richmond (UR)

in August of 2018 (Appendix J), and it was extended in August 2019. In August of 2019, the

researcher contacted UR's department of Institutional Effectiveness to gain access to an

approved listing of full-time UR students that met the study criteria (full-time students, ages 18-

22). After a successful presentation and defense of the dissertation proposal. The dissertation

committee granted the researcher permission to apply for IRB approval at Liberty University.

The application was submitted in August of 2019 and after two revisions (September 15, 2019

and October 1, 2019), the Liberty Institutional Review Board approved the research project)

(Appendix I). Upon IRB approval, the Liberty IRB permitted the researcher to request an

aggregated listing of undergraduate residential and non-residential students ages 18-22. The listing was received from the Information Services Department-Office of Business and Decision Support on October 30, 2019.

With IRB approval from both institutions, data collection commenced on November 1, 2019. Various recruitment strategies were used to invite students to participate in the study using the following methods: flyers, and social media platforms (e.g. Twitter, Facebook, Instagram, and Snapchat), as well as personal recruitment email from the researcher (Appendix B). The study-related flyers (Appendix C) and post cards (Appendix D) were placed on both campuses informing students about the details of the study, eligibility requirements, how to participate, as well as the opportunity to win one of 20 gift cards for $25 or an iPad mini as an incentive.

Data collection began with a recruitment email (Appendix B). Research flyer (Appendix C), and the post card (Appendix D), stated that students between the ages 18-22 were invited to participate in an anonymous online survey about the time spent on social networking sites (SNSs), FoMO, and loneliness. Interested participants, could access the online survey via the available link or directed to the survey from the QR code. Participants meeting the criteria and those completing the entire survey were eligible to win one of 20 gift cards for $25 or an iPad mini. Upon entering survey, the participants observed a consent form, a demographic questionnaire, and three separate quantitative measurements encompassing, the Fear of Missing Out scale (Appendix F) (Przybylski et al., 2013), the UCLA Loneliness scale (Version 3) (Appendix G) (Russell, 1996), The Social Networking Time Use Scale (SONTUS) (Appendix H) (Olufadi, 2016). Participants were not asked to provide any confidential or personal identifying information during the survey, and no personal identifying information was collected in connection to the survey data to ensure participant confidentiality. In order to comply with the

ethical guidelines, the first page of the survey required the participants to read the approved

consent form (Appendix A) and acknowledge consent within the online platform before moving

forward with participation in the study. The consent form informed participants about the

voluntary nature of the study, the anonymity of their participation, data protection procedures,

and their right to withdraw. Participants were also informed that the study was looking at the

psychological effects of social networking site use, and provided with the contact information of

the researcher, the researchers supervisor, and off campus resources for support. Participants

were then directed to an option where they could select (I consent/I do not consent) participation

in the study.

   After providing consent, the participant was instructed to answer a series of demographic

questions, to include (age, class affiliation, gender, ethnicity, and number of social networking

accounts owed) (Appendix E). The survey, then prompted questions from three valid quantitative

measurements, the Fear of Missing Out scale (Appendix F) (Przybylski et al., 2013), the UCLA

Loneliness scale (Version 3) (Appendix G) (Russell, 1996) and The SONTUS (Time Spent on

Social Networking Scale)(Appendix H). Upon completion of all survey, participants were

thanked for their participation and provided resources for support should they experience

concerns or distress from completing the survey. Upon completion, participants were

immediately directed to a closing page inviting them to provide contact information for

voluntary enrollment into a drawing to win one of the 20 gift cards for $25 or an iPad mini for

their participation.

   Participants who selected this option, were presented with an option to click on a link that

opened a new window browser and permitted the participant to provide their personal contact

information directly to the researchers' email address. The enrollment process involved

participants providing their name, address, and/or phone number for contact purposes only. Enrolled participants were informed that they would be contacted directly by the researcher during the first week of December, and prizes would be delivered to recipients by December 15th. The online survey was available on Qualtrics for 6 weeks, which included the initial invitation and a reminder message sent to prospective participants by the researcher, as well as posts on multiple SNS platforms (Twitter, Instagram, Snapchat, and Facebook) throughout the duration of the survey window.

Upon closure of the study, a randomized drawing of 21participant names was conducted and each participant winner was contacted by email during the first week of December 2019. The researcher used a Google name generator program to select 21 names from a list of 155 enrolled participants. The researcher used the contact information provided by the participants during their enrollment request to enter the drawing to notify each of the 21 winners from the drawing. The researcher mailed 20 gift cards worth $25, and one iPad mini to the selected participants. All prizes were post-marked and mailed to winning participants by December 15, 2019. Participant information was permanently deleted on December 20, 2019.

Post closure of the survey, the data was exported into the Smart PLS software, where the results were organized and analyzed. Lastly, a quantitative analysis was performed on the data to determine whether there was a strong relationship between time spent on SNS, FoMO, and loneliness using the survey instruments, SONTUS scale (Social Networking Time Use Scale (Olufadi, 2016), the fear of missing out scale (FoMO) scale (Przybylski, et al., 2013), and the UCLA Loneliness Scale (Version 3) (Russell, 1996). The Smart PLS is a JAVA based program used to perform variance-based structural equation modeling (SEM), using the partial least squares (PLS) path modeling method (Ringle, et al., 2015. SmartPLS program is a versatile

software that can be easily executed on a Windows or Mac based systems (Ringle et al., 2015). The data will remain stored on a Mac computer that is password protected, with duo-security encryption, in a double locked room in the researcher's private home office. The results were expressed as descriptive data collected from the convenience sample pool (Ringle, Wende & Becker, 2015).

Data Analysis

The research study used a quantitative research method with correlational design. The dependent variables are the Fear of Missing Out (FOMO) and Loneliness. The independent variables are time spent on SNSs, related periods of use, and motives for use (Table 1). The research hypotheses was tested by partial least squares (PLS) path analysis, which is an advanced form of ordinary least squares (OLS) multiple regression analysis developed in the 21st century that can be used to create a model of the predictive relationships between multiple dependent and independent variables (Riou, Guyon, & Falissard, 2016). However, PLS path analysis has only recently been applied by psychologists to create path models (Riou, Guyon, & Falissard, 2016; Rönkkö, McIntosh, & Antonakisc, 2015). The PLS path analysis method cannot be conducted using the traditional statistical packages developed over 50 years ago such as SPSS. Currently, the (PLS) path analysis is conducted using the statistical software package Smart PLS (Ringle, Wende & Becker, 2015).

In this study, P-values (e.g., $p < .05$) to infer statistical significance) were used to test the hypotheses, because, according to the American Statistical Association, p-values do not measure the probability that the studied hypothesis is true (Wasserstein & Lazar, 2016). Wasserstein, et al. (2016) suggests scientific conclusions, business, and policy decisions should not be based only on whether a p-value passes a specific threshold. In so doing, the researcher supports a

paradigm shift emerging in the 21st century that will eliminate the use of p-values, and the

potential of causing too many errors in the interpretation of research data, which has occurred

for more than 100 years (Carlin, 2016; McShane & Gal, 2017).

Standardized path coefficients were used to measure the strengths and directions of the

hypothesized predictive relationship between the variables, on a scale from -1 through 0 to +1.

Bootstrapping with 5000 subsamples were used to measure the mean, standard error, and 95%

confidence intervals of each path coefficient.   The square of the path coefficient was interpreted

and reflected the effect size of the prediction (i.e., the amount of variance in the dependent

variable explained by the independent variable). The interpretation of the effect size is as

follows: .04 is the minimum effect size, reflecting an effect that has practical significance and

meaning in the context of psychological research; 0.25 is a moderate effect size; and 0.64 is a

strong effect size (Ferguson, 2009). The path coefficients are conceptually equivalent to the

standardized partial regression coefficients in a multiple regression model.

Therefore, The research hypotheses were tested by partial least squares (PLS) path

analysis, which is an advanced form of ordinary least squares (OLS) multiple regression analysis

developed in the 21st century that can be used to create a model of the predictive relationships

between multiple dependent and independent variables.   However, PLS path analysis has only

recently been applied in psychological research, and therefore some researchers may distrust this

method (Riou, Guyon, & Falissard, 2016; Rönkkö, McIntosh, & Antonakisc, 2015). The

advantages of the PLS path analysis are (a) PLS is non-parametric method and does

not assume that the variables are normally distribute; (b) PLS is more tolerant than OLS

regression if the theoretical assumptions regarding homoskedacity and multicollinearity are

violated (Vinzi, Trinchera, & Amota, 2010 The essential feature of path analysis is that the

hypothesized predictive relationships between the dependent and independent variables are visualized in the form of a path diagram (Steiner, 2005). The hypotheses H1 to H8 are illustrated using path diagrams in Figures 1, 2, 3, and 4. The oval symbols represent the dependent or independent variables which were operationalized using the definitions in Table 1.

   The unidirectional arrows represented the research hypotheses H1 to H8, which were tested by measuring the path coefficients or β weights. The path coefficients were conceptually equivalent to the standardized partial regression coefficients in a multiple regression model (i.e., they could range from -1 through 0 to +1 to reflect the strength and directions of the relationships between the variables).
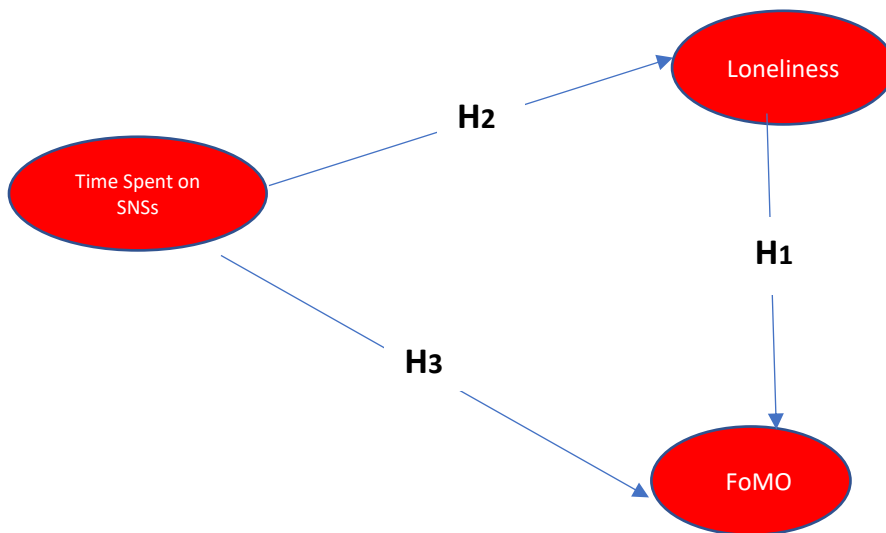
Figure 1. Path diagram of relationships between time on SNSs, loneliness, and FoMO
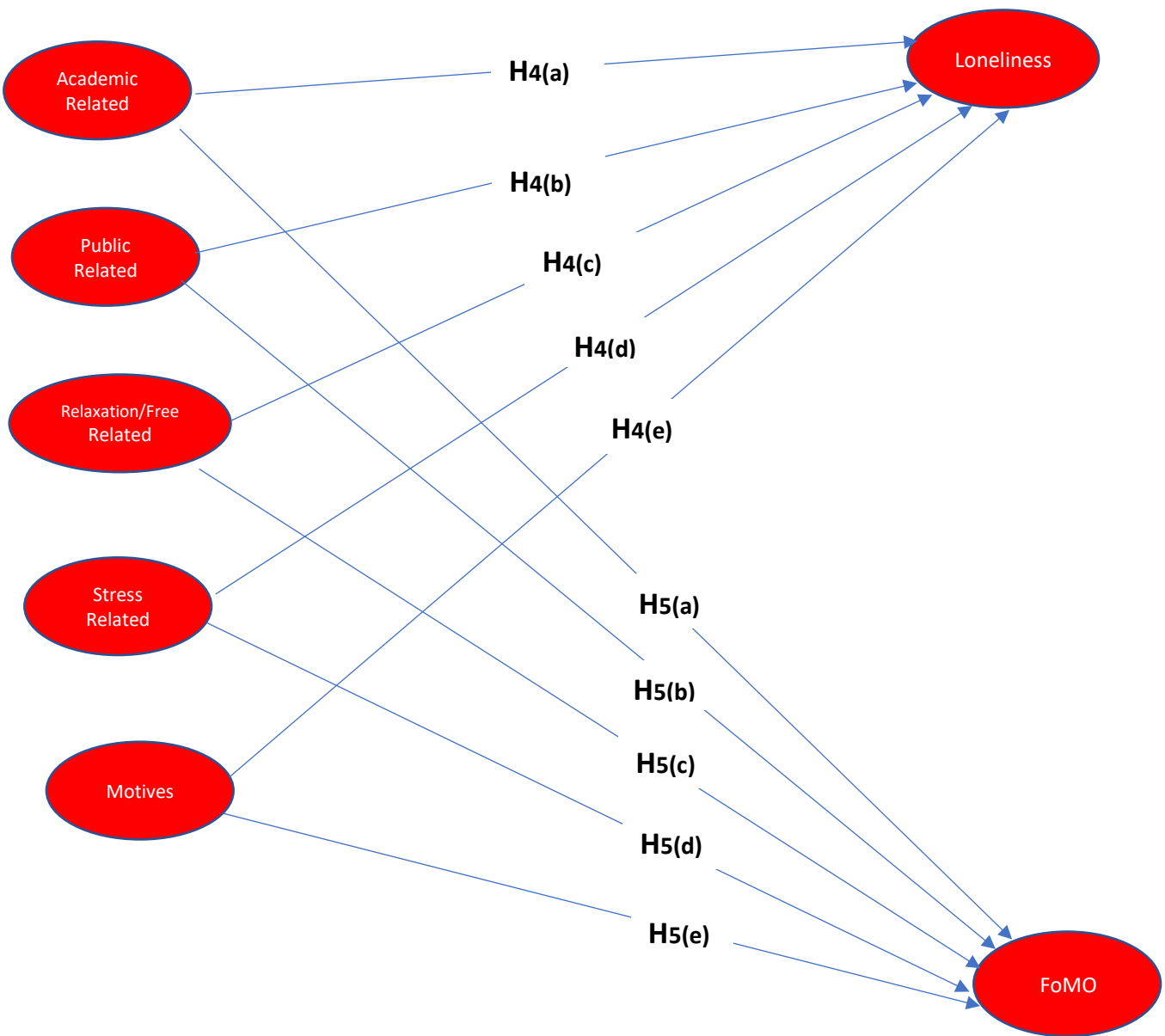
Figure 2. Path diagram of relationships between related periods of use, motives of use, loneliness, and FOMO.
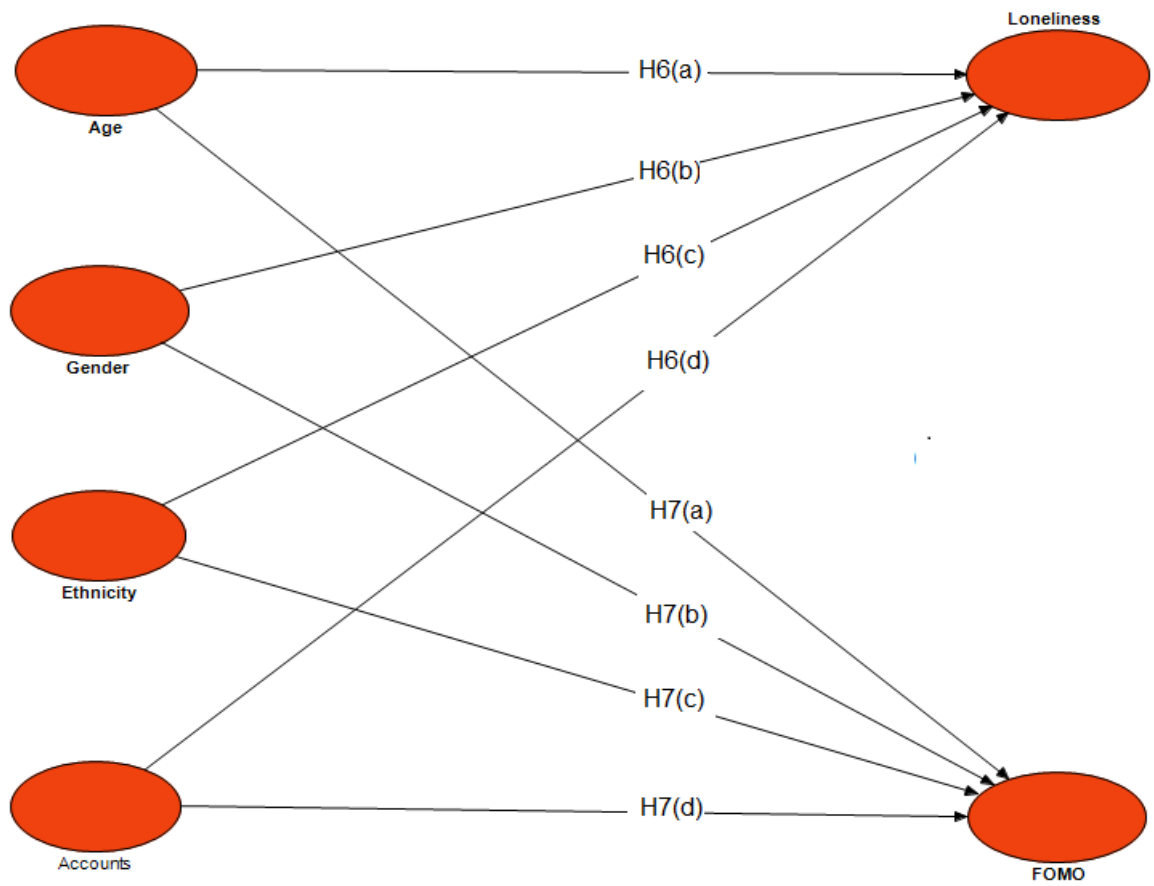
Figure 3. Path diagram of relationships between demographics, loneliness, and FOMO.
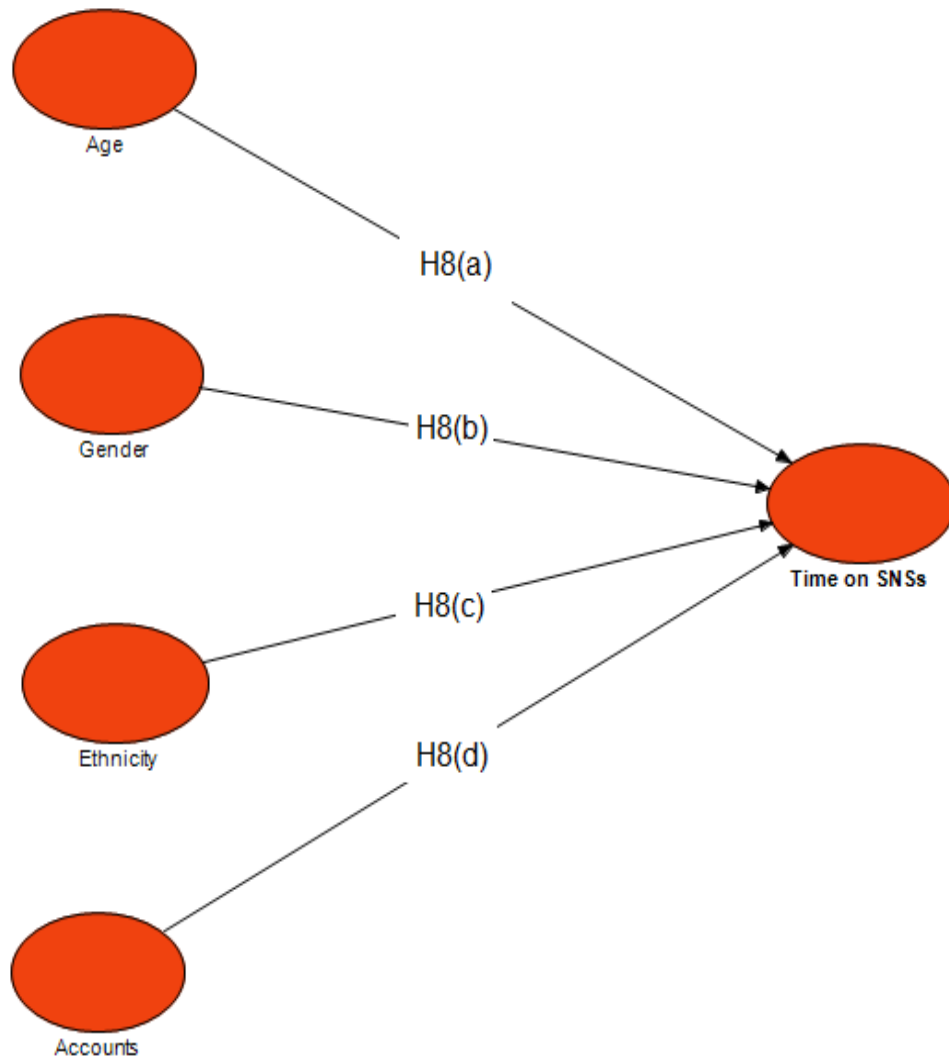
Figure 4. Path diagram of relationships between demographics and time on SNSs.

CHAPTER FOUR: FINDINGS

Overview

The purpose of this study was to examine the relationships among time spent on social networking sites, FoMO, and loneliness in undergraduate college students. This chapter will provide information on the findings of the research study in seven sections. The first section will discuss the descriptive statistics and will summarizes the demographic characteristics of the participants. The second and third section will address the reliability and descriptive statistics for the independent and dependent variables. The remaining four sections will address the research questions and associated hypotheses.

Descriptive Statistics

The following section will provide an overview of the descriptive statistics and related findings from this study. Frequency tables and descriptive statistics such as mean, median, frequency, and standard deviation for the independent and dependent variables will be included. In addition, the demographic characteristics of the participants (Table 3) and the Reliability Analysis (Table 4) will also be reviewed in this section.

Demographic Characteristics of Participants

The total number of participants who satisfied the inclusion criteria for the survey was ($N = 258$). The participants ranged in age from 18 to 22 years old *(M = 19.75; SD = 1.35)*. In Table 3, the categorical demographic characteristics was collected from the participants. The majority of the participants were affiliated with the University of Richmond ($n = 188$, 72.9%), and the remainder were affiliated with Liberty University (n=70, 27.1%). The most significant demographic characteristic represented among the participants was White/Caucasian ($n = 61.2\%$), females ($n = 174$, 67.4%) in their fourth year of college (n=81, 31.4%). Another

significant characteristic among the participants indicated that more than 50% of the participants

owned at least 3 or 4 social networking accounts *(n* = 146, 56.6%), with 7 accounts being

observed as the highest level of SNS ownership on the SONTUS instrument. (Table 3).

Table 3
Demographic Characteristics (N = 258)

Variable	Category	*n*	%
Gender	Female	174	67.4
	Male	84	32.6
Ethnicity	White/Caucasian	158	61.2
	Asian	33	12.8
	African American	28	10.9
	Latino/Latina	24	9.3
	Multi-racial	15	5.8
Affiliation	University of Richmond	188	72.9
	Liberty University	70	27.1
Class standing	Senior (fourth-year)	81	31.4
	Freshman (first-year)	70	27.1
	Sophomore (second-year)	67	26.0
	Junior (third-year)	40	15.5
Accounts	3 or 4 sites	146	56.6
	5 or 6 sites	52	20.2
	1 or 2 sites	51	19.8
	7 or more sites	9	3.5

Reliability Analysis

Table 4 presents the reliability analysis results for the dependent variables (FoMO and

Loneliness) and the independent variables measured within the SONTUS scale. All of the

variables exhibited good internal consistency and reliability (Cronbach's alpha = .73 to .93).

Table 4
Reliability Analysis

Variable	Cronbach's alpha
FoMO	.87
Loneliness	.94
SONTUS: Motives for use	.73

SONTUS: Relaxation and free periods	.78
SONTUS: Global score	.93
SONTUS: Stress-related periods	.88
SONTUS: Academic-related periods	.82
SONTUS: Public places-related use	.83

FOMO

Descriptive statistics for the variable, fear of missing out (FoMO), are included in Table 5. The mean and standard deviation for participant responses ($N = 258$) are representative of the 10 item, 5-point FoMO scale ranging from 1-5, with 1= "Not at all true of me" to 5= "Extremely true of me". The overall FoMO score ($M = 2.43$, $SD = 0.71$) was computed by averaging the scores for the 10 items. The findings revealed that the fear of missing out (FoMO) was statistically significant and true for most of the participants. The highest mean item score ($M = 2.91$, $SD = 1.05$) indicated that most of the participants endorsed "Moderately true of me" for FoMO "When I miss out on a planned get-together; it bothers me". The lowest mean item score ($M =1.71$, $SD = 0.86$) reflected that most of the participants endorsed "Slightly true of me" for "When I have a good time, it is important for me to share the details online."

Table 5
Descriptive Statistics for Fear of Missing Out (N = 258)

Item	M	SD
When I miss out on a planned get-together it bothers me	2.91	1.05
I get worried when I find out my friends are having fun without me	2.78	1.11
It bothers me when I miss an opportunity to meet up with friends	2.77	1.06
It is important that I understand my friends "in jokes"	2.65	1.11
I fear others have more rewarding experiences than me	2.63	1.00
I fear my friends have more rewarding experiences than me	2.58	1.08
I wonder if I spend too much time keeping up with what is going on	2.16	1.17
A I get anxious when I don't know what my friends are up to	2.08	1.10
When I go on vacation, I continue to keep tabs on what my friends are doing	2.03	1.02
When I have a good time, it is important for me to share the details online	1.71	0.86
FoMO	2.43	0.71

Loneliness

Table 6 included the descriptive statistics for the loneliness scale. The mean and standard deviation for participant responses ($N = 258$) are representative of the 20 item, 4-point Loneliness scale ranging from 1-4, with 1= "I never feel this way" to 4 = "I often feel this way". The overall loneliness score ($M = 2.28$, $SD = 0.60$) was computed by averaging the scores for the 20 items. Nine of the items were reverse scored. The results indicated loneliness was not statistically significant and was rarely felt by most of the participants. The highest mean item score ($M = 2.81$, $SD = 0.93$) reflected that most of the participants endorsed "I sometimes feel this way" for "I feel shy". The lowest mean item score ($M = 1.75$, $SD = 0.81$) reflected that most of the participants endorsed "I rarely feel this way" as it relates to "I feel that I have people to talk to" (reversed).

Table 6
Descriptive Statistics for Loneliness (N = 258)

Item	M	SD
I feel shy	2.81	0.93
I feel that I have people are around me; but not with me	2.76	0.90
I feel that I lack companionship	2.71	0.91
I feel left out	2.69	0.83
I feel that no one really knows me well	2.68	0.99
I feel alone	2.65	0.95
I feel isolated from others	2.59	0.96
I feel my interests and ideas are not shared by those around me	2.50	0.88
I feel that the relationships I have with others are not meaningful	2.41	0.96
I feel that I am no longer close to anyone	2.36	1.02
I feel that there is no one I can turn to	2.30	1.06
I feel I have a lot in common with people around me (reversed)	2.04	0.83
I feel a part of a group of friends (reversed)	2.02	0.94
I feel that there are people who really understand me (reversed)	1.98	0.88
I feel "in tune" with the people around me (reversed)	1.95	0.72
I feel close to people (reversed)	1.95	0.81
I feel I can find companionship with others (reversed)	1.90	0.76
I feel I am outgoing and friendly (reversed)	1.87	0.78

I feel that I have people to turn to (reversed)	1.77	0.86
I feel that I have people to talk to (reversed)	1.75	0.81
Loneliness	2.28	0.60

SONTUS

Table 7 includes the descriptive statistics for the time spent on SNSs. The mean and standard deviation for participant responses (N=258) are representative of the 52-item SONTUS instrument measuring overall time spent on SNSs, as well as sub-scales for (related periods and motives for use). The overall time spent on SNSs score (M = 4.67, SD = 1.48) was computed by averaging the scores for the five SONTUS components (related periods of use and motives for use). The results were statistically significant and indicated that most of the participants spent "about 10 minutes to 30 minutes on SNSs at any given time during a single day".

The maximum mean score for the sub scale components for the SONTUS component, related periods of use (academic, public places, relaxation & free, stress and motives for use) was "Motives for use" (M = 5.65, SD = 2.36). The second highest mean score was "relaxation and free periods" (M = 5.51, SD = 1.81), and the minimum mean score was "Public places-related use" (M = 3.74, SD = 1.40). Therefore, the motive for use and the related periods of use was statistically significant; however, the mean scores for three SONTUS components (academic-related, stress-related, and public places) were not statistically significant (< 5).

Table 7
Descriptive Statistics for SONTUS Components (N = 258)

Component	M	SD
Motives for use	5.65	2.36
Relaxation & free periods	5.51	1.81
Stress-related periods	4.27	2.04
Academic-related periods	4.19	1.87
Public places-related use	3.74	1.40
Time on SNSs	4.67	1.48

Results

There were four research questions and eight hypotheses for this study. The following

section will include the results of each research question and the hypothesis tested for the study.

A path analysis was performed to examine the study variables and determine the comparative

strength, magnitude, and significance of the hypothesized causal connections (Riou, Guyon, &

Falissard, 2016). For clarification, path values can be interpreted as correlations and can be

understood as ranging from -1 to +1. The path diagrams in (Figures 5, 6, and 7) will be used

throughout this section to provide a visual representation of the findings, and illustrate the results

of the PLS path analysis drawn by the SmartPLS program. The research questions for this

research study were as follows:

Relationships between Time on SNSs, Loneliness, and FoMO

RQ1: To what extent is the amount of time undergraduate college students spend on

social networking sites (SNSs) correlated with FoMO and loneliness?

RQ2: To what extent is FoMO correlated with loneliness in undergraduate college

students?

Figure 5. Path diagram of relationships between Time on SNSs, Loneliness, and FoMO
Note: Path coefficients next to arrows. Effect sizes within oval symbols.

The results provided the evidence to test H1: Loneliness is a predictor of FoMO; H2: The time undergraduate college students spend on SNSs is a predictor of loneliness; and H3: The time undergraduate college students spend on SNSs is a predictor of FoMO. Table 8 presents the path coefficients (β) with standard errors (SE) and 95% confidence intervals (CI) estimated by bootstrapping. The 95% CI for the relationships between time spent on SNSs, loneliness, and FoMO highlight positive path coefficients, which did not capture zero. This led to a strong assumption that the path coefficient was greater than zero.

Table 8
Path Analysis of Relationships between Time Spent on SNSs, Loneliness, and FoMO

Path	β	SE	95% CI	
			Lower	Upper
Loneliness → FoMO	0.455*	0.089	0.366*	0.544*
Time on SNSs → Loneliness	0.179*	0.056	0.069*	0.289*
Time on SNSs → FoMO	0.232*	0.049	0.136*	0.328*

Note: * 95% CI do not capture zero.

Hypotheses

Hypothesis One

The results of the path analysis for H1 examining the relationship between loneliness and FoMO indicated loneliness was positively correlated with FoMO and found to have a strong path coefficient (β = 0.455). The model predicted that when the loneliness scale increased by 1 unit, the FoMO scale increased by 0.455 units. Therefore, the correlation between loneliness and FoMO was found to be statistically significant and fully supported the research hypothesis H1.

Hypothesis Two and Three

The results of the path analysis for H2 and H3 examining the relationships between time spent on SNSs, loneliness, and FoMO was positively correlated with both loneliness and FoMO. However, the magnitudes of the path coefficients indicated time spent on SNSs was a weaker

predictor of Loneliness (β = .179) than FoMO (β = .232). The model predicted when time spent

on SNSs increased by 1 unit, the loneliness scale increased by .179 units, while the FoMO scale

increased by 0.232 units. The magnitude of the effect size for time spent on SNSs $\rightarrow$ Loneliness

was small (R^2 = .032); however, the effect size for time spent on SNSs and Loneliness $\rightarrow$ FoMO

was larger (R^2 = .299). Thus, time spent on SNSs accounted for only 3.2% of the variance in

loneliness, while time spent on SNSs and loneliness collectively accounted for 29.9% of the

variance in FoMO. For this reason, there was a statistically significant correlation between time

spent on SNSs, loneliness and FoMO, and the research hypothesis for H2 and H3 was fully

supported.

Relationships between Related Periods of Use, Loneliness, and FoMO

RQ3: To what extent are related periods of SNS use (academic, public places, relaxation

& free, stress, and motives for use) correlated with FoMO and loneliness in undergraduate

college students? Figure 6 illustrates the results of the PLS path analysis using the path diagram

drawn by SmartPLS. Table 9 presents the path coefficients (β) with standard errors (SE) and

95% confidence intervals (CI) estimated by bootstrapping.
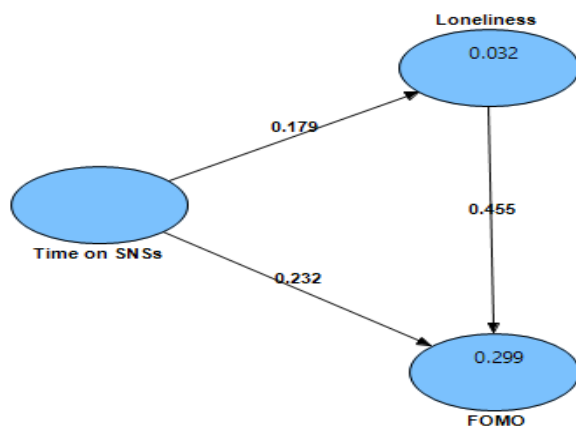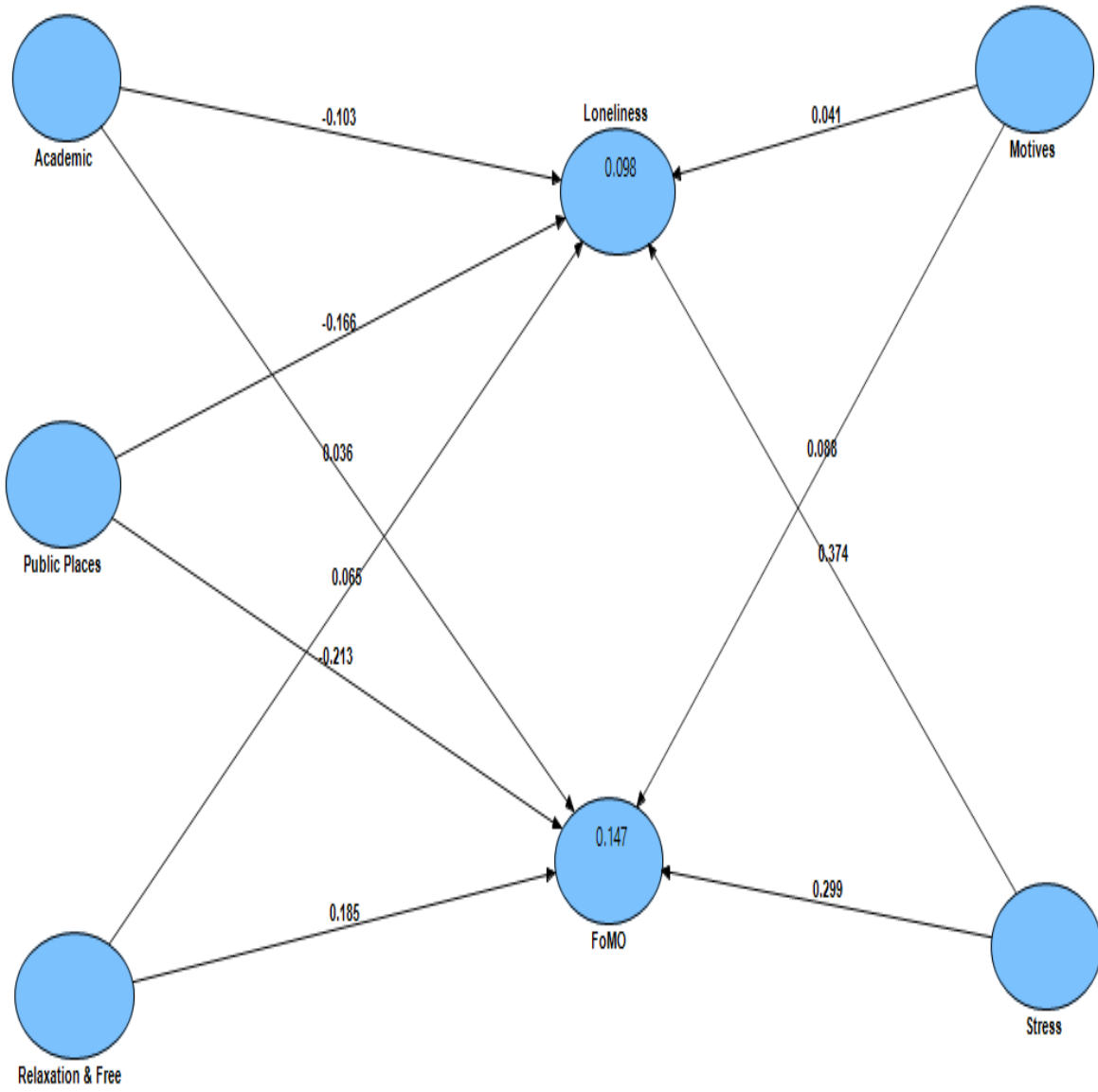
Figure 6. Path diagram of relationships between Related periods of Use, Loneliness, and FoMO
Note: Path coefficients next to arrows. Effect sizes within oval symbols.

Table 9

Path Analysis of Relationships between Related Periods on SNSs, Loneliness, and FoMO

Path	β	SE	95% CI	
			Lower	Upper
Academic → Loneliness	-0.103	0.063	-0.227	0.021
Public Places → Loneliness	-0.166*	0.083	-0.330*	-0.002*
Relaxation & Free → Loneliness	0.065	0.056	-0.045	0.175
Stress → Loneliness	0.374*	0.070	0.237*	0.511*
Motives → Loneliness	0.041	0.047	-0.051	0.133
Academic → FoMO	0.036	0.053	-0.068	0.140
Public Places → FoMO	-0.213*	0.084	-0.377*	-0.049*
Relaxation & Free → FoMO	0.185	0.160	-0.129	0.499
Stress → FoMO	0.299*	0.084	0.135*	0.463*
Motives → FoMO	0.086	0.059	-0.030	0.202

Note: * 95% CI do not capture zero.

Hypothesis Four and Five

The results of the path analysis for H4 examining related periods of SNS use (a) academic (b) public places, (c) relaxation & free, (d) stress, and (e) motives of use as a predictor of loneliness did not fully support the research hypothesis. Similarly, the path analysis for H5 examining related periods of SNS use (a) academic (b) public places, (c) relaxation & free, (d) stress, and (e) motives as predictors of FoMO did not fully support the research hypothesis. The results for H4 and H5 did not fully support the research hypothesis because three of the related periods of SNS use were not strongly correlated with loneliness and FoMO. The 95% CI of the path coefficients captured zero (i.e. the lower CI was negative, and the upper CI was positive) for (a) academic (b) related periods, (c) relaxation & free periods, and (e) motives for use. Therefore, the three related periods of SNS use (academic, relaxation & free, and motives for use) were not statistically significant, nor predictors of loneliness and FoMO.

However, two related periods of SNS use, specifically (b) public places and (d) stressful periods were strongly correlated with loneliness and FoMO, as indicated by path coefficients

with a 95% CI that did not capture zero. The negative path coefficients indicated public places-related use was negatively correlated with loneliness and FoMO. The model predicted that when public-related places use increased by 1 unit, the Loneliness scale decreased by -0.166 units, and the FoMO scale decreased by - 0.213 units. The positive path coefficients indicated that stress-related use was positively correlated with loneliness and FoMO. The model predicted that when stress-related use increased by 1 unit, the Loneliness scale increased by 0.374 units, and the FoMO scale increased by 0.299 units. The magnitude of the effect size for related uses of SNSs → Loneliness was small (R^2 = .098), indicating that 9.8% of the variance in loneliness was explained. However, the effect size of the related uses of SNS→ FoMO was larger (R^2 = .147), representing 14.7% of the variance in FoMO. Therefore, the correlation between related periods of use H4(b) public-places and H4(d) stress and loneliness, as well as H5(b) public-places and H5(d) stress and FoMO were found to be statistically significant and supported the research hypotheses for H4(b,d) and H5(b,d).

Relationships between Demographic factors, Loneliness, FoMO, and Time on SNSs

RQ4: To what extent are demographic characteristics (age, gender, ethnicity, and number of SNS accounts owned) correlated with the student's loneliness, FoMO, and time spent on social networking sites? The following hypotheses were tested: H6: Demographics, specifically (a) age; (b) gender; (c) ethnicity; and (d) number of SNS accounts owned are predictors of loneliness; H7: Demographics, specifically (a) age; (b) gender; (c) ethnicity; and (d) number of SNS accounts are predictors of FoMO? And H8: Demographics, specifically (a) age; (b) gender; (c) ethnicity; and (d) number of SNS accounts owned are predictors of the time undergraduate college students spend on SNSs? Figure 7 illustrates the results of the PLS path analysis using the path diagram drawn by SmartPLS. Table 10 presents the path coefficients (β) with standard

errors (SE) and 95% confidence intervals (CI) estimated by bootstrapping.
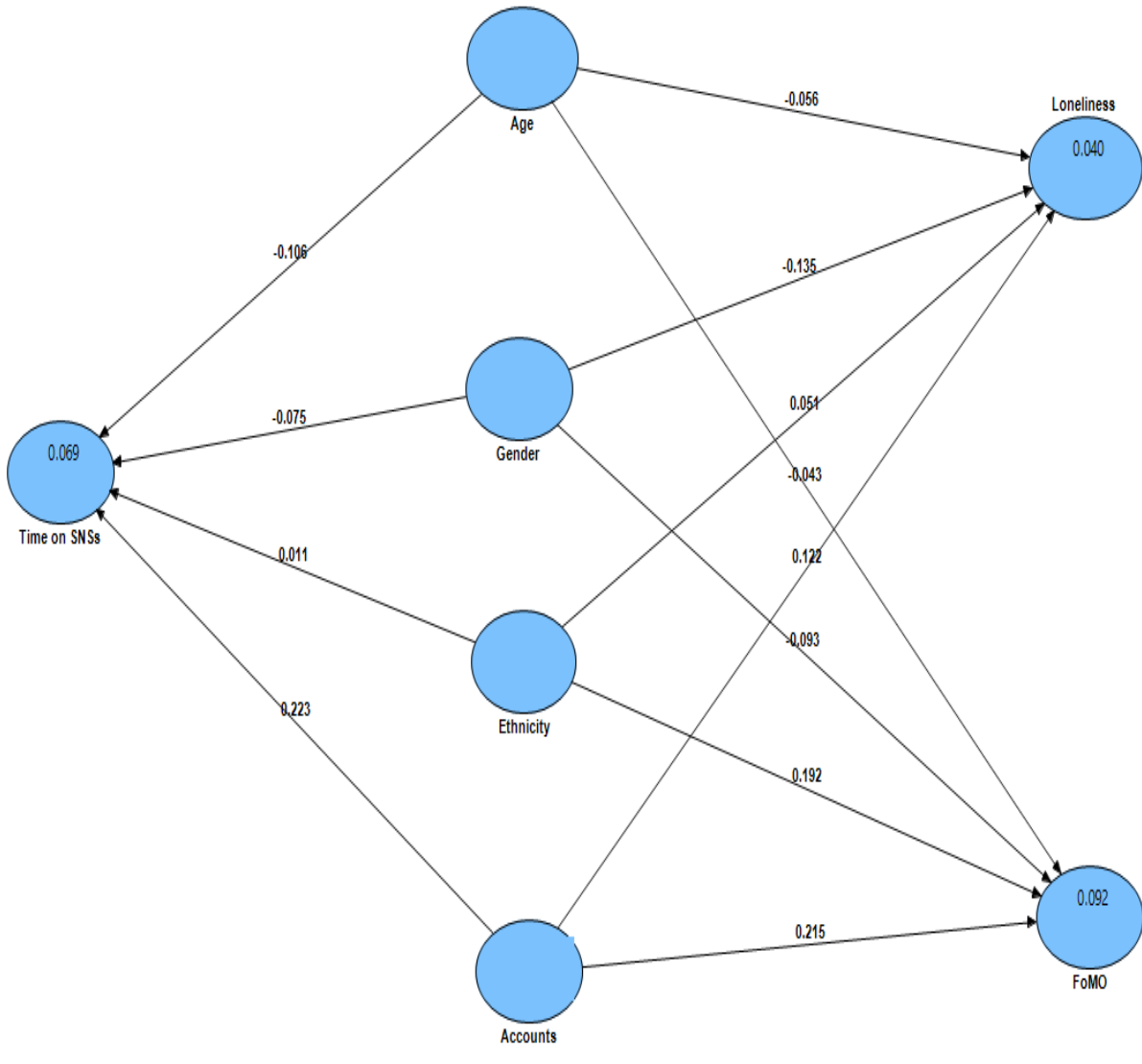
Figure 7. Path diagram of relationships between Demographics, Loneliness, FoMO, and Time

on SNSs. Note: Path coefficients next to arrows. Effect sizes within oval symbols.

Table 10

Path Analysis of Relationships between Demographics, Loneliness, FoMO, and Time on SNSs

Path	β	SE	95% CI	
			Lower	Upper
Age → Loneliness	-0.056	0.045	-0.144	0.032
Gender → Loneliness	-0.135	0.058	-0.249	-0.021
Ethnicity → Loneliness	0.051	0.046	-0.040	0.142
Accounts → Loneliness	0.122*	0.032	0.060*	0.184*
Age → FoMO	-0.043	0.042	-0.126	0.040
Gender → FoMO	-0.093	0.052	-0.194	0.008
Ethnicity → FoMO	0.192*	0.056	0.083*	0.301*
Accounts → FoMO	0.215*	0.060	0.097*	0.333*
Age → Time on SNSs	-0.106	0.053	-0.210	-0.002
Gender → Time on SNSs	-0.075	0.051	-0.175	0.025
Ethnicity → Time on SNSs	0.011	0.035	-0.057	0.079
Accounts → Time on SNSs	0.223*	0.058	0.110*	0.336*

Note: * 95% CI do not capture zero

Hypothesis Six

The results of the path analysis for H6 examining demographic characteristics (a) age (b) gender (c) ethnicity, and (d) # of SNS accounts owned as a predictor of loneliness did not fully support the research hypothesis because three of the participants demographic characteristics were not statistically significant, and found to not be predictors of loneliness. The demographic characteristics, specifically (a) age (b) gender and (c) ethnicity were indicated by path coefficients with a 95% CI that captured zero. However, (d) number of SNS accounts owned was statistically significant and positively correlated with Loneliness ($\beta = 0.122$) with a 95% CI that did not capture zero. This provided support for H6(d) number of SNSs owned as a predictor of loneliness. The model predicted that when the number of SNS accounts owned by a participant increased by 1 unit, the Loneliness scale increased by 0.122 units. Therefore, the correlation between number of SNS accounts and loneliness was found to be statistically significant and supported the research hypothesis for H6(d).

Hypothesis Seven

The results of the path analysis for H7 examining demographic characteristics (a) age (b) gender (c) ethnicity, and (d) number of SNS accounts as a predictor of FoMO did not fully support the research hypothesis. Two of the participants demographic characteristics was not statistically significant and found to not be predictors of FoMO, specifically (a) age and (b) gender. However, ethnicity ($\beta = 0.192$) and the number of SNS accounts owned ($\beta = 0.215$) were statistically significant and found to be positively correlated with FoMO, with a 95% CI that did not capture zero. This indicates support for the research hypothesis H7(c) ethnicity and H7(d) number of SNS accounts owned as predictors of FoMO. The model predicted that when ethnicity =1 (i.e., White/Caucasian), the FoMO scale was 0.192 units higher than when Ethnicity = 0 (i.e., minority groups-African American, Asian, and Latino/Latina). The model predicted when the number of SNS accounts owned by a participant increased by 1 unit, the FoMO scale increased by 0.215 units. Therefore, the correlation between ethnicity, number of SNS accounts owned, and FoMO was found to be statistically significant, and supported the research hypothesis for H7(c&d).

Hypothesis Eight

The path analysis results for H8 examining demographic characteristics (a) age (b) gender (c) ethnicity, and (d) number of SNS accounts as a predictor of time spent on SNSs did not fully support the research hypothesis. Three of the participants demographic characteristics were not statistically significant and found to not be predictors of time spent on SNSs, specifically (a) age (b) gender and (c) ethnicity, as indicated by path coefficients with a 95% CI that captured zero. However, the number of SNS accounts owned by the participant was positively correlated with time spent on SNSs ($\beta = 0.233$), with a 95% CI that did not capture

zero. The model predicted that when the number of SNS accounts owned by a participant increased by 1 unit, the time spent on SNSs scale increased by 0.233 units. Therefore, the correlation between number of SNS accounts owned, and time spent on SNSs was found to be statistically significant and supported the research hypothesis for H8(d).

CHAPTER FIVE: CONCLUSIONS

Overview

The purpose of this study was to examine the predictive relationship between time spent on SNSs, the fear of missing out (FoMO,) and loneliness among undergraduate college students. This study also sought to determine if related periods of use and motives for use was predictive of the fear of missing out (FoMO) and loneliness. In addition, this study analyzed the demographic characteristics of the study participants, such as (age, gender, ethnicity, and number of SNS accounts) to determine if these variables were predictive of time spent on SNSs, FoMO, and loneliness. This chapter will include four sections. The first section will discuss the research hypothesis, and related findings. The second section will review research implications adding efficacy to existing bodies of literature. The third section will provide recommendations for future research, and the fourth section will include a closing summary.

Discussion

Studies have shown a growing prevalence and acceptance of distressing symptoms such as FoMO and loneliness among emerging adults in college (Adams, et al., 2017; Adams, 2016). Findings from previous studies suggested there is a strong correlation between SNS behaviors, and various aspects of emotional, psychological, and physical well-being (Boateng & Amankwaa, 2016; Bourgeois, et al, 2014). However, these studies consistently acknowledged limitations related to measurements used to capture the amount of time spent across multiple

platforms (Olufadi, 2015; Barker, 2009; Hunt, et al., 2018). Olufadi (2016) proposed using a more comprehensive measurement to understand the depth and breadth of SNS use, and to obtain more accurate data regarding the amount of time spent between multiple SNS platforms. This study addressed limitations reported in earlier research by using the SONTUS (Social Networking Time Use Scale), along with the FoMO Scale (Fear of Missing Out Scale), and the UCLA-Loneliness Scale (Version 3) to understand how excessive SNS use contributes to declining mental health (Olufadi, 2015; Przybylski, et al., 2013).

The research questions in the study asked whether there were predictive relationships between time spent on SNSs, FoMO, and loneliness among undergraduate college students. The research method used to carry out this study was a path analysis, which thoroughly analyzed the predictive relationships between the study variables, as presented in chapter four. In order to gain a deeper of understanding of these relationships, the related periods of use (academic, public-places, relaxation-free, stress), motive for use, and demographic characteristics (age, gender, ethnicity, and # of SNS accounts owned) were also analyzed. In examining the relationships between the demographic characteristics (age, gender, ethnicity, and # of SNS accounts owned), and the study variables the findings indicated, the number of SNS accounts owned was strongly correlated to time spent on SNSs, FoMO, and loneliness. In addition, ethnicity was found to strongly correlate with FoMO. It is important to note that some of the related periods of use and demographic characteristics did not fully support the research hypotheses in (H3, H4, H5, H6, H7, & H8) (presented in Chapter IV).

Findings from this study supported Olufadi's (2016) assertions and provided efficacy in the value of using the SONTUS measure to elucidate the relationship between excessive SNS use

and psychological distress. The following subsections will include more detail about the results of the hypotheses and related research questions.

Hypothesis One.

According to hypothesis one, loneliness was positively correlated to FoMO, and fully supported the research hypothesis. The findings also supported RQ1: Does the fear of missing out relate to loneliness? Finding from study revealed a strong path coefficient ($\beta = 0.455$) between loneliness and FoMO. This result was expected because the literature reviewed highlighted the deleterious effects of SNS use and its relationship to the increasing levels of loneliness, anxiety, and existential concerns among emerging adults in the 21st century (Adams, 2016; Arnett, 2000). The model indicated when the loneliness scale increased by 1 unit, the FoMO scale increased by 0.455 units. According to Van Rompay, et al. (2017), feelings of loneliness easily manifest when an individual is exposed to stories, information, or online content depicting another person's life as being more meaningful than their own lives.

As discussed in chapter two, researchers stated loneliness among college students is increasing because this demographic is consistently undergoing environmental, interpersonal, and existential changes (Burt & Masten, 2010; Gray, et al., 2014). Moody (2001) and Arnett (2000) also validated these findings suggesting emerging adults tend to feel lonelier and more disconnected when engaging in face to face connections, because they perceive the interaction is inferior compared to connections sustained online.

Hypothesis Two and Three.

According to hypothesis two and three, time spent on SNSs was positively correlated with FoMO and loneliness. This result supported the research hypotheses and affirmed RQ1: Does the amount of time spent on SNSs relate to FoMO and loneliness? This finding was

expected, as it aligns with earlier studies seeking to examine the effects of excessive SNS participation on psychological, emotional, and social wellbeing (Alt, 2015; Abel & Buff, 2016; Bicen, 2014; Bianchi & Phillips, 2005; Carbonnell, et al., 2018). In a recent study, Hunt, et al. (2018) confirmed that excessive SNS engagement had detrimental effects on psychological well-being. In Hunt, et al.'s (2018) study they found when students deliberately reduced or refrained from using social media for a significant period of time, they reported improvement in their mental health. Their research was significant because it was an experimental study; however, findings from this non-experimental study provides predictive data regarding the deleterious effects of SNSs, and it will serve as seminal resource to complement their study (Hunt, et al., 2018). Lastly, this study provides informative data to support the need for mindful SNS engagement among college students, and value of limiting the amount of time on SNSs to reducing negative emotions or distressing symptoms.

Hypothesis Four and Five.

According to hypothesis four and five, the results indicated there is was no relationship between related periods of SNS use (a) academic (c) relaxation & free and (e) motives of use, loneliness (H4) and FoMO (H5). But the related periods of use (b) public places and (d) stressful periods fully supported the research hypotheses, and answered RQ2 and RQ3: Do related periods of SNS use relate to loneliness and FoMO? According to Leung (2007), online media has significant mood regulating benefits. Leung (2007) also suggests the mood regulating effects from participation on SNSs provides the user with full control over the induction of more positive rewards and limitation of negative feedback (Baker, et al., 2016).

Despite there being no correlation between the related periods of use for (a) academic, (c)

relaxation & free and (e) motives for use, the literature reviewed in this study suggests college students possess a strong motive for SNS use in their everyday lives. In this study, the highest mean score among the related periods of use was motives for use (M=5.65), and relaxation-free periods was the second highest mean (M=5.51). These findings also coincide with a strong endorsement from the study participants, who suggested they participate on SNSs at least "Two times a day for no less than 10 minutes" to find people, communicate, and to maintain contact with families and friends (Olufadi, 2016). The results from this study along with literature reviewed validates the notion of college students having a motive to use SNSs to pass the time in public places, to connect with peers, and to cope with stress (Leung, 2007). Researchers Asilo, Manlapig, and Rementilla's, (2010), as well as Bicen (2014) found that university students mostly rely on SNSs for social connection, communication, and less for educational purposes or to pass the time during relaxation.

Findings from this study confirms there is more work to be done to fully examine the evolving uses and gratification nature of SNS engagement among adolescents and emerging adults (Chen, 2011). Future research will expose changes in SNS engagement over time, and expound upon the conceptual and theoretical framework presented in this study; which suggested there is a uses and gratification approach surrounding the way emerging adults use SNSs to fulfill their needs (Arnett, 2000; Chen, 2011).

Hypothesis Six.

According to hypothesis six, the results indicated there was no relationship between demographic characteristics (a) age, (b) gender, (c) ethnicity, and loneliness. However, (d) number of SNS accounts owned fully supported the research hypothesis and answered the RQ4: To what extent are students' demographic characteristics correlated to loneliness? Findings from

this study indicated, more than 50% of study participants owned at least 3-4 different social networking accounts. These findings validate claims made in literature regarding the multi-platform approach emerging adults take toward staying connected with family, friends, and peers (Asilo, et al., 2010).

As reviewed in the literature, researchers Kim, et al. (2009) suggests lonely and depressed individuals tend to prefer online communication for its anonymity, low risk of rejection, and emotion-focused properties. Previous studies have also shown those with deficient self-presentation skills tend to feel more confident with online interactions rather than face to face communication (Kim, et al., 2009). Thus, the findings from this study were expected, because the participant responses indicated that emerging adults in college may devote more time to building SNS profiles, and will engage on multiple SNS platforms to decrease feelings of loneliness.

Hypothesis Seven.

According to hypothesis seven, the results indicated there is no relationships between demographic characteristics (a) age, (b) gender, and FoMO. However, (c) ethnicity and (d) number of SNS accounts owned fully supported the research hypothesis, and answered RQ4: To what extent are students' demographic characteristics correlated to FoMO? The model predicted that when ethnicity =1 (i.e.,White/Caucasian), the FoMO scale was 0.192 units higher than when Ethnicity = 0 (i.e., minority groups-African American, Asian, and Latino/Latina). The model also predicted when the number of SNS accounts owned by a participant increased by 1 unit, the FoMO scale increased by 0.215 units. These findings confirmed assertions reviewed in literature regarding the trajectory of online self-promoting behaviors among emerging adults, as well as

their need to use SNSs to regulate psychological deficits, and gain social control (Buglass, et al., 2017).

In addition, this study's findings supported the SD theory perspective on need fulfillment and the use of SNSs to sublimate deficiencies in one's emotional and social well-being (Genner & Suss, 2017). Hypothesis seven also confirmed that when an individual experiences FoMO, they are compelled to accumulate a larger online network to increase social capital, and to satisfy their need for relatedness (Buglass, et al., 2017). While research has confirmed there is a positive correlation between self-promotion, SNS engagement, and FoMO, there is limited research on variances of FoMO between ethnic groups (Buglass, et al., 2017). Further research is needed to determine the antecedents of FoMO among Caucasian women and a more balanced data set between ethnicities (Chou & Edge, 2012).

Hypothesis Eight.

According to hypothesis eight, the results indicated there is no relationships between demographic characteristics (a) age, (b) gender, (c) ethnicity, and time spent on SNSs. However, (d) number of SNS accounts owned fully supported the research hypothesis and answered RQ4: To what extent are students' demographic characteristics correlated to time spent on SNSs. Because emerging adults tend to own and spend time on no less than three different SNSs platforms, findings from this study validated assertions made in literature regarding the importance of using a multi-platform measurement to examine time spent on SNSs (Olufadi, 2016). Early research highlighted emerging adults SNS account ownership is growing, and therefore, their reported time spent on SNSs might be higher than they realize and report on surveys (Olufadi, 2016, Oberst, et al., 2017) (Olufadi, 2016; Hunt, et al., 2018). Lastly, these results confirmed the growing support for the SNS industry, and the importance of using the

SONTUS instrument in future research (Olufadi, 2016). Further, the outcomes from this study may enhance SNS user awareness, and promote the development of solutions to reduce SNS engagement in vulnerable populations (Olufadi, 2015; Oberst, et al., 2017).

<div align="center">**Implications**</div>

Declining life satisfaction among emerging adults (EAs) has prompted higher education leaders, counselors, and parents to seek answers regarding how to evoke positive changes in the mental well-being of this purely digital generation (Kim & Lee, 2011). As previously discussed, future research is warranted to address the systemic challenges EA's face and to develop solutions to address their declining mental health. There are three implications of importance from this research: Implications for Higher Education Leaders, Implications for Counseling, and Implications for Advocacy and Education.

Implications for Higher Education Leaders

Understanding the antecedents of loneliness and social isolation.

Mental fitness is an important aspect of successful completion of a four-year degree (Adams, et. al., 2017). The first year of college is a time filled with newfound opportunities to establish autonomy over one's self; however, it is also a time where most students mental fitness and stamina is put to the test (Adams, et al., 2017). Within the first few weeks of college, students often find themselves overwhelmed by their newfound autonomy, and are ill-prepared to handle the myriad of stressors and challenges associated with adjusting to emerging adulthood (Arnett, 2000). Poor adjustment often includes challenges with balancing new schedules, academic demands, and finding a new community of friends to support their evolving identities (Arnett, 2000; Gray, et. al, 2013; Jones, 2009).

Adjustment related challenges is not new phenomenon among Gen Z's in college, who are facing levels of stress that are unrivaled compared to earlier generations (Markham, 2018). Today's college student is particularly stressed because of increasing cost, increasing academic demands, along with unexpected changes in their social support system (Bemardon, et al., 2011). The average college student often reports concerns related to financial obligations, grades, family, sexuality, physical health and nutrition (Adams, et al., 2017). Studies have shown that one in twenty college students report having a pre-existing mental health concerns before they begin college and often arrive with an existing prescription for anxiety and/or depression (Hartley & Morphew, 2008). The vast majority are experiencing their first signs of psychological distress, participate in self-destructive behaviors, and find it difficult to manage compulsive thoughts within the first semester of college (Esen, Aktas, & Tuncer, 2013).

Gen Z's are media-multi-taskers who have been socialized to value on screen communication over building the in-person relationships necessary for healthy college adjustment (Genner & Suss 2017). Early studies suggested traditional socialization manifests as an exogenous process where individuals adapt to their social environment by responding and modeling the social standards, rules and values within a given community (Genner & Suss, 2017; Walton, et al., 2012). Reliance on SNSs has robs students from the natural experience of accepting differences, resolving conflicts, and learning to help others in person (Genner & Suss, 2017). Researchers suggest Gen Z's have been subconsciously lured into social isolation because most of their communication takes place on a device or behind a screen (Genner & Suss, 2017). Considering the current generation's growing reliance on SNSs, an important question must be raised regarding whether higher education leaders are aware of the current socialization trends among Gen Z's, and if they are prepared to address the challenges undergraduate students face

when attempting to manage their basic need for belonging and relatedness (Gyberg & Lunde, 2015).

This study's findings confirmed the literature reviewed, as time spent on SNSs was found to be related to FoMO and loneliness among undergraduate college students, as the participants highly endorsed feeling shy, rarely felt lonely; but believed they always have someone to talk to (Russell, 1993). The findings also highlighted that most of the participants surveyed admitted to having a moderate degree of FoMO most of the time. This statement supports the premise of Gen Z's maintaining a strong desire social connection, being too shy for face to face communication, and using SNSs to serve as an effective resource to support deficiencies in their social needs (Kim, et al., 2009).

Responding to the threat of social isolation: Social health is mental health.

It doubtful that institutions of higher learning have fully considered and prepared for the impact of SNSs on this latest generation's mental health, their preferences for socialization and need for integration of SNSs into their everyday lives (Cress & Sax, 1998). Findings from this study highlighted the impact of SNSs on college student's social beliefs, communication habits, and social well-being. Research suggests, Gen Z's reliance on SNSs for interpersonal connection and communication also causes additional problems, such as relying more on their preferred online activity as a means to augment feelings of isolation, and to reduce distress (Kim, et al., 2009). Kim, et al. (2009) contends this notion of "shyness" endorsed by the study participants is actually a cover for loneliness. The challenge for higher education leaders, is to determine which students are in danger of greater self-destruction due to self-imposed social isolation, versus those who are socially healthy and simply prefer solitary activities. This dilemma supports assertions made in the review of literature regarding the threat of a silent social epidemic existing

on college campuses around the world, and the need for higher education leaders to intervene (Markham, 2018).

Self-determination theorist suggests the need for relatedness is a primary human need, and when needs go unmet, psychological decline is eminent (Patrick, et al., 2007). In keeping with this mindset, higher education leaders must pay close attention their campuses social climate and continually examine social well-being trends through the academic year; ensuring students who are socially silent on campuses are being nurtured in some capacity within the campus community (Knibbe & Luchies, 2013). Higher education leaders may need to shift their attention toward social health as a major threat to mental health (Jensen, 2018). As educational administrators recognize and attend to the paradigm of healthy socialization, they may be better able to address social threats looming around their campus communities (Astin, 1993).

As a method of practice, institutional leaders should consider developing creative strategies that illuminate opportunities for socialization, which include promoting social health models, increasing mental health services, and providing interventions designed to treat students with deficient social skills. In addition, higher education leaders should support campus mental health providers in developing programs that reduce stigmas associated with loneliness and promote social competences as an ongoing process (Patrick, et al., 2007).

Implications for Counseling

Recognizing and treating FoMO in emerging adults.

 Licensed counselors working in a higher education setting treat a variety of mental health disorders (Boateng & Amankwaa, 2016; Carbonell, et al., 2018). Adjustment related concerns are often a primary reason students' present to counseling; along with concerns about their social and emotional well-being (Deandrea, et al., 2012). Peer support and finding friends is

an essential part of warding off unpleasant feelings associated with the transition to college and solidifying one's place in the college environment (Gray, et al., 2013). It is evolutionary for students to worry about whether they belong, and the experience of being rejected can be a fundamentally distressing experience.

For emerging adults in college, failing to establish a strong, authentic, and dependable peer support system can have a detrimental effect on the individuals' sense of safety, survival, and ability to adjustment to college throughout the year (Esen, et al., 2013). When college students feel as though they are undesirable or unliked, it can also have a crippling effect on an individual's self-esteem (Knibbe & Luchies, 2013). Findings from this study indicated the majority of the participants reported experiencing at least a slight to moderate degree of FoMO as a current undergraduate college student. This strongly supports the need for counseling psychologist and therapists in a higher education setting to consider the prevalence of FoMO on their campuses, and the degree to which social pre-occupation impacts academic success and mental well-being.

It is also important for practicing providers to not simplify or overgeneralize emerging adults' symptoms as anxiety or adjustment-related concerns. Practitioners should begin to look closely into the social and emotional connections contributing to the presentation of anxiety-related symptoms (Van Rompay, et al., 2017). Adams (2016) suggests clinicians should dig deeper during the evaluative process and place FoMO under diagnostic consideration. Too often clinicians confuse FoMO with the anxiety sub-type Social Anxiety Disorder, which unlike FoMO is an official disorder within the DSM-5, and one of the most prevalent psychological disorders in the U.S (Adams, 2016). The primary presentation of FoMO is a form of anxiety, involving a preoccupation with missing out on social activities, as well the fear of being left out

socially for unknown reasons. Therefore, its presentation is very different from a social anxiety disorder because persons with FoMO desire connection; yet fear their connections and social networks are inadequate, as compared to others (Przybylski, et al., 2103). However, persons diagnosed with a social anxiety disorder experience varying levels of physical, psychological, and emotional discomfort before, during and after participation in a social experience (Harman, Hansen, Cochran, & Lindsey, 2005).

When clinicians begin to consider FoMO as a formidable diagnosis, they will be better able to provide emerging adults with opportunities to receive appropriate "phase of life" coping skills, and observe clients who are demonstrating a greater tolerance for unexpected stress in their daily lives.

Existential therapy, mindfulness and meditation to reduce anxiety.

Gen Z's in college require more than academic rigor to thrive, they need counseling services and additional support resources to reduce the increasing anxiety, depression, and loneliness. Recent trends regarding today's college student suggests they are dealing with a higher degree of existential stress than previous generations (Carbonell, et al., 2018). In a recent study, at least 50 percent of first years suggested feeling more overwhelmed by all they have to do, and feel depressed most of the time; a statistic that is steadily increasing since the question was first asked in 1987 (Carbonell, et al., 2018; Hartley & Morphew, 2008). Among the many domains of functioning (personal, social, emotional, and intellectual); emerging adults are inexperienced in conceptualizing the degree to which each area of functioning rests upon the other.

Emerging adults navigate various life changes that requires them to wrestle with their past, present, and future simultaneously, and without the benefit of life experience to ground

them in the moment (Arnett, 2000; Classens, 2009). This developmental stage causes individuals to be in constant flux, seeking absolution, as well as a sense of security within themselves and others (Classens, 2009). McMinn (1989) contends it is difficult to establish relatability while one is still getting to know oneself (McMinn, 1989). Existential therapy and mindfulness afford clients with a degree of existential awareness and greater insight into their emotional and social needs (Adams, 2016). From Christian worldview, mindfulness and meditation can help improve spiritual health and wellbeing, while also moving the client towards greater psychological health. McMinn (1989) suggests using scripture (with the client's consent) to evoke religious imagery as a technique to improve depression and reduce anxiety. Further, mediation is complementary with other techniques, such as progressive muscle relaxation (McMinn, 1989).

Treating a population who is often in developmental crisis, requires the use of flexible tools that affords clients opportunities for experiential confrontation, while continuing to grapple with the fundamental aspects of their transient identities. Together, existential therapy, mindfulness, and meditation have become effective interventions used to treat emerging adults because the interventions are flexible, non-judgmental, and can be tailored toward the individual's comfort, lifestyle, and tolerance (Classens, 2009). Considering, the findings from this study indicated there is a relationship between time spent on SNSs, FoMO, and loneliness. It will be important to teach student's mindfulness and meditation practices to provide them with immediate coping skills to support greater comfort in their moment to moment experiences, as well as manage negative thoughts and reduce stress (Classens, 2009; Hansen, 2011).

Implications for Advocacy and Education

Parental support and education: Launching and letting go.

Parental involvement is an essential part of academic success for emerging adults; however, the support provided should not occur at the expense of developmental autonomy (Cullaty, 2011). Studies have shown when parents contribute to their child's emotional autonomy, it allows the students to gain valuable life skills, learn how to make appropriate choices, and to solve problems on their own before entering college (Cullaty, 2011). Students who are deficient in parental support often stumble as they navigate their newfound autonomy, lack of structure, and interdependence (Adams, et al., 2017; Cullaty, 2011). Some of the most prominent challenges these students face are time management problems, sleep disturbances, feeling uncertain, and the need for constant approval (Adams, et al., 2017). Learning to set and maintain one's own personal boundaries, along with understanding how to initiate self-care is an ongoing challenge for most; but first-years find it particularly difficult (Adams, et al., 2017).

Emerging adults have turned to SNSs to augment their short-comings, and parents are often blind-sided by the degree of stress their emerging adults experience on a daily basis (Dossey, 2014). Cullaty (2011) suggests parents of Gen Z's are parenting in fear and have relinquished the task of teaching children how to think and act independently, primarily because they have accepted their emerging adults' reliance on SNSs for information. Cullaty (2011) suggests there is a significant connection to low levels of resilience in emerging adults, and the presentation of overly anxious, under involved parents. Given that most of the participants in this study acknowledged having FoMO and maintained more than 3-4 SNS accounts; it would be prudent for parents to re-engage in their emerging adults' developmental process. Dossey (2014) suggests the term "parent" means "to bring forth", and for this to happen, there needs to be appropriate instruction delivered in the home to promote self-reliance, self-assurance and adequate decision-making skills.

Parent education may include, helping emerging adults learn the value the silence and stillness, which includes wisely limiting the use of electronic devices and gadgets in early adolescence (Dossey, 2014). The emerging adult brain is malleable, fragile, vulnerable, promising, and indescribably precocious, but even emerging adults are not wise enough to understand the value of preserving their mental health (Dossey, 2014). This study validated the growing reliance on SNSs among emerging adults, and parents should not be afraid of moderating use early on to help older adolescence become aware of the negative consequences associated with excessive time spent on their devices (Cullaty, 2011). With increased parental involvement and education, emerging adults may be better prepared for a higher education experience, demonstrate more tolerance of distress, and exhibit the resilience needed to thrive in a higher education setting (Adams, et al., 2017, p. 358).

Learning to manage time spent on SNSs: Mental health before social health.

In a generation where the individuals are conditioned towards instantaneous information, and the efficiency of communication technologies, non-virtual interactions are almost becoming obsolete (Alt, 2015). As reviewed in literature, advancements in technology have blurred the line of personal communication styles and changed the way we communicate with others on an everyday basis. The current generation of college students is characterized as a highly evolved in information technology and multitasking communication (Alt, 2015). Researchers suggest Gen Z's are more focused on social interaction, connectedness, and acceptance from others, and tend to spend the majority of their time on mobile phones, chat-rooms and other online networks to achieve social adequacy (Adams, et al., 2017). Gen Z's do not simply work on one platform at a time; they participate on various platforms and devices such as gaming, listening to music, and watching television simultaneously (Adam, et al., 2017, p. 358). The findings from this study

complement the literature reviewed, as participants acknowledged owning multiple SNSs to sustain connection with peers, family, and friends.

In a recent study of undergraduate college students, 50% of the participants suggested they would swap sleep for socializing on SNSs or playing games with friends in person (Adams, et al., 2017). This strongly supports the SD theorist premise regarding emerging adults need for relatedness, competence, and autonomy. Findings from this study confirm that FoMO is a consequence of the emerging adult existential crisis and unmet developmental needs (Lin, 2016; La Guardia & Patrick, 2009).   Earlier research suggested excessive social networking site participation is motivated by the need to satisfy psychological deficits, and to reduce mental distress (Chin-Siang Ang, Talib, Tan, Tan & Yaacob, 2015). Findings from this study complements the SD theory because the results reflected positive path coefficients for stress-related use and was also positively correlated with loneliness and FoMO. (Vink, 2016).

One major antidote to manage time spent on SNSs is to practice deliberate stress relaxation techniques such as mediation and mindfulness. As stated earlier, meditation and mindfulness activate the soothing and calming parasympathetic domain of the nervous system, which allows emerging adults to gain immediate and direct benefits from evoking a time of silence (Hanson, 2011, p. 55-56). Arnett (2000) suggests silence use to be golden; however, emerging adults have evolved in a society where silence is non-existent (Arnett, 2000). For the emerging adult in the 21[st]century, the thought of being left alone with one's thoughts has become too out of the ordinary to embrace, and the practice of meditation is often more uncomfortable than the initial distress felt (Arnett, 2000).

Arnett (2000) suggests a movement towards silence is needed to establish inner awareness. Hanson (2011) suggests this can be accomplished by embracing opportunities for

purposeful solitude, being more intentional about managing the amount of time spent on SNSs, and becoming present in one's own natural environment. The results of this study confirmed that emerging adults use multiple SNS platforms to engage their interest while in public places and when they are stressed. For college students, the benefit of exercising a time of SNS restraint may prove beneficial in areas of academic achievement, physical well-being, and mental fitness (Hanson, 2011). An example of taking advantage of a SNS "time out" includes, going for a long walk, and powering down the device for at least one hour each day.

It would be more beneficial for emerging adults to use free mental health apps such as (Mood Path, HeadSpace and Youper), which allows users to engage in mindfulness practices without the interruption of alerts from Facebook, Twitter, SnapChat or Instagram (Hanson, 2011). Taking small steps to disconnect can lead to larger ones, which may eventually include regular activities without technology options for self-care and mental health management.

Limitations

This section will briefly discuss the study limitations, researcher observations and/or conditions that influenced the study methods and subsequent results. The limitations for this study included difficulty obtaining sample population emails for recruitment, the recruitment timeframe, and survey challenges.

Recruitment

Sample Population.

Prior to recruitment and launch of the study, the researcher requested a listing of students that meet the sample population criteria (college students ages 18-22). The initial request from the University of Richmond was obtained in August of 2019, and the listing included 2,753 students. The researcher was also required to get permission for a listing of student emails during

the Institutional Review Board application process at Liberty University. Upon IRB approval, a

ticket was submitted to the Information Services department and a list of 1,500 students was

emailed to the researcher. During the dissertation proposal, the researcher anticipated the request

for Liberty University student emails would occur during the IRB approval process and would

include access to all Liberty undergraduates' students. However, the approval only afforded the

researcher access to a much smaller subset of students. The smaller data set created an

imbalanced response rate between the colleges and was a noted disadvantage in generating

symmetrical data between the University of Richmond and Liberty University. Perhaps, a larger

listing of students from Liberty University would have provided a stronger comparative analysis

between the colleges that could have been analyzed as a significant source of data in the study.

This is a clear gap in the study and should be considered for future research.

Distribution of recruitment email/letter.

The latter half of the fall semester can be a busy time of the year for college students.

Most often, students are finalizing mid-term exams or returning from a brief time away from

campus during (Fall Break). There was a need to send emails to the sample population after mid-

terms exams and before the final exam period. After IRB approval in late October 2019, there

was a slight delay in obtaining permission from Liberty University to receive an approved listing

of participants that fit the study demographic criteria. Upon receipt of the approved listing from

both colleges, a mail merge of both listings was created, and emails were prepared to send to

prospective participants. Thus, the recruitment began on November 1, 2019. The recruitment

letter was emailed to 4,253 students who met the study criteria, allowing participants to the

access the anonymous survey link. The initial response was positive, as more than 150 survey

responses were received during the first 48 hours, and an additional 100 responses by the close

of the survey on December 5, 2019. The response rate expectedly decreased after two weeks. It is not possible to determine if recruiting participants in the latter part of the semester contributed to the existing yield (N=258), and if the response rate would have been higher if recruitment began in late September or early October. A higher yield from both colleges was desired (N=375), and perhaps the complication associated with retrieving the listing, in concert with the later recruitment window played a part in the overall participation yield.

Survey Challenges

Survey fatigue and apathy.

Survey nonresponse has been increasing both in the United States and internationally, and much of the nonresponse is due to rising rates of refusal (Porter, Whitcomb & Weitzer, 2004). Factors contributing to an individual's lack of desire to participate in the study may be associated with general apathy or lack of interest, as well as survey fatigue. Apathy and lack of interest in a research topic is an understandable variable in research, as participants lack of response is often a direct limitation for retrieving data. Survey fatigue is a well-known construct that occurs when a given population is being "overexposed" to multiple surveys at any given time (Heerwegl & Loosveldt, 2006). During the process of requesting student emails for both colleges, the researcher was made aware that college students are often the recipients of several internal surveys within their respective colleges, as well as from external parties. While the student is free to respond to as many surveys as they desire, Heerwegl and Loosveldt (2006), suggests that the influx of survey within one academic year may increase survey fatigue, survey apathy, and unwelcomed surprises with the response rate among the sample population of participants.

Survey Length.

Heerwegl and Loosveldt (2006), suggests that longer surveys often cost researchers in their endeavor to achieve a high yield of responses. An example of a long survey would include one that takes approximately 20 minutes to complete. Heerwegl and Loosveldt (2006) also highlighted that informing participants in advance of the survey about the length may deter participants from participation or may affect completion. The survey for this research study included 93 questions and took approximately 10 minutes to complete. This research study included 406; however, 148 responses were excluded due to incompletion or delimitation. Thirty-five percent of responses were removed from the survey data. Thus, strong consideration should be given to the number of questions used in a survey.

The incentive offered for participation in this study was included as a counter active measure to address potential survey fatigue. There is no clear indication if the incentive positively supported the response yield or if the survey length, fatigue and apathy influenced the response rate.

Recommendations for Future Research

This study focused on relationships between time spent on social networking sites, the fear of missing out, and loneliness among college students. The study also illuminated the notion of related periods of use (a) academic (b) public places, (c) relaxation & free, (d) stress, and (e) motives as a salient factor in examining time spent on SNSs, the fear of missing out and loneliness among college students. The instruments used in the study included a demographic questionnaire (age, gender, ethnicity, number of social networking accounts), the Fear of Missing Out Scale (Pzylesbeski, et al., 2013), and the Loneliness Scale (Version 3) (Russell, 1996), and the SONTUS (Time Spent on Social Networking Sites Scale) (Olufadi, 2016). The instruments proved to be effective measurements for this study and will also be useful for future research.

The reported level of FoMO among the participants indicated most participants endorsed the FoMO rating ("Moderately true of me") feeling bothered when they missed out on a planned get-together with friends (M=2.91). The lower threshold for most participants suggested they "feel it important to share their details online when they have a good time" (M=1.71). Based on the results, future researchers may want to explore why emerging adults in college feel a sense of FoMO when missing out on a planned get-together, and yet after attending, they feel less inclined to share post about the details or value of the event. These results also illuminated the findings from the literature reviewed, suggesting the etiology of FoMO is rooted in the need to belong or to feel socially connected in the moment (Greenwood & Long, 2011; Germaine-Brewley, 2018). It would be important for future studies to continue examining the fear of missing out and its relationship to belongingness and social relatability.

The reported level of loneliness among the participants reflected that most students on average endorsed the statement "I sometimes feel shy" (M=2.81). In addition, students reported "feeling that they rarely have people to talk to" (M=1.75). The most surprising result indicated most participants "rarely felt lonely", and loneliness did not correlate to time spent on SNSs. This prompts the need for continued and further research on the notion of SNSs being self-prescribed by the user as a resource to abate feelings of loneliness, in which case they underreport or fail to acknowledge their own sense of loneliness. According to Russell, et al. (2013), popular measures of loneliness, such as the UCLA Loneliness Scale has traditionally been the goal standard for measuring loneliness. Loneliness has become a global phenomenon and should include a multi-pronged approach for assessment. Loneliness can include multiple domains (social, emotional, existential, romantic, and familial). Developing a newer instrument may improve researcher's ability to capture latent responses on loneliness related feelings

(Moody, 2001). Further, a newer instrument may better account for SNSs use as a mediator for loneliness.

Lastly, the participants demographic make-up included emerging adults ages 18-22 who were mostly representative of white female in their 4th year of college. While age and gender was not a statistically significant demographic characteristics represented in this study, a future study could examine time spent on social networking sites, the fear of missing out, and loneliness among Caucasian women in a college setting (Chou & Edge, 2012). The demographic characteristics also highlighted lower participation among students of color, which is not a surprising realization. Because studies continually report lower responses in students of color, examining time spent on SNSs, the fear of missing out, and loneliness among students of color in a higher education setting remains unclear (Germaine-Bewely, 2018).

As highlighted during the discussion of research limitations in this study, a higher yield of responses from Liberty University would have provided a stronger comparative analysis between an evangelical college and a non-evangelical college, as it relates to time spent on SNSs, FoMO, and loneliness. Therefore, a future research question could ask whether religiosity is a moderator for time spent on SNS, loneliness, and FoMO among college students.

Summary

Emerging adults in college occupy a unique phase of life with multiple changes, a myriad of demands, and a great deal of possibilities. College student finds themselves flooded with a perfect storm of challenges and concerns, amidst the necessity to establish a congruent identity. Dossey (2014) suggest that our brains are relentless shapeshifters that are constantly rewriting its own circuitry, and is directly in control of everything we think, feel, and do. With the speed and growth of technology, we are just now beginning to understand the physical and mental

ramifications of excessive SNS use. Scientists have recognized the Fear of Missing Out (FoMO) as a new psychological disorder, and found that the popularity of cell phones and the growth of social networking sites has contributory to increases in FoMO, loneliness, and compulsive checking behaviors among emerging adults in a college setting (Dossey, 2014).

While loneliness is an emotion apparent in nearly every species, and the fear of missing out is a relatively new syndrome that is often overlooked as a stand-alone disorder among mental health providers. This study addressed a limitation in research and found the time spent on social networking sites is related to loneliness and the fear of missing out among undergraduate college students. This study also confirmed FoMO is singularly correlated with loneliness among undergraduate college students. Researchers agree SNS use is the driving force behind FoMO, and FoMO is linked to lower levels of needs satisfaction and low levels of life satisfaction (Dossey, 2014; Linley, Maltby, Wood Osborne & Hurling, 2009). Given FoMO's correlation to loneliness in this study, its questionable whether students are capable of recognizing how much time they spend on SNSs or are able to distinguish between loneliness and the fear of missing out. Therefore, the vicious cycle of FoMO may require continued examination, as users continue to substitute SNS engagement for real face to face time with others (Dossey, 2014).

When life is spent on social networking sites, it can cause users to be perpetually somewhere else, while at the same time be perpetually alone (Dossey, 2014). Emerging adults must become vigilant in their stance against accepting FOMO as a natural part of life, become more mindful in their SNS use, and attend to their present moment experiences (Hanson, 2011). Early education and interventions from parents and higher education leaders may encourage exploration, improve adjustment related challenges, and increase resilience in college students before mental health challenges take root.

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Appendix A. Approved Consent Form

CONSENT FORM

**Time Spent on Social Networking Sites (SNSs), Fear of Missing Out (FoMO), and
Loneliness among Undergraduate College Students**

Chantelle E. Bernard, Doctoral Candidate Liberty University School of Behavioral
Science/Department of Community Care and Counseling

You are invited to participate in a research study examining time spent on social networking
sites (SNSs), the Fear of Missing Out (FoMO), and Loneliness among Undergraduate College
Students. Undergraduate college students who are 18-22 years of age are encouraged to
participate in the study. Please review the study details and ask any questions you may have
before moving forward with the study.

Chantelle E. Bernard, Doctoral Candidate in the School of Behavioral Science at Liberty
University, is conducting this study.

Background Information: The purpose of this study is to determine if there is a relationship
between time spent on social networking sites (SNSs), the Fear of Missing Out (FoMO), and
loneliness among undergraduate college students. This study will also seek to determine if the
periods of use (academic, free time, stress, and public use), as well as motives of use have a
relationship to FoMO and loneliness in undergraduate college students.

Procedures: If you agree to participate in this study, I would ask you to do the following things:

Complete the entire survey. The survey will take approximately 10 minutes to complete and will
include the following:

- Demographic Questionnaire
- Fear of Missing Out Scale
- UCLA Loneliness Scale (Version 3)
- SONTUS (Social Networking Time Use Scale)

At the end of the survey, participants will be offered an opportunity to provide their email
address and phone number for prize redemption purposes only.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you
would encounter in everyday life.

Benefits: Participants should not expect to receive a direct benefit from participating in this study.

Benefits to Society: This research may also help future researchers better understand the relationships between time spent on (SNSs), as it relates to levels of loneliness and the Fear of Missing Out (FoMO) among college students.

Compensation: Participants will not be compensated for participating in this study; however, those who complete the survey will be offered an opportunity to enter into a drawing to win an iPad mini or 1 of 20 gift cards for $25. At the end of the survey, participants will be re-directed to an outside email address to provide their contact information for prize redemption purposes. At the close of the survey, 21 participants will be randomly selected and contacted about the outcome of their prize. Prizes will be delivered to participants by mail based on the contact information provided at the close of the survey.

Confidentiality: The records of this study will be kept private. Research records will be stored securely, and only the researcher and the researcher's faculty chair will have access to the records.

- Participant responses will remain anonymous, and participants will not be asked to provide any identifying personal information.
- Participants will be re-directed to an outside email address at the end of the survey and given the option to provide contact information for prize redemption purposes.
- Respondents selected for one of the prizes will be contacted and will receive their prize by mail based on the contact information provided. Contact information listing will be deleted immediately after the drawing.
- The data from the survey will be stored within the Qualtrics, a cloud-based survey software. Qualtrics treats all data as highly confidential affords researchers the ability safeguarded all data using a statistical method that anonymizes and aggregates the data to decrease or eliminate personal identification on the survey.
- At the close of the survey, the data will be retrieved from Qualtrics by the researcher and exported into the SMART PLS statistical software for final analysis.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether to participate in this study will not affect your current or future relations with Liberty University or the institution in which you are affiliated. If you decide to participate, you are free to withdraw at any time, prior to submitting the survey, without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please exit the survey and close your internet browser. Your responses will not be recorded or included in the study.

Contacts and Questions: The researcher conducting this study is Chantelle Bernard, Doctoral Candidate. If you have questions, you are encouraged to contact Chantelle Bernard, Ed.S, MA. You may also contact the researcher's faculty chair Dr. Angel Golson.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, you are encouraged to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 2845, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

Appendix B: Recruitment/Email

Research Study: Time Spent on Social Networking Sites, FoMO, and Loneliness, Among Undergraduate College Students

Dear Prospective Research Participant:

I am writing to invite you to participate in my study. As a graduate student in the School of Behavioral Sciences at Liberty University, I am conducting research as part of the requirements for a Doctor of Education degree. The purpose of this study is to determine if internalizing feelings such as loneliness and Fear of Missing Out (FoMO) are predictive of the amount of time that college students spend on social networking sites. Furthermore, this research may provide scholarly efficacy and validation of the need for alternative means for social connectedness and to mitigate the negative consequences of excessive time spent on social networking sites (SNSs).

The study will involve participation in an anonymous online survey and should take approximately 10 minutes to complete. No personal identifying information will be collected or connected to the survey results. At the end of the survey, participants will be offered an opportunity to enter a drawing to win an iPad mini or 1 of 20 gift cards for $25.

To participate in the study, you may access the anonymous online survey by clicking here from your personal computer or by the QR Code *below* from any handheld electronic device. Upon entering the survey, you will be provided additional information about my research, and will be given the option to consent to participation. At the end of the survey, participants can provide their contact information via email for prize redemption purposes only (optional).

Sincerely,

Chantelle E. Bernard, Ed.S, MA, LPC
Doctoral Candidate, School of Behavioral Sciences
Community Care and Counseling

Appendix C: Recruitment Flyer

Appendix D: Recruitment Postcard

Appendix E: Demographic for Recruitment

What is your age?

1. 17-**or younger-End Survey**

2. 18

3. 19

4. 20

5. 21

6. 22

7. 23 **older-End of Survey**

What is your Class Affiliation?

1. Freshman

2. Sophomore

3. Junior

4. Senior

5. Graduate/Medical/Law-**End of Survey**

Ethnicity

1. African-American

2. Asian/Southeast Asian

3. Caucasian

4. Latin-American, LatinX

5. Multi-racial

What is your gender?

1. Female

2. Male

3. Non-Binary

Number of Social Networking Accounts Owned

1. 1-2

2. 3-4

3. 5-6

4. 7 or more

Appendix F: Fear of Missing Out Scale: FoMOs

Fear of Missing Out Scale: FoMOs

Przybylski, Murayama, DeHann, & Gladwell (2013)

Participant Instructions

Below is a collection of statements about your everyday experience. Using the scale provided please indicate how true each statement is of your general experiences. Please answer according to what really reflects your experiences rather than what you think your experiences should be. Please treat each item separately from every other item.

Response Anchors

Not at all true of me		1
Slightly true of me		2
Moderately true of me		3
Very true of me		4
Extremely true of me		5

Items

1. I fear others have more rewarding experiences than me.
2. I fear my friends have more rewarding experiences than me.
3. I get worried when I find out my friends are having fun without me.
4. I get anxious when I don't know what my friends are up to.
5. It is important that I understand my friends "in jokes."
6. Sometimes, I wonder if I spend too much time keeping up with what is going on.
7. It bothers me when I miss an opportunity to meet up with friends.
8. When I have a good time it is important for me to share the details online (e.g. updating status).
9. When I miss out on a planned get-together it bothers me.
10. When I go on vacation, I continue to keep tabs on what my friends are doing.

Calculating Individual Scores

Individual scores can be computed by averaging responses to all ten items and forms a reliable composite measure (α = .87 to .90).

How to Cite

Przybylski, A. K., Murayama, K., DeHaan, C. R., & Gladwell, V. (2013). Motivational, emotional, and behavioral correlates of fear of missing out. *Computers in Human Behavior, 29*, 1814-1848.

Notes on Use
* Where and when possible, randomize the presentation order of these items.
* I am interested to hear about how the work is being used.
* This scale is provided free for personal and academic use.
* If you want to use this measure in a commercial or for profit organization let me know and we can work out licensing.

Appendix G: UCLA LONELINESS SCALE (VERSION 3)

Removed to comply with copyright

Appendix H: SONTUS (Social Networking Time Use Scale)

Appendix

Kindly use the scale below to indicate how often you always use the social networking sites like Facebook, Instagram, WhatsApp, Twitter, Myspace, Pinterest etc., during the past week in the following situations and places:

1 = Not applicable to me during the past week.
2 = I never used it during the past week.
3 = I used it once during the past week but spend less than 10 min.
4 = I used it once during the past week but spend between 10 and 30 min.
5 = I used it once during the past week but spent more than 30 min.
6 = I used it between 2 and 3 times during the past week but spend less than 10 min each time.
7 = I used it between 2 and 3 times during the past week but spend between 10 and 30 min each time.
8 = I used it between 2 and 3 times during the past week but spent more than 30 min each time.
9 = I used it more than 3 times during the past week but spend less than 10 min each time.
10 = I used it more than 3 times during the past week but spend between 10 and 30 min each time.
11 = I used it more than 3 times during the past week but spent more than 30 min each time.

Table A1. The 52 items used for the factor analysis.

Items	1	2	3	4	5	6	7	8	9	10	11
1. When you are at home sitting idly											
2. When you are watching TV, news, football, films, sports, etc.											
3. When you are in the office but idle											
4. When you are waiting for someone (e.g., friends) either in their house or at a pre-arranged place											
5. When you are waiting for a bus/train at the bus/train station											
6. When you are in the company of friends/family/colleagues having fun											
7. When you are at a place to repair your car, house appliances, etc.											
8. As a driver when trapped in heavy traffic for at least 2 min											
9. When you are eating or drinking outside your home e.g., cafeteria											
10. When you are relaxing											
11. When you are in bed about to sleep											
12. When you are at the clinic/hospital waiting to be attended to by the doctor											
13. When you are listening to music, radio, religious lectures etc.											
14. When you are a passenger in a car/bus/train for at least 2 min											
15. When you are waiting for your boss in her office for at least 2 min when she is not attending to you											
16. When you are at the market, shopping mall etc.											
17. When you are sitting in a religious place (e.g., church/mosque) and religious activities like prayer or sermon is in progress											
18. When you are at the place of work with a lot of work to do											
19. When you are at the clinic/hospital receiving treatment											
20. When you are sitting in a religious place (e.g., church, mosque) and activities like sermon or prayer is yet to start											
21. When you are walking on the street, road-side, class corridors etc.											
22. When you go to the stadium to watch football, basketball etc.											
23. When you are reading in the library for non-academic purpose e.g., reading the newspaper											
24. When you are at a social gathering like "(wedding ceremony, birthday party, reception etc)											
25. hen you go to the cinema house to watch movie(s)											
26. When you are in the class receiving lecture											
27. When you are reading/studying for academic purpose outside the library e.g., at home											
28. When you are reading in the library for academic purpose e.g., recommended text for class											

Appendix (continued)

Items	1	2	3	4	5	6	7	8	9	10	11
homework											
31. When you are at a seminar/workshop or training program											
32. When you are doing school or job-related assignment at home											
33. Watching academic-related video lectures or those related to your job											
34. When you are sitting in a religious place (e.g., church, mosque) to learn about your religion											
35. When you need to reduce your mental stress											
36. When you want to reduce the pressure of your daily routines											
37. When you have emotional worries											
38. When you have gone through a lot of stress											
39. When you are trying to forget your financial challenges											
40. When you need to reduce your emotional stress											
41. When you need to reduce your physical stress											
42. When you need to find people you haven't seen for a while											
43. When you need to find out more about people you met offline											
44. When you need to communicate with your families and friends											
45. When you need to maintain contact with existing friends											
46. When you are cooking											
47. When you are eating or drinking at home											
48. When you are dressing up for class or office											
49. When you wake up in the morning											
50. When you wake up in the midnight and couldn't sleep again											
51. When you are on a queue for at least 2 min											
52. When you are in a meeting											

Table A2. Social networking time use scale (SONTUS).

Item	1	2	3	4	5	6	7	8	9	10	11
1	When you are at a seminar/workshop or training program										
2	When you are at home sitting idly										
3	When you need to reduce your mental stress										
4	When you go to the stadium to watch football, basketball etc.										
5	When you are doing school or job-related assignment at home										
6	When you are waiting for someone (e.g., friends) either in their house or at a pre-arranged place										
7	When you are listening to music, radio, religious lectures etc.										
8	When you have gone through a lot of stress										
9	When you are in a meeting										
10	When you are in the class receiving lecture										
11	When you need to maintain contact with existing friends										
12	When you are in bed about to sleep										
13	When you are reading in the library for academic purpose e.g., recommended text for class										
14	When you are at a place to repair your car, house appliances, etc.										
15	When you need to reduce your emotional stress										
16	When you want to reduce the pressure of your daily routines										
17	When you are at a social gathering like wedding ceremony, birthday party, reception etc.										
18	When you need to communicate with your families and friends										
19	When you are sitting in a religious place (e.g., church, mosque) and activities like sermon or prayer is yet to start										
20	When you need to find out more about people you met offline										
21	When you are in the company of friends/family/colleagues having fun										

Appendix (continued)

Item	1 2 3 4 5 6 7 8 9 10 11
22 When you are watching TV, news, football, films, sports, etc.	
23 When you go to the cinema house to watch movie(s)	
24 When you are a passenger in a car/bus/train for at least 2 min	
25 When you need to find people you haven't seen for a while	
26 When you are waiting for your boss in her office for at least 2 min when she is not attending to you	
27 When you are trying to forget your financial challenges	
28 When you are online doing school or job-related works e.g., project, homework	
29 Watching academic-related video lectures or those related to your job	

Appendix Scoring. of the SONTUS

In scoring the SONTUS, five component scores are derived. The components scores are summed to produce a global score that ranges from 5 to 23. This approach is in line with the results of our confirmatory factor analysis, which reveals a 5 first-order factors with a 1 second-order factor as the best model for the SNOTUS construct.

Coding Instruction: each and every items in SONTUS is coded as follows:

1 = if a respondent select the Likert scale 1–3.
2 = if a respondent select the Likert scale 4– 6.
3 = if a respondent select the Likert scale 7–9.
4 = if a respondent select the Likert scale 10 or 11.

Component 1: relaxation and free periods.

Sum of items 2, 6, 7, 12, 14, 21, 22, 24 and 26 scores	Component 1 score
9–12	1
13–16	2
17–20	3
21–24	4
25–28	5
29–32	6
>32	7

Component 2: academic-related periods

Sum of items 1, 5, 10, 13, 28, and 29 scores	Component 2 score
6–9	1
10–13	2
14–17	3
18–21	4
>32	5

Component 3: public-places-related use.

Sum of items 4, 9, 17, 19, and 23 scores	Component 3 score
5–8	1
9–12	2
13–16	3
17–20	4

Component 4: stress-related Periods.

Sum of items 3, 8, 15, 16, and 27 scores	Component 4 score
5–8	1
9–12	2
13–16	3
17–20	4

Component 5: motives for use.

Sum of items 11, 18, 20, and 25 scores	Component 5 score
4–7	1
8–11	2
>11	3

Global SONTUS score: sum of the five component scores: _____
  Interpretation:

- An individual with a global score that ranges from 5 to 9 is regarded as low user of SNSs.
- An individual with a global score that ranges from 10 to 14 is regarded as average user of SNSs.
- An individual with a global score that ranges from 15 to 19 is regarded as high user of SNSs.
- An individual with a global score that is more than 19 is regarded as extremely high user of SNSs.

Note: A program is under preparation for easy scoring of the items in the SONTUS.

Appendix I: Stamped IRB Approval-Liberty University

LIBERTY UNIVERSITY.
INSTITUTIONAL REVIEW BOARD

October 15, 2019

Chantelle E. Bernard, EdS, MA
IRB Exemption 3937.101519: Lonely Z's: Examining the Relationships among Time Spent on
Social Networking Sites, the Fear of Missing Out, and Loneliness among Undergraduate College
Students

Dear Chantelle E. Bernard, EdS, MA,

The Liberty University Institutional Review Board has reviewed your application in accordance
with the Office for Human Research Protections (OHRP) and Food and Drug Administration
(FDA) regulations and finds your study to be exempt from further IRB review. This means you
may begin your research with the data safeguarding methods mentioned in your approved
application, and no further IRB oversight is required.

Your study falls under exemption category 46.101(b)(2), which identifies specific situations in
which human participants research is exempt from the policy set forth in 45 CFR 46:101(b):

> (2) Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude,
> achievement), survey procedures, interview procedures, or observation of public behavior (including visual
> or auditory recording) if . . . the following criteria is met:
>
> > (i) The information obtained is recorded by the investigator in such a manner that the identity of
> > the human subjects cannot readily be ascertained, directly or through identifiers linked to the
> > subjects;

Please note that this exemption only applies to your current research application, and any
changes to your protocol must be reported to the Liberty IRB for verification of continued
exemption status. You may report these changes by submitting a change in protocol form or a
new application to the IRB and referencing the above IRB Exemption number.

If you have any questions about this exemption or need assistance in determining whether
possible changes to your protocol would change your exemption status, please email us at
irb@liberty.edu.

Sincerely,

Administrative Chair of Institutional Research
Research Ethics Office

LIBERTY
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Appendix J: IRB Approval-UR

Notice of Action

From: University of Richmond Institutional Review Board for the Protection of Human Subjects of Research (URIRB)
 Project Number: URIRB181114

Date of Action: 11/18/18

Project Name: Fear of Missing Out (FoMO), Loneliness, and Time Spent on Social Networking Sites

Primary Investigator(s): Chantelle Bernard

Your research is approved by the University of Richmond IRB (URIRB) via the expedited review process. Your project must comply with the standards established by the Code of Federal Regulations (45.CFR.46) pertaining to human participant protections. The specific conditions for this approval are described in the attached Notice of Action. Please review those conditions before filing this email and the notice of action in your project files. <u>After you have reviewed the conditions of approval in the attached Notice of Action and made certain your procedures are in compliance with those conditions, you can initiate your project.</u>

Please note:
- Your study has been assigned a URIRB study number. Please reference this number in any future correspondence with URIRB.
- Approval is for a period of one year. Before the expiration date, you are required to officially close your investigation by removing all identifying information from any data you have collected; stored data sets must be de-identified once the project is complete. If this research project extends beyond one year from the date of this letter, a request for renewal of approval must be filed at least 2 weeks prior to the expiration date.
- If you witness any signs of research misconduct, please notify the University's Research Integrity Officer. Research misconduct includes falsification, fabrication, or plagiarism. For more details, go to https://irb.richmond.edu/policies-resources/research-misconduct-policy.pdf

Please contact the office of the URIRB if you have any questions at IRB@richmond.edu.

Good luck with your research.

Best regards,

Professor of Psychology and IRB Chair