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Need to Belong, Fear of Missing Out, and Social Media Use: Predictors of Perceived Social Rejection

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Walden University
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Abstract

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Social Rejection

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MA, Walden University, 2015

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Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

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Abstract

The decline in mental health among U.S. college students is a significant concern. Research suggests that social media use may contribute to this decline. Heavy reliance on social media has been linked to feelings of loneliness and disconnection, psychological distress, and a fear of missing out on rewarding social experiences, which may ultimately trigger feelings of social rejection. Using a foundation of need to belong theory, the purpose of this quantitative study was to examine individual differences in the need to belong, fear of missing out, and social media use as predictors of emotional and behavioral reactions to ambiguous social situations where social rejection can be inferred. Online survey data from 157 undergraduate students who use social media were collected using the Need to Belong Scale, Fear of Missing Out Scale, Social Networking Time Use Scale, and the Rejection Scenarios Questionnaire. Results from a hierarchical multiple regression revealed that increases in need to belong, fear of missing out, and social media use predicted heightened negative emotional reactions as well as avoidant and complaining behavioral reactions to perceived social rejection. Social media use and the fear of missing out predicted retaliation behavior in response to rejection. The predictor variables were not related to not acting friendly behavior. This study can promote social change by informing policy and instruction on digital media literacy, social media use in the classroom, and therapeutic interventions offered by campus psychological services, all of which can positively influence college students' mental health and wellbeing.

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Dedication

This work is dedicated to my husband, John Perna. I will be forever grateful for the devotion, encouragement, inspiration, and emotional support you provided throughout this journey. Thank you for always having my back and giving me the strength to keep moving forward. I truly could not have done this without you.

To my son, Dub, who sacrificed too much time away from me during the past 10 years so that I could pursue an education and build a better life for us. Although this educational journey was challenging for us both, I hope this has taught you that with hard work and perseverance anything is possible.

To my parents, Bill and Sarah Moore, thank you for instilling in me the resilience and courage I needed to pursue my educational goals. Daddy, more than you realize you led by example and taught me the value of hard work. Mama, thank you for always being my biggest cheerleader.

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Chapter 1: Introduction to the Study

Introduction

The decline in college student mental health is a significant concern on college campuses across the United States (Lipson, Lattie, & Eisenberg, 2019). It is estimated that one in three college students experiences psychological distress that warrants clinical attention (Lipson et al., 2019). From 2007 to 2017, college students diagnosed with a mental health disorder increased from 22% to 36% (Lipson et al., 2019). The American College Health Association (2016) also reports that 52.7% of undergraduate students feel hopeless, 67.3% feel very lonely, 61.9% experience overwhelming anxiety, and 39.1% experience depression that interferes with their ability to function. These underlying psychological problems are associated with reduced academic motivation and performance, as well as health risk behaviors such as substance use, aggression, sexual risk-taking, suicidal ideation, and poor subjective wellbeing (McIntyre, Worsley, Corcoran, Harrison-Woods, & Bentall, 2018; Peltzer & Pengpid, 2017). The downward trend in student mental health and its impact on wellbeing has become a mental health crisis (Cain, 2018).

A growing body of literature suggests social media may be a contributing factor to declines in college student mental health (Cain, 2018). Research consistently shows that young adults who use social media are at risk for experiencing psychological distress (Twenge, 2017). In a national survey of young adults, using three or more social media platforms significantly increased the risk of anxiety and depression compared to people using fewer platforms (Primack et al., 2017). Spending more than two hours a day using

social media is also associated with poorer mental health outcomes and psychological

distress compared to those using social media less frequently (Royal Society for Public

Health, 2017). In addition to psychological distress, research indicates social media use

interferes with academic performance and motivation, as college students who report

using social media more often studied fewer hours, had lower grade point averages, and

reported lower academic motivation compared to students using social media

infrequently (Leyrer-Jackson & Wilson, 2018; Wohn & LaRose, 2014). Paradoxically,

college students report using social media as a primary avenue of connecting with people

and seeking social support in times of stress while simultaneously acknowledging that

social media is a source of stress and anxiety (Begley, 2017; Drouin, Reining, Flanagan,

Carpenter, & Toscos, 2018). It is important to investigate how college students' primary

avenue of social interaction may be interfering with their mental health, academic

achievement, and overall wellbeing. This study has the potential to inform positive social

change through increasing awareness of the problems associated with social media use;

this information can be used by educators, parents, and campus mental health providers

to educate students about safe social media practices, as well as inform guidelines on

social media use in the classroom.

Background

Social media has transformed the way people communicate, share, interact, and

connect with each other (Royal Society for Public Health, 2017). Social networking sites

such as Facebook, Twitter, Snapchat, and Instagram were designed to eliminate

limitations posed by geographical distance, allowing people to build a vast number of

social relationships with whom they can connect at every moment (Twenge, 2017). The ability to connect constantly with others also accompanies the promise of avoiding the discomforts of social disconnection, loneliness, and isolation by fostering deeper relationships through unremitting connectivity (Hu, Kim, Siwek, & Wilder, 2017; Twenge, 2017). The anticipated benefits of using social media are especially attractive to college students as they seek to adapt to a new environment with new stressors and adult responsibilities that often occur when adjusting to college life (Drouin et al., 2018). Accordingly, college students have adopted social media as an integral aspect of their social lives, exhibiting a preference for social media interaction and disinterest in face-to-face socialization (Dossey, 2014; Twenge, 2017).

The desire for meaningful social interaction did not originate with social media (Begley, 2017). The motivation to form social bonds has evolutionary roots whereby people developed an inherent desire for acceptance and belonging that facilitates the likelihood of survival (Twenge, 2017). As such, people have a fundamental need to belong and are particularly attuned to social information with implications for social acceptance and rejection (Baumeister & Leary, 1995; Twenge, 2017). While social media is viewed as an attractive and efficient means to gain social acceptance and a sense of belonging, it may also be predisposing people to experience negative psychological outcomes associated social rejection (Twenge, 2017).

College students report feeling frantic, disconnected, miserable, and anxious when they are unable to connect to their social media accounts (Begley, 2017). This is because social media has become their primary source of connection to people and without it,

students feel lonely and disconnected from the social world; in other words, the need to belong is thwarted by this sense of disconnection (Begley, 2017; Twenge, 2017). To relieve the anxiety caused by thwarted belonging, information is shared on social media in efforts to feel noticed, validated, liked, and to avoid feelings of social exclusion (Bauerlein, 2009; Dossey, 2014). Checking social media can also be a negative experience as individuals anxiously wait for people to like and comment on their postings; getting fewer likes and comments compared to one's social media contacts is also a source of stress (Begley, 2017; Twenge, 2017). Moreover, people feel compelled to browse through endless streams of blog postings, tweets, feeds, photos, videos, and comments in the attempt to avoid missing out on potentially rewarding social experiences (Bauerlein, 2009; Begley, 2017). This compulsive social media checking has recently been labeled in the literature as a fear of missing out (Przybylski, Murayama, DeHaan, & Gladwell, 2013). Unfortunately, exposure to the overabundance of highly curated depictions of people's happy lives makes onlookers feel anxious and unhappy; this may also increase the likelihood of feeling rejected when individuals believe they have been left out or excluded from these social experiences (Twenge, 2017).

Social rejection is a painful psychological experience, and the link between thwarted belonging needs and social rejection as a cause of psychological pain has long been established (Gere & MacDonald, 2010). Given the importance college students place on social media, it is important to investigate whether, and the extent to which, social media use plays a role in perceptions of social rejection. Few studies have addressed the relationship between individual belonging needs and social media use

(Reich & Vorderer, 2013). However, no research to date has examined whether the fear of missing out contributes to feelings of social rejection (Buglass, Binder, Betts, & Underwood, 2017). This study helps to fill this gap in the literature by examining how individual differences in the need to belong, fear of missing out, and social media use influence perceived social rejection among college students.

Findings from this study can promote positive social change by contributing to the discussion on the declining mental health within the college student population. While much remains to be learned about the effects of social media use on mental health, mounting evidence suggests interventions are needed with the potential to ameliorate the deleterious effects of social media use on student mental health (Cain, 2018). Developing student-centered intervention strategies requires examining factors that may explain the relationship between social media use and mental illness. Identifying such factors provides an opportunity for policymakers, educators, and clinicians to develop evidence-based preventive strategies to combat student mental health problems related to social media use.

This chapter will provide a brief overview of the literature and identifies the gap in the research that justifies the need for the proposed study. The research problem, research questions and hypotheses, operational definitions for the variables, and nature of the study will also be addressed. A brief discussion of the theoretical framework will be presented along with the assumptions, scope, limitations, and significance of the study.

Problem Statement

The current college student population, labeled the wired generation, is the most digitally connected generation in history (Jacobsen & Forste, 2011). Research indicates that 97% of U.S. college students use social media daily for social networking purposes, and this pervasive use has been found to be driven in part by the motivation for interpersonal connectivity (Ifinedo, 2016). As people have a fundamental need to form and maintain social bonds with others, engaging in social media is viewed as a convenient means to meet social needs while facilitating feelings of connectedness and fulfilling one's need to belong (Chiou, Lee, & Liao, 2015; Reich & Vorderer, 2013). Although social media is designed to simplify interpersonal interaction, there is some indication that social media use fails to produce these anticipated social benefits and instead is associated with negative outcomes (Ryan, Allen, Gray, & McInerney, 2017). Studies show that students are increasingly replacing face-to-face contact with virtual interactions void of meaningful emotional connection that have been associated with loneliness, anxiety, and depression, declining self-esteem, diminished connection to peers, poor subjective wellbeing, and sensitivity to social exclusion (Ahn & Shin, 2013; Cain, 2018; Chiou et al., 2015; Oberst, Wegmann, Stodt, Brand, & Chamarro, 2017). Moreover, it has been suggested that using social media increases vulnerability to fear of missing out on social events and feeling socially rejected (Buglass et al., 2017).

Social rejection is defined as the perception of a deliberate exclusion or shunning from a social interaction that generates feelings of being devalued (Beekman, Stock, & Howe, 2017; Leary, 2017). It is well-documented that social rejection derives from

thwarted belonging needs and can result in hurt feelings, sadness, anxiety, anger, loneliness, depression, low-self-esteem, and dysfunctional interpersonal behaviors (Baumeister & Leary, 1995; Leary, 2017); feeling rejected by online connections can also produce these negative psychological outcomes (Vorderer & Schneider, 2017). As people are increasingly using social media as a substitute for face-to-face interactions— becoming dependent on social media to meet fundamental belonging needs—it is necessary to examine the factors that may contribute to the harmful effects of its use (Beynes, Frison, & Eggermont, 2016; Reich & Vorderer, 2013).

One new construct that has emerged in the recent literature as contributing to the harmful effects of social media use is the fear of missing out (Oberst et al, 2017; Przybylski et al., 2013). The fear of missing out is defined as a preoccupation with maintaining constant connections with what others are doing; this derives from a persistent fear that one is absent or excluded from rewarding social experiences (Przybylski et al., 2013). Studies show that the fear of missing out results from psychological need deficits, including the need to belong, where individuals with unmet psychological needs engage in continuous social surveillance (i.e., using social networking sites for the purpose of tracking and monitoring the behaviors, beliefs, and activities of others) in efforts to fulfill those needs and avoid feeling left out of important social experiences (Beynes et al., 2016; Buglass, et al., 2017; Oberst et al., 2017; Park, Shin, & Ju, 2015). This triggers extreme social surveillance behaviors compelling individuals to track myriad status updates, photos, and videos from social media contacts depicting social events to which the individual was not invited (Buglass et al., 2017).

A growing body of literature suggests that people vary in the extent to which they fear missing out (Przybylski et al., 2013). Individuals who fear missing out to a greater extent may be susceptible to social media addiction, mood disturbances, and poor psychological wellbeing (Blackwell, Leaman, Tramposch, Osborne, & Liss, 2017; Buglass et al., 2017; Przybylski et al., 2013). It is not yet known whether the fear of missing out compels social media use with the intent to restore a sense of social connectedness, nor is it known if social media surveillance, ironically, makes perceptions of social rejection more likely (Buglass et al., 2017). This study helps to advance the existing literature and by examining the relationship between the need to belong, fear of missing out, social media use, and perceived social rejection among college students.

Purpose of the Study

The purpose of this quantitative survey study was to examine the extent to which individual differences in need to belong (IV), fear of missing out (IV), and social media use (IV) predict the perceptions of social rejection, specifically, the emotional reactions (DV) and behavioral reactions (DV) to ambiguous social rejection scenarios in the college student population. Findings from this research can increase understanding of the factors that predict perceived social rejection and its associated psychological consequences.

Research Questions and Hypotheses

Research Question 1: To what extent does the need to belong, as measured by the Need to Belong scale (NTBS), relate to perceived social rejection (i.e., emotional

reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) emotional subscale, among college students?

H_o: The need to belong is not a significant predictor of perceived social rejection (i.e., emotional reactions).

H_a: The need to belong is a significant predictor of perceived social rejection (i.e., emotional reactions).

Research Question 2: To what extent does the fear of missing out, as measured by the Fear of Missing Out scale (FOMOS), relate to perceived social rejection (i.e., emotional reactions) as measured by the Rejection Scenarios Questionnaire (RSQ) emotional subscale, among college students?

H_o: The fear of missing out is not a significant predictor of perceived social rejection (i.e., emotional reactions).

H_a: The fear of missing out is a significant predictor of perceived social rejection (i.e., emotional reactions).

Research Question 3: To what extent does social media use, as measured by the Social Networking Time Use scale (SONTUS), relate to perceived social rejection (i.e., emotional reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) emotional subscale, among college students?

H_o: Social media use is not a significant predictor of perceived social rejection (i.e., emotional reactions).

H_a: Social media use is a significant predictor of perceived social rejection (i.e., emotional reactions).

Research Question 4: To what extent does the need to belong, as measured by the Need to Belong scale (NTBS), relate to perceived social rejection (i.e., behavioral reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) behavioral subscale, among college students?

H_o: The need to belong is not a significant predictor of perceived social rejection (i.e., behavioral reactions).

H_a: The need to belong is a significant predictor of perceived social rejection (i.e., behavioral reactions).

Research Question 5: To what extent does the fear of missing out, as measured by the Fear of Missing Out scale (FOMOS), relate to perceived social rejection (i.e., behavioral reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) behavioral subscale, among college students?

H_o: The fear of missing out is not a significant predictor of perceived social rejection (i.e., behavioral reactions).

H_a: The fear of missing out is a significant predictor of perceived social rejection (i.e., behavioral reactions).

Research Question 6: To what extent does social media use, as measured by the Social Networking Time Use scale (SONTUS), relate to perceived social rejection (i.e., behavioral reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) behavioral subscale, among college students?

H_o: Social media use is not a significant predictor of perceived social rejection (i.e., behavioral reactions).

H_a: Social media use is a significant predictor of perceived social rejection (i.e.,

behavioral reactions).

Theoretical Framework

Baumeister and Leary's (1995) need to belong theory provided the foundation for

this study. Focused on human motivation, the need to belong theory describes the

fundamental human motive to form and maintain a minimum number of significant

interpersonal social relationships characterized by frequent non-negative interactions,

stability, and mutual affective concern (Baumeister & Leary, 1995). The theory is based

on evolutionary principles where forming and maintaining social bonds is critical for

survival. As such, having unfulfilled belonging needs or experiencing situations that

threatens one's sense of belonging is psychologically aversive and results in negative

consequences, including physical and psychological distress and pathology (Baumeister

& Leary, 1995).

A significant body of literature has supported need to belong theory and has

demonstrated that threats to belonging (i.e., social rejection) causes mood and emotional

disturbances, reductions in happiness and wellbeing, risk behaviors, and physical health

problems (Gere & MacDonald, 2010). It has been argued that the need to belong drives

social media use, because social media provides a convenient means for social interaction

as individuals attempt to fulfill their need to belong; it also provides a theoretical lens

through which to examine the psychological consequences of overreliance on social

media to meet belonging needs (Liu, Ainsworth, & Baumeister, 2016; Smith, Morgan, &

Monks, 2017). Moreover, it has been suggested that perceived social rejection may be

related to a fear of missing out, whereby unmet belonging needs increase social media use, exposing individuals to social events from which they have been excluded (Baker, Krieger, & LeRoy, 2016; Buglass et al., 2017). Chapter 2 will provide a comprehensive review of need to belong theory and justification for its use in this study.

Nature of the Study

This study was a quantitative nonexperimental cross-sectional survey design. A quantitative research approach is designed to identify numerical changes in a set of measurable characteristics within a population of interest (Kraska, 2010). That is, this study examined relationships between the predictor variables (i.e., the need to belong, fear of missing out, and social media use) and outcome variables (i.e., emotional and behavioral reactions to ambiguous social rejection) along a measurable continuum, thus making a quantitative design appropriate. A nonexperimental design is used when the variables of interest have already occurred and cannot be manipulated by the researcher (Kraska, 2010). As the present study was designed to measure individuals' preexisting characteristics and behaviors that cannot be manipulated, a nonexperimental design was appropriate.

The target population for this study was traditional and non-traditional U.S. college students (i.e., on-campus and online-based), aged 18-24, currently enrolled in an undergraduate program, who had at least one social media account. People with children and international students were excluded from the study. This population was chosen because college students use social media more than any other age group, and young adults are typically more impacted by a fear of missing out compared to all other age

groups (see Pryzbylski et al., 2013; Smith & Anderson, 2018). The study included an Internet-based survey that utilized the Qualtrics survey platform, and participants were recruited through the Qualtrics participant pool. A convenience sampling strategy was used where participants who met the inclusion/exclusion criteria were invited electronically to participate. Data was analyzed using the Statistical Package for Social Sciences (SPSS) version 25.0. Descriptive statistics were computed, and hierarchical multiple regression was used in the inferential analysis for significance testing. Hierarchical multiple regression was chosen for the inferential analysis there was a theoretical rationale for entering predictor variables in order of predictive power to explain variance in the outcome variable.

Definitions

Behavioral reactions to perceived social rejection: The behavioral reaction to a situation from which social rejection might be inferred (Jones et al., 2015).

Emotional reactions to perceived social rejection: The emotional reaction to a situation from which social rejection might be inferred (Jones et al., 2015).

Fear of missing out: A preoccupation with maintaining constant connections with what others are doing, deriving from a persistent fear that one is absent or excluded from rewarding social experiences (Przybylski et al., 2013).

Need to belong: The motivation to form and maintain a minimum number of meaningful relationships with other people (Baumeister & Leary, 1995).

Social media use: The quantity and quality (motivations for use, situations during use) of time spent on online social networking sites whereby people can observe and interact with others (Olufadi, 2016).

Social rejection: The perception of a deliberate exclusion or shunning from a social interaction that generates feelings of being devalued (Beekman et al., 2017; Leary, 2017).

Assumptions

In this study, it is assumed that participants were able to recall and approximate their social media usage accurately. It was also assumed that participants provided honest responses to the survey questions, made more likely by anonymous data collection. Furthermore, it was assumed that the theoretical reasoning for selecting the predictor variables was logically sound; specifically, it was assumed that the need to belong, fear of missing out, and social media use are factors that influence emotional and behavioral reactions to perceived social rejection. Lastly, it was assumed that participants' emotional and behavioral reactions to ambiguous scenarios from which rejection could be inferred were reflective of how they would behave in real-world social situations.

Scope and Delimitations

This study was designed to examine factors that may predict college students' emotional and behavioral reactions to perceived social rejection. Recent literature suggesting that college campuses in the United States are experiencing a mental health crisis is the reason for targeting the college student population; social media use is thought to be a factor contributing to college students' declining mental health (Cain,

2018; Lipson et al., 2019). The target population for this study was undergraduate students who attended traditional (i.e., campus-based) and non-traditional (i.e., online/hybrid) programs; including online students was appropriate because approximately 38% of all undergraduate students in the United States take at least some courses in an online format (National Center of Education Statistics, 2017). The sample was limited to the U.S. college population because cultural differences may influence belonging needs, missing out fears, social media use, and perceptions of rejection. Accordingly, international students were excluded. Examining cultural differences was beyond the scope of this study.

As this sample was limited to U.S. undergraduate students aged 18-24 who use social media, results cannot be generalized beyond this population. The characteristics of the average U.S. college student do not reflect characteristics of the general U.S. population, thus limiting the generalizability of findings beyond the college student population (Stroebe, Gadenne, & Nijstad, 2018). The utilization of an Internet-based survey method also has implications for generalizability of findings. While Internet-based research has increased the potential for diversity among research participants, people who self-select to participate in Internet-based research may be inherently different than people who do not elect to participate in research, thus potentially limiting representation of the target population (Stroebe et al., 2018). Furthermore, Internet survey research is subject to bias in that demographic differences may exist between internet users and non-users (Best, Krueger, Hubbard, & Smith, 2001). However, research suggests that nearly 100% of U.S. college students have access to the Internet, and 95% have Internet

available in the home (Smith, Rainie, & Zickuhr, 2011). Therefore, it was not expected

that utilizing an Internet-based survey method would pose major limitations to

generalizing findings to the college student population.

Need to belong theory was chosen for this study because it provided a theoretical

rationale for the motivation to belong, why people are motivated to use social media, and

provided the foundation for why a fear of missing out might develop as a result of using

social media (Beyens, Frison, & Eggermont, 2016; James, Lowry, Wallace, & Warkentin,

2017). The need-threat model was an alternative theory considered given that it has been

utilized frequently in the social rejection literature with regard to ostracism in an online

context (Williams, 2007). The need-threat model states that rejection-related experiences

produce threats to belonging, self-esteem, control, and meaningful existence, which

account for a variety of short and long-term negative effects after experiencing rejection

(Williams, 2007). However, it is argued that threats to self-esteem, control, and

meaningful existence result from secondary features of a rejection event or can be

threatened by other situations unrelated to rejection events (Smart-Richman & Leary,

2009). While these other threats are important topics of investigation, the scope of this

study was concerned with the fundamental element occurring across all rejection

episodes, namely perceived low relational value that result in threats to one's need to

belong (Smart-Richman & Leary, 2009).

Limitations

A limitation of this study is the likelihood that participants were able and willing

to provide accurate estimates of their social media use; research suggests people

underestimate their social media usage by 40% (Giunchiglia, Zeni, Gobbi, Bignotti, & Bison, 2018). According to Olufadi (2016), an explanation for underestimated usage estimates may derive from previously developed instruments that unintentionally encourage socially desirable responding, low usage estimates, or create difficulties in participants' ability to recall time spent on social media sites. To address this limitation, the instrument selected to measure social media use was constructed specifically to address these limitations and increase the likelihood of truthful and accurate responses (Olufadi, 2016). Anonymous data collection may also help encourage participant honesty. Difficulty in capturing people's real-world behavior when using survey instruments in an online venue is another potential limitation. To address this potential limitation, the instrument selected to measure perceived social rejection utilizes rejection vignettes that ask participants to place themselves in common real-world situations.

Significance

Social media use has increased consistently over the last decade, becoming the primary means by which college students interact (Beynes et al., 2016; Perrin, 2015; Smith & Anderson, 2018). In addition to research suggesting an association between social media use and poor psychological health, college students have also become preoccupied with maintaining a continuous social media presence; both interfere with academic functioning and achievement (Cain, 2018). Given the well-documented emotional and psychological ramifications of social media use, it is important to develop a greater understanding of the psychological mechanisms that contribute to its deleterious effects (Beynes et al., 2016). It was the intent of this study to increase awareness of the

harmful effects of social media use as well as provide insight into how belonging needs, fear of missing out, and perceived social rejection contribute to the problem.

The study's findings can be used by university faculty, administrators, campus psychological services, students' parents, and the students themselves to create an awareness with the potential to address the problems associated with social media use. Universities often use social media for student recruitment and to communicate with current students, parents, alumni, college sports fans, potential donors, and community members (Peruta & Shields, 2017). Moreover, faculty are using social media in curriculum design in efforts to engage with millennials in the classroom (Manca & Ranieri, 2016). Results from this study may help inform university practices on using social media cautiously to reduce its negative impact on students. Moreover, college therapists are becoming increasingly concerned with the impact social media has on meeting social needs and psychological wellbeing of students (Yavich, Davidovitch, & Frenkel, 2019). Understanding the effects of social media on mental health may benefit campus psychological services in providing assistance to students who are struggling with problems related to their social media use (Sherrell & Lambie, 2016).

Summary

Declining mental health is a significant social problem on college campuses across the United States, and studies suggest social media use may contribute to this mental health crisis (Cain, 2018; Lipson et al., 2019). This is especially problematic for college students because they use social media as their primary means of social interaction as they adapt to new responsibilities in a new environment (Drouin et al.,

2018). While people use social media in the attempt to fulfill their social belonging needs, its use may be resulting in counterintuitive effects, creating a fear of missing out on socially rewarding experiences and increasing the perception of social rejection (Buglass et al., 2017; Przybylski et al., 2013). Social rejection is a painful experience deriving from thwarted belonging needs often resulting in adverse psychological effects (Leary, 2017). Need to belong theory provides a lens through which to investigate whether individual belonging needs, the fear of missing out, and social media use contribute to perceptions of social rejection in the undergraduate college student population. To this end, this study used a quantitative nonexperimental cross-sectional survey design to administer an Internet-based survey utilizing the Qualtrics platform. Understanding the relationship between poor mental health and social media use among college students can inform policymakers, educators, mental health practitioners, parents, and students about appropriate prevention and intervention strategies to combat student mental health problems.

Chapter 2: Literature Review

Introduction

The current college student population, labeled the wired generation, is the most digitally connected generation in history (Jacobsen & Forste, 2011). Research indicates that 97% of U.S. college students use social media daily for social networking purposes, and this pervasive use has been found to be driven in part by the motivation for interpersonal connectivity (Ifinedo, 2016). As people have a fundamental need to form and maintain social bonds with others, engaging in social media is viewed as a convenient means to meet social needs while facilitating feelings of connectedness and fulfilling one's need to belong (Chiou, Lee, & Liao, 2015; Reich & Vorderer, 2013). While social media is designed to simplify interpersonal interaction, there is some indication that social media use fails to produce these anticipated social benefits and instead is associated with negative outcomes (Ryan et al., 2017). Studies show that students are increasingly replacing face-to-face contact with virtual interactions void of meaningful emotional connection that have been associated with loneliness, anxiety, and depression, declining self-esteem, diminished connection to peers, poor subjective wellbeing, and sensitivity to social exclusion (Ahn & Shin, 2013; Cain, 2018; Chiou et al., 2015; Oberst et al., 2017). Moreover, it has been suggested that using social media increases vulnerability to fear of missing out on social events and feeling socially rejected (Buglass et al., 2017).

Social rejection is defined as the perception of a deliberate exclusion or shunning from a social interaction that generates feelings of being devalued (Beekman et al., 2017;

Leary, 2017). It is well-documented that social rejection derives from thwarted belonging needs and can result in hurt feelings, sadness, anxiety, anger, loneliness, depression, low-self-esteem, and dysfunctional interpersonal behaviors (Baumeister & Leary, 1995; Leary, 2017); feeling rejected by online connections can also produce these negative psychological outcomes (Vorderer & Schneider, 2017). As people are increasingly using social media as a substitute for face-to-face interactions—becoming dependent on social media to meet fundamental belonging needs—it is necessary to examine the factors that may contribute to the harmful effects of its use (Beyens et al., 2016; Reich & Vorderer, 2013).

One new construct that has emerged in the recent literature as contributing to the harmful effects of social media use is the fear of missing out (Oberst et al, 2017; Przybylski, et al., 2013). The fear of missing out is defined as a preoccupation with maintaining constant connections with what others are doing; this derives from a persistent fear that one is absent or excluded from rewarding social experiences (Przybylski et al., 2013). Studies show that the fear of missing out results from psychological need deficits, including the need to belong, where individuals with unmet psychological needs engage in continuous social surveillance (i.e., using social networking sites for the purpose of tracking and monitoring the behaviors, beliefs, and activities of others) in efforts to fulfill those needs and avoid feeling left out of important social experiences (Beyens et al., 2016; Buglass, et al., 2017; Oberst et al., 2017; Park et al., 2015). This triggers extreme social surveillance behaviors compelling individuals to

track myriad status updates, photos, and videos from social media contacts depicting social events to which the individual was not invited (Buglass et al., 2017).

A growing body of literature suggests that people vary in the extent to which they fear missing out (Przybylski et al., 2013). Individuals who fear messing out to a greater extent may be susceptible to social media addiction, mood disturbances, and poor psychological wellbeing (Blackwell et al., 2017; Buglass et al., 2017; Przybylski et al., 2013). It is not yet known whether the fear of missing out compels social media use with the intent to restore a sense of social connectedness, nor is it known if social media surveillance, ironically, makes perceptions of social rejection more likely (Buglass et al., 2017). This study helps to advance the existing literature by examining the relationship between the need to belong, fear of missing out, social media use, and perceived social rejection among college students.

The purpose of this study was to address the gap in the literature by examining the extent to which the need to belong, fear of missing out, and social media use predict perceived social rejection among college students. The research was a quantitative survey design. Specifically, in this study, I investigated the extent to which individual differences in need to belong, fear of missing out, and social media use predicted perceived social rejection. The data collected from this research can facilitate a greater understanding of the factors that contribute to the negative outcomes associated with social media use, as well as the psychological consequences of perceived social rejection.

Chapter 2 provides a detailed literature search strategy followed by a discussion of the theoretical foundation. The chapter also includes an exhaustive review of the literature related to key variables, ending with a summary and conclusions.

Literature Search Strategy

The empirical articles reviewed for this study were accessed through the Walden University Library, primarily via EBSCOhost. Databases searched included PsycINFO, PsycARTICLES, SocINDEX, and Academic Search Complete. Google scholar was also used to identify current social media use statistics and trends. Key terms used in the literature search included combinations of the following: *need to belong*, *belonging needs*, *social belonging*, *fear of missing out*, *social surveillance*, *social media use*, *social networking use*, *social rejection*, *perceived rejection*, *ambiguous rejection*, *ostracism*, *social exclusion*, *university*, and *college students*. The majority of articles included in the literature review reflect peer-reviewed research conducted from 2009 to 2019, with the exception of some seminal sources used to reference need to belong theory.

Theoretical Foundation

Need to Belong Theory

Need to belong is a theory of human motivation that explains the fundamental human drive to form and maintain a minimum number of meaningful relationships with other people (Baumeister & Leary, 1995). Meaningful relationships are marked by frequent non-negative interactions, stability, and mutual affective concern. Relationships that do not encompass these characteristics do not satisfy one's need to belong. It is important to note that social interactions do not have to be exuberantly positive in order

to satisfy belonging needs. That is, social interactions that are non-negative are appeasing and evoke feelings of contentment, even in absence of explicit positivity. Thus, the need to belong is satisfied (provided that social interactions are stable and encompass mutually affective concern) as long as interactions are not negative. When people form social bonds that meet these conditions, the need to belong is fulfilled and people experience better overall health, happiness, and wellbeing. In contrast, social interactions that do not satisfy these conditions create unfulfilled belonging needs, leading to poor overall health, psychopathology, and reduced wellbeing.

The motivation to form social bonds is said to derive from evolutionary principles, whereby people who form attachments with others are more likely to survive and reproduce compared to isolated individuals (Baumeister & Leary, 1995). Early humans were not equipped to survive harsh environments in isolation. Groups provide protection, mating opportunities, care for offspring, resource sharing, and more readily identify dangers, all of which reduce burdens of survival and increase the value of group belonging. Thus, evolutionary selection facilitated internal psychological mechanisms that naturally compel people to build meaningful relationships with other people. While biopsychosocial influences create individual differences in the strength of one's need to belong, these evolved mechanisms create a predisposition to fear and avoid threats to belonging (Baumeister & Leary, 1995).

As the motivation to build lasting, positive relationships has important survival value, need to belong theory posits that people are sensitive to situations that indicate changes in belonging (Baumeister & Leary, 1995). Real, implied, or imagined changes in

belonging status produces cognitive, emotional, and behavioral changes consistent with maintaining or restoring a sense of belonging. People give priority to processing social information, and people become oriented to social stimuli that have implications for belonging. Increased cognitive resources are deployed when social stimuli signal potential sources to meet belonging needs and identify threats to belonging (i.e., social rejection). That is, people will pay close attention to and exhibit increased cognitive effort in processing social stimuli that are perceived to increase or threaten one's sense of belonging (Baumeister & Leary, 1995; DeWall & Bushman, 2011; Gere & MacDonald, 2010). The theory also suggests changes in emotion are closely linked to changes in belonging (Baumeister & Leary, 1995). People whose sense of belonging is strong and stable tend to be happy and experience general positive affect, whereas chronic low belongingness produces unhappiness and general negative affect. Positive emotions also emerge when people increase their social belonging, but a wide range of negative emotions can result when belongingness is thwarted, including hurt feelings, emotional numbness, sadness, anxiety, and anger; low-self-esteem, loneliness, and depression often accompany these negative emotions (Baumeister & Leary, 1995; Leary, 2017).

Need to belong theory further predicts that people will exhibit behavioral reactions to thwarted belonging, whereby experiencing social rejection should motivate the desire to seek social connections to fulfill belonging needs (Baumeister & Leary, 1995). While empirical testing of need to belong theory supports this assumption, research also suggests that people whose belonging needs are thwarted may exhibit aggressive, antisocial, and avoidant interpersonal behaviors (Smart-Richman & Leary,

2009). Although antisocial and avoidant behaviors are counterintuitive to building social bonds, they do serve an important survival function. People engage in antisocial behavior as a self-defense strategy to repel sources of rejection. In contrast, avoidant behaviors motivate people to withdraw when they are rejected, as well as increase motivation to seek new sources of social acceptance (Smart-Richman & Leary, 2019). Thus, social-connection seeking, aggressive, and avoidant behaviors are all products of the fundamental motive to belong.

In recent research, need to belong theory has provided a useful framework for explaining the cognitive, emotional, and behavioral consequences of social media use (James et al., 2017). In a study of belongingness and its effects on obsessive-compulsive disorder (OCD) specific to online social networking, James et al. (2017) argued the need to belong is a primary motivator for using social media as it provides ample opportunity to engage with others and potentially fulfill belonging needs. Satisfied belonging needs are characterized by frequent non-negative interactions, stability, and mutual affective concern. Under conditions in which online social network relationships do not meet these criteria, the attempt to attain these relational characteristics can become so pervasive and maladaptive that it leads to unwanted obsessive thoughts and compulsions to use social media. It is proposed that motivations to use social media (i.e., purposive goal attainment, self-discovery, maintaining interpersonal connectivity, social enhancement, and entertainment) are influenced by belonging needs, whereby strong belonging needs can trigger social-networking OCD as individuals obsessively seek to connect. Belongingness also influences emotions experienced when using social media, including anxiety, envy,

and the fear of missing out (i.e., apprehension that users are missing out on social events, which is alleviated by frequent monitoring of social media). Specifically, people with unfulfilled and strong belonging needs may experience more anxiety and envy as well as an increased fear of missing out, all of which is thought to trigger social-networking OCD as individuals persistently attempt to alleviate these negative emotions.

James et al. (2017) examined these assumptions using a sample (*N*=798) of U.S. adult Facebook users who completed questionnaires, including the Social Connectedness Scale, the Uses and Gratifications to use Facebook Scale, an adapted version of the Yale-Brown Obsessive-Compulsive Scale, the Fear of Missing Out Scale, the Social Networking Site Envy Scale, and the Computer Anxiety Rating Scale. Findings indicated that belongingness drives all five motivations to use social media, although purposive goal attainment and social enhancement were the only motivations positively associated with social-networking OCD. Negative relationships were also found between belongingness and envy and anxiety, which is consistent with need to belong theory, suggesting fulfilled belonging needs will not result in negative emotions such as envy and anxiety. A positive relationship was found between belongingness and fear of missing out such that strong feelings of connectedness to Facebook friends increased the likelihood of fearing missing out on friends' activities. Anxiety, envy, and fear of missing out were the strongest predictors of social-networking OCD compared to purposive goal attainment and social enhancement motivations. High frequency of social media use also predicted OCD. James et al. argued that these findings provide valuable insight into the cognitive and affective mechanisms that contribute to social-networking OCD, as well as highlight

the predictive power of the need to belong in understanding the motivations and effects of social media use.

Beyens et al. (2016) utilized need to belong theory to develop and assess a model that examines the mediating role of fear of missing out in the relationship between social needs (i.e., need to belong and need for popularity), Facebook use, and Facebook-related stress. Specifically, a strong need to belong is thought to increase fear of missing out on social activities because emotional distress is experienced when social belonging needs are unmet; this, then, drives social media use in the attempt to meet social needs. A sample of 402 adolescents completed self-report questionnaires, including the Need to Belong Scale, the Popularity Scale, Fear of Missing Out Scale, the Facebook Intensity Scale, and a Perceived Facebook-Related Stress Scale developed for the study. Findings revealed that a strong need to belong and need for popularity were related to increased fear of missing out which, in turn, increased Facebook use. Participants also indicated a strong fear of missing out was related to higher perceived Facebook-related stress as caused by feelings of low belongingness and unpopularity with Facebook peers. These findings help explain how relationships between negative cognitions and emotions associated with the fear of missing out and social media use are influenced by the need to belong.

Need to belong theory has also been used to explain relationships between social media use, belonging needs, and social rejection. Iannone, McCarty, Branch, and Kelly (2018) investigated whether need to belong deprivation, as caused by experiencing chronic rejection, would motivate people to use Twitter. Participants (N=611) completed

questionnaires including the Need to Belong Scale, the Chronic Ostracism Experiences

Questionnaire, a measure developed to assess the motives to form and maintain

parasocial relationships (i.e., one-sided relationships with media figures marked by

perceived shared experiences) on Twitter, as well as reported on the frequency of Twitter

use and number of people whose Twitter feeds they followed. Iannone et al. found those

reporting a stronger need to belong used Twitter more frequently and reported stronger

motives for forming and maintaining parasocial relationships; those who did not have

strong belonging needs who also reported higher chronic rejection logged into Twitter

less frequently. People who reported strong belonging needs and chronic rejection were

especially likely to use and follow more people on Twitter, as well as have strong

motives to build and maintain parasocial relationships. Therefore, results indicated that

people with a high need to belong used social media in the attempt to fulfill belonging

needs, especially those who felt chronically rejected. It is uncertain, however, why some

people who did not report strong belonging needs who also felt chronically rejected

reported using social media to a lesser extent.

Recent research further illustrates how the need to belong influences social media

use and reactions to social rejection. In four studies, Knowles, Haycock, and Shaikh

(2015) examined whether experiencing rejection would influence Facebook use and if

Facebook use would protect against the stress of social rejection. In study one utilizing an

experimental design, 45 undergraduates were asked to write self-descriptive summaries

that would be used for selecting people for or omitting from participating in a group task.

In the experimental condition designed to evoke social rejection, participants were told

they were not selected to work on the group task. In the control condition participants were told they were selected to work on the group task. Participants were then given three minutes of free time to use the computer or perform any other individual task that did not involve engaging with the other participants; this was followed by a questionnaire to assess what type of activity they chose during the free time. Results indicated that rejected participants were more likely to engage in social behaviors (i.e., social media networking, email, texting) compared to participants in the control condition, thus indicating rejection motivates people to seek social connections through social media use.

Study two assessed the extent to which people used social media as a daily maintenance strategy to maintain sense of belonging (Knowles et al., 2015). Eighty-two undergraduates completed questionnaires including the Need to Belong Scale to assess chronic belonging needs, the Social Interaction Anxiety scale to measure social anxiety, the 10-Item Personality Inventory measuring the Big Five personality traits, the frequency of Facebook use, and the willingness to friend unknown persons on Facebook. Results showed that people with higher need to belong scores used Facebook more frequently. Socially anxious people also used Facebook more often as did extroverts compared to introverts. Among those with strong belonging needs, socially anxious people and extroverts used Facebook most often. Finally, people who reported ever *friending* a stranger on Facebook reported stronger belonging needs compared to those who had never friended a stranger. These findings are consistent with study one and indicate people with strong social belonging needs are motivated to use social media.

Study three utilized an experimental design in which rejection was manipulated using eye contact and gaze aversion videos (Knowles et al., 2015). One hundred and six adults living on or near a college campus who had Facebook accounts participated in the study. Participants were instructed to watch a two-minute video of a person (same-sex) and visualize interacting with that person. In the experimental condition the person in the video averted their gaze away from the participant so as to simulate avoidance and rejection. In the control condition the person in the video made direct eye contact with the participant. Following the rejection manipulation participants were either instructed to browse through their Facebook photos or view photos of trees from the photo-sharing website Flickr. Participants then completed the Assessment of Need Satisfaction scale designed to assess four fundamental needs (i.e., belonging, self-esteem, meaningful existence, and control). Findings show participants in the averted gaze condition reported less overall need satisfaction than those in the direct eye contact condition, thus indicating participants perceived the rejection that threatened fundamental needs. There were, however, no significant differences in reported need satisfaction between the Facebook and Flickr groups, but a non-significant trend emerged whereby participants who viewed Facebook photos reported slightly higher need satisfaction than those browsing Flickr photos.

In study four, rejection was manipulated using the Cyberball paradigm, a virtual ball toss game commonly used to measure threats to belonging where computerized confederates either exclude (experimental condition) or include (control condition) individual participants from game play (Knowles et al., 2015). Seventy-six female

undergraduates participated in the study. Following Cyberball, participants were either instructed to log onto Facebook and do whatever they wanted or read comics from a comics website for four minutes. Next, participants were instructed to complete a computerized reaction-time task, whereby participants delivered a noise blast at various volumes when losing the task to a computerized confederate across 25 trials. Volume of the noise blast served as a measure of aggression. Results showed participants who were excluded in Cyberball (experimental condition) exhibited less aggression if they used Facebook compared to reading comics, although this finding was non-significant. Conversely, participants who were included in Cyberball (control group) were more aggressive if they used Facebook compared to reading comics. Together, findings across the four studies indicate that people with strong belonging needs are motivated to use social media and seek social connections, especially after being rejected. However, social media use may not actually increase fundamental need satisfaction, and its use can both increase and decrease the likelihood of aggression after experiencing rejection.

In sum, social media is a tool people use in the attempt to fulfill their need to belong. Its use can prevent negative emotions such as anxiety and envy if social media use results in fulfilled belonging needs. Unfortunately, attempting to reap these emotional benefits from seeking social belonging can also lead to obsessive cognitions and behavioral compulsions to use social media, often maladaptive to wellbeing. Social media use can also be a source of stress, contributing to strong feelings of missing out on social activities, especially for people with strong unmet belonging needs. More importantly, however, are the mixed effects social media use has on experiencing social

rejection and having chronic belonging deficits; it remains unclear why under some circumstances people with chronic belonging deficits refrain from using social media when belonging needs are unmet as well as why social media use can both increase and reduce aggressive behaviors after experiencing rejection.

How Need to Belong Theory Relates to the Study

The need to belong is a fundamental human drive that compels people to build meaningful, lasting relationships with other people (Baumeister & Leary, 1995). Social media is often used in efforts to fulfill belonging needs, especially when belonging is thwarted by rejection (Knowles et al., 2015). Moreover, the extent to which individual need to belong is fulfilled or threatened by social media use influences a wide range of emotions and behaviors in response to social rejection, resulting in social-connecting seeking, aggression, and avoidant behaviors (Beyens et al., 2016; Iannone et al., 2018; James et al., 2016; Richman & Leary, 2009). Therefore, need to belong theory provides a suitable framework through which to investigate the relationship between individual belonging needs, the fear of missing out, social media use, and social rejection (Beyens et al., 2016; James et al., 2017).

How the Research Questions Relate to the Theory

The goal of the present research was to determine whether, and the strength to which, belonging needs, the fear of missing out, and social media use may predict how people perceive and respond to social rejection. Need to belong theory explains the implications of social rejection and makes inferences about the causes and consequences of individual belonging needs, social media use, and the fear of missing out (Baumeister

& Leary, 1995; James et al., 2017). Utilizing need to belong theory provides a means to investigate how each of these variables individually and collectively influence experiences of social rejection.

Literature Review Related to Key Variables

Social Media Use in College

Recent surveys on the prevalence of social media use suggest that young adults aged 18 to 24 are the most digitally active cohort on social media websites (Junco, 2012; Smith & Anderson, 2018). The Pew Research Center reports that young adults use social networking websites more than any other age group: 80% use Facebook, 78% use Snapchat, 71% use Instagram, and 45% use Twitter (Smith & Anderson, 2018). In other studies college students' social media use is reported as markedly higher, with 97% of students using social networking sites approximately three to six hours each day on at least four different social media platforms (Ifinedo, 2016). According to Coyne, Padilla-Walker, and Howard (2013), college-aged adults spend more time engaging in social media than all other activities, including work, school, sleeping, and socializing with peers face-to-face. As college students have increasingly replaced authentic face-to-face interactions with social media in the attempt to meet their social needs, this change in social behavior has spurred researchers to investigate the impact of its use (Cain, 2018).

Social connectedness is an important marker of college adjustment, and social media has become a popular tool for students to manage social relationships as they relocate to college and adjust to college life (Yang & Brown, 2013). Students often become displaced from preexisting social support systems when moving away to college

and must develop new social relationships in an unfamiliar environment (Yang & Brown, 2013). Research indicates the primary reason college students use social media during this critical adjustment period is to maintain feelings of social connectedness through seeking new and maintaining old friendships (Kim, Wang, & Oh, 2016). While students perceive social media to be useful in facilitating relationships that positively influences college adjustment, research has demonstrated mixed findings on whether social media promotes adjustment to college (Raacke & Bonds-Raacke, 2015).

To investigate the relationship between social media use and college adjustment, Jacobson and Forste (2011) assessed the impact of social media use on academic and social outcomes for college students. The authors argued that social media may pose a distraction in the classroom as well as displace time spend in quality face-to-face social encounters. A large sample (*N*=1,026) of first year college students participated in a time-diary study that recorded a 3-day log of students' online and offline activities; self-reported GPA, demographics, and a completed questionnaire created for the study that measured time spent in school-related activities were also collected. The results showed that 62% of students used some form of electronic media while in class, doing homework, or studying. A negative correlation between social media use and GPA was also found in that for each hour of social media use, GPA was reduced between .05 to .07 points. Contrary to expectations, a positive association was found between media use and face-to-face interactions, whereby social media use increased face-to-face interactions. These results indicate that social media use can facilitate some areas of college adjustment but hinder others.

Yang and Brown (2013) also investigated the impact of social media use on college adjustment in the attempt to identify how motives for Facebook use and specific Facebook activities influenced social adjustment of college students. It was hypothesized that relationship maintenance, relationship formation, and self-presentation motivations, as well as active (i.e. commenting, posting) and passive (i.e. browsing, lurking) Facebook activities, may result in different social adjustment outcomes. In a cross-sectional study, 193 European American college students completed self-report surveys, including the social adjustment subscale of the Student Adaption to College Questionnaire, the UCLA Loneliness scale, a motives for Facebook use scale created for the study, and a compilation of 20 specific Facebook activity questions gathered from previous research and modified for the current study. The findings revealed students' Facebook use was motivated by relationship maintenance and relationship formation, not self-presentation. Activities motivated by relationship formation were associated with poor social adjustment, whereas activities by relationship maintenance were associated with higher levels of social adjustment. Moreover, active Facebook activities were associated with decreased loneliness, whereas passive Facebook activities were associated with increased loneliness. Yang and Brown argue that although findings provide valuable insight into the aspects of social media use that influence social adjustment, more research is needed that considers how social media use influences other social circumstances.

In the attempt to delineate the mixed findings on social media use and college adjustment, Raacke and Bonds-Raacke (2015) examined the impact of motivations to use social media on student academic, social, personal/emotional, and institutional

adjustment. The authors state that students' social media use is comprised of three dimensions: (a) friendship dimension for maintaining old and current friendships, (b) connection dimension for building new relationships, and an (c) information dimension for gathering and sharing information about social functions and the self. Using a sample of 264 U.S. college students who had Facebook or Myspace social media accounts, the authors examined whether the three dimensions of social media use had different effects on different areas of college adjustment. Participants completed the Student Adaption to College Questionnaire and a measure developed for the study to assess reasons for using social media and frequency of use. Findings indicate a negative relationship between social media use and college adjustment. More specifically, students who rated high on the information and connection dimensions of use experienced poor academic adjustment. Poor personal/emotional and institutional adjustment was also problematic for students who rated high on the friendship and connection dimensions of social media use. According to Raacke and Bonds-Raacke, social media use interferes with meaningful engagement and participation that promotes adjustment to college life in general. Moreover, the authors suggest that future research should explore individual difference variables, including the need to belong, to determine their impact on social media use outcomes for college students.

In efforts to determine how individual difference variables influence social media use and social outcomes for college students, Kim, Wang, and Oh (2016) investigated the relationship between social media and smartphone use, the need to belong, and social engagement (i.e. participating in face-to-face collective activities in groups with others).

According to Kim et al., social media networking provides opportunities to learn about social events and motivates people to engage in social activities, especially when one's need to belong is high. Accordingly, students with a high need to belong may use social media more often, which may increase their social engagement. To test this hypothesis, 446 U.S. college students completed the Need to Belong scale as well as a compilation of scale items from previous research that measured social engagement, social media and smartphone use behaviors, and frequency of social media use. Findings showed that the need to belong was positively associated with social media and smartphone use, which increased the likelihood of social engagement. While these findings demonstrate the need to belong as an important predictor of social media use, Kim et al. suggest future research should address additional individual difference variables that may influence the relationship between social media use and social outcomes.

More recent research has addressed the relationship between mobile social media use and academic performance. Giunchiglia et al. (2018) stated people underestimate their mobile social media usage by 40%, which shows a considerable lack of awareness regarding how often people check their phones. Applying this lack of awareness to college students' social media use, it is argued that students are dedicating more time to using social media than studying, which is hindering academic performance. In a sample of 72 university students, Giunchiglia et al. tested a newly developed cell phone application, i-Log that is designed to collect data on social media use. i-Log collects information on the frequency of social media use, including the number of sessions, duration of sessions, and whether human interaction occurred during sessions. A time-

diary is also built into i-Log to allow students to provide information about their activities during the day when promoted by the application. To test the relationship between mobile social media use and academic performance, i-Log data were collected on participants for two weeks. Academic performance in the form of GPA and course credits was also obtained from the university on all participants. The results showed that academic performance declined the more students used mobile social media applications. More specifically, as the frequency of phone checking and duration of social media use sessions increased, the more negative impact this behavior had on academic performance.

In addition to college adjustment, the intensity of college students' social media use has led researchers to question whether habitual use has created a problem of being permanently online and connected (Vorderer, Kromer, & Schneider, 2016). According to Vorderer et al. (2016), the availability of social media via smart devices has created a condition in which people do not disconnect – in the classroom, at work, and in private social situations, attention is diverted away from face-to-face interactions and drawn toward available or even potentially incoming information on social media. Even personal moments of inactivity have become a rarity as people have become preoccupied with continuously checking their social media accounts. Vorderer et al. described these behaviors as being *permanently online* (PO) and *permanently connected* (PC), which is marked by vigilant social media behavior. It is argued that being PO/PC occurs in social situations where people consistently use social media while engaged in other physical, social, or cognitive activities. More specifically, PO is using social media simultaneously with other activities, whereas PC is engaging in online social interaction simultaneously

with other activities. The concept of being PO/PC is theoretically based on need to belong principles such as the fear of ostracism (i.e., fear of being excluded from social groups) and the fear of missing out (i.e., fear of missing out on social information and events important to the self), both of which are thought to motivate excessive social media use and hypervigilant social media checking behaviors (Vorderer et al., 2016).

To provide a better understanding of being PO/PC Vorderer et al. conducted a mixed methods exploratory study of PO/PC behaviors, motivations, and consequences among college students. The intent of this research was to assess: (a) how often and in which social settings PO and PC behaviors occur, (b) students' feelings about losing Internet and social media access, (c) vigilant social media checking, and the impact of PO/PC on wellbeing. The sample consisted of 178 German college students who completed a social media use survey created for the study that addressed the frequency of being online and seeking connections with others while in 13 common social situations. Students also completed the Bergen Social Relationship scale to measure interpersonal stress, the Emotional Wellbeing subscale of the Mental Health Continuum Short Form, and the Satisfaction with Life scale. Open-ended questions were also asked to assess feelings about losing Internet and social media access as well as vigilance in responding to social media messaging.

Vorderer et al. (2016) found that 97.2% of students engaged in PO/PC behaviors several times each day, with 48.9% of students reporting PO/PC behaviors several times per hour. PO/PC behaviors most often occurred in waiting situations or when students were home alone. To a lesser extent, PO/PC behavior was reported during class and in

social situations. PC behaviors occurred more frequently than PO behaviors, and students were more likely to report being PC when in social situations than PO. That is, students were more willing to divert their attention in face-to-face social situations to seek online connections, but not to simply be online. No significant relationship was detected between being PO/PC, emotional wellbeing, and life satisfaction, although a general negative trend emerged whereby students reporting higher PO/PC scores reported lower life satisfaction and emotional wellbeing. Social media networking, however, was significantly and positively correlated was interpersonal stress. Analysis of the open-ended questions revealed PC students experienced a range of very negative emotions in the absence of losing Internet and social media access. Feelings of disconnection, missing out, loneliness, stress, annoyance, panic, loss in self-confidence, dependency, and sense of urgency to respond to messages were reported most often. A smaller number of students reported positive feelings toward Internet loss such as less pressure and stress, ability to live in the moment, and more time for personal contact with others. Overall, this study provides insight into the importance of seeking connections through social media for college students and the emotional distress often caused by its absence. Vorderer et al. suggest more research is needed to understand how being permanently online and connected affects a range of social interactions.

Social media use has also been shown to influence mental health outcomes. In efforts to clarify mixed findings in the literature demonstrating that social media use has both positive and negative effects on mental health, Frost and Rickwood (2017) conducted a systematic review of mental health outcomes associated with Facebook use.

The review included 65 quantitative peer-reviewed articles that were conducted from 2005 to 2016 that examined associations between Facebook use and psychological symptoms that can predict diagnosable mental illnesses. Most studies consisted of high school and college student samples. The analysis revealed six mental health outcomes of Facebook use: anxiety, depression, body image/disordered eating, drinking cognitions/alcohol use, Facebook addiction, and other mental health problems.

Frost and Rickwood (2017) reported that anxiety and depression were more often experienced with high frequency and passive use of Facebook. People also reported anxiety if they were unable to log onto Facebook, and the fear of missing out contributed to increased Facebook use. People were also likely to experience depression if they posted negative status updates, received negative social support, used the *like* feature, and had a greater number of Facebook friends. Interaction patterns where found that increased the likelihood of depression, including lack of perceived social support, feelings of envy, rumination, and making social comparisons. In contrast, reductions in anxiety and depression were evident when people perceived Facebook as a source of social support and reported making meaningful social connections by using Facebook.

Facebook users also have a poorer body image, make more appearance-based social comparisons, and report more disordered eating compared to non-Facebook users (Frost & Rickwood, 2017). Poor body image and internalization of thin body-type standards were exacerbated by more time spend on Facebook, photo-based activities, and high number of peer comments. Psychological wellbeing also decreased after people viewed comments promoting thin body-type standards. In relation to drinking cognitions

and alcohol use, more time spent on Facebook was associated with greater willingness to drink and display alcohol references in Facebook posts, positive attitudes toward alcohol use, and binge drinking. Photos of alcohol references also predict binge drinking episodes. However, frequency of Facebook use and number of friends were found not to influence drinking cognitions and alcohol use.

Frost and Rickwood (2017) also identified Facebook-use characteristics associated with Facebook addiction. Compulsive and habitual use predicted Facebook addiction, which is associated with harmful use behaviors including mood swings, increased Facebook use over time as people require more and more use to feel satisfied, withdrawal symptoms when people are unable to log on, and interpersonal conflict. Other mental health outcomes associated with Facebook engagement were symptoms predictive of personality disorders, including narcissism, mania, antisocial and histrionic behavior, and paranoia. Overall, this review shows that Facebook use leads to poor mental health outcomes as the frequency of overall use, passive use, and number of Facebook friends increases. Specifically, these patterns of use increase the potential for making negative self-evaluations and exposure to harmful social stimuli, which increases the likelihood of poor mental health outcomes. These negative outcomes, however, can be avoided if Facebook interactions provide meaningful emotional and social support. Frost and Rickwood argued that further research is needed to examine individual difference factors as well as psychological and social mechanisms that contribute to these relationships.

In sum, this body of research suggests that social connectedness is a powerful motivator of social media use for college students, so much so that using social media to

connect with others is interfering with academic performance. Although social media use can facilitate social adjustment and decrease loneliness to some extent, its use can also interfere with face-to-face engagement and participation that is important for adjusting to college life. Unfortunately, efforts to maintain one's sense of social connection through social media is resulting in counterintuitive effects, such as a sense of disconnection, interpersonal stress and irritation, and general negative affect; in some cases, psychological symptoms become indicative of disorders warranting clinical attention. Moreover, college students may be most vulnerable to these problems given the frequency with which they engage in social media compared to all other populations. It remains unknown the extent to which individual differences in social media use influence social situations, such as ambiguous situations where social rejection might be inferred; more research is needed to gain a better understanding of the impact of social media use for college students.

Social Rejection

The emergence of social media as a primary means of social interaction for young adults creates a need to investigate how its use influences a painful and inevitable aspect of human interaction – social rejection. Social rejection is the perception of a deliberate exclusion or shunning from a social interaction that generates feelings of being devalued (Beekman et al., 2017; Leary, 2017). That is, experiences of acceptance or rejection are based on the perception of relational value, the degree to which one feels their relationship with another person is important, meaningful, and valuable (Leary, 2017). When a person believes their relationship with another person at any given moment has

high relational value, they feel a sense of belonging and acceptance (Leary, 2017). In contrast, believing that one's relational value is low evokes feelings of threatened belonging and the perception of being rejected (Leary, 2017). Explicit rejection cues are unnecessary for someone to believe they have been rejected, and people can also feel rejected even when they are included (Leary, 2017). For example, a child on the playground who is chosen last for a team sport, a wife whose husband would rather watch TV than engage in conversation with her, and minor insults such as unreturned phone calls, critical comments, and teasing do not necessarily reflect explicit rejection – it is the underlying appraisal of any real, potential, or imagined behavior, or lack thereof (e.g., being ignored), that leads a person to believe their relational value is less than one desires that evokes feelings of threatened belonging and rejection (Leary, 2017).

In a review of the literature on the effects of social rejection, Smart-Richman and Leary (2009) identified a range of psychological consequences resulting from feeling rejected. A wide range of social situations can evoke feelings of rejection, including but not limited to instances of ostracism, exclusion, prejudice, discrimination, unrequited love, abandonment, neglect, betrayal, bullying, and avoidance. While these events vary in degree of explicit interpersonal harm, they are conceptually similar insofar as they pose a threat to belonging needs and can potentially lower relational value that evokes perceptions of rejection. When relational value is low resulting from any belonging threat, people can experience a range of negative emotional reactions, including hurt feelings, sadness, anger, anxiety, emotional numbing, loneliness, jealousy, and general distress followed by decreases in self-esteem. In the attempt to restore belonging and

reduce potential for continued rejection, people may exhibit a range of cognitive changes as well as antisocial, prosocial, or withdrawal behavioral reactions in response to social rejection.

Research shows the most common responses to rejection are antisocial in nature (Smart-Richman & Leary, 2009). Antisocial behavior in this sense tends to be motivated by revenge or retaliation, and the likelihood of aggression increases if an unjustified threat to belonging is perceived as the cause of rejection. Many people who are rejected exhibit lowered empathy, rumination, and an impairment in cognitive functioning that increases the likelihood to act on aggressive impulses. This leads to aggressive, hostile, and demeaning behavior toward not only the source of the rejection, but also toward strangers not associated with the rejection. Using a variety of laboratory manipulations to evoke feelings of rejection, research consistently shows that people are aggressive after they have been rejected as demonstrated by blasting people with noise, requiring others to listen to unpleasant audiotapes, and making people eat hot sauce who have a strong dislike for spicy food. Aggressive reactions to real-life rejections have also been studied, in which feelings of rejection have motivated violent behavior such as rape, domestic violence and homicide, gang member attacks fueled by disrespect, and chronically ostracized students that engage in mass school shootings. While the latter examples may be extreme cases, together these illustrations represent a range of aggressive urges and behaviors that can stem from being rejected.

To a lesser extent people are also motivated to restore belonging and respond to rejection by behaving prosocially (Smart-Richman & Leary, 2009). Rejected people

sometimes behave in ways that promote their relational value or otherwise act to enhance acceptance, such as viewing people more positively, seeking new friendships, being generous, displaying an increased willingness to conform, and exhibiting extra effort and cooperation on group tasks. Group identification is also influenced by rejection, as rejected people are sometimes motivated to seek new connections through joining mail or Internet groups and engaging in parasocial relationships to reestablish sense of belonging.

Although withdrawal responses to social rejection have been minimally investigated in the literature, Smart-Richman and Leary (2009) state that people do show signs of social avoidance and can withdraw physically, socially, and psychologically after being rejected. To avoid continued rejection and subsequent psychological distress, those rejected will withdraw from social interactions, both from the source of rejection and unrelated others. Rejected people often feel vulnerable and fear being hurt by others, which can be a source of social anxiety and loss of self-confidence in social situations. Research also shows that people sometimes feel a sense of dread, exhibit less willingness to communicate with others, and display avoidant body language toward others after experiencing rejection. Social avoidance and withdrawal are most likely when people believe relational alternatives exist and when their own misbehavior is the cause of rejection, in which self-shaming results in fear of unacceptance in future social interactions.

While the pain of social rejection is fundamentally caused by thwarted belonging needs and perceived low relational value, there exists a multitude of dispositional, relational, contextual, and situational factors that influence the wide range of emotions

and behaviors resulting from feeling rejected (Smart-Richman & Leary, 2009). The goal
of the present research was to take these factors into consideration and investigate
whether, and the strength to which, social media use, individual belonging needs, and the
fear of missing out may predict how people perceive and respond to social rejection. The
remainder of this chapter will address how these variables of interest have implications
for understanding reactions to social rejection.

Social Media Use and Social Rejection

While the publication of need to belong theory in 1995 sparked over 20 years of
research that emphasized its relationship to social rejection, research has only begun to
address the relationship between social media and social rejection (Leary, 2017; Vorderer
& Schneider, 2017). Studies in this area have generally found social rejection
experienced face-to-face and online produce similar psychological effects. In two
experiments Filipkowski and Smyth (2012) investigated whether being physically
removed from a belonging threat would decrease the sting of rejection, suggesting that
rejection online would be less psychologically aversive than in-person rejection. Two-
hundred seventy-six undergraduates were randomly assigned to read and image
themselves in a meet-and-greet for college students vignette reflecting either rejection in
an online chatroom or rejection in-person. Participants also completed a series of surveys
before and after the manipulation to assess the psychological impact of rejection,
including the Positive and Negative Affect Schedule to assess mood, the Rosenberg Self-
Esteem scale, Interaction Anxiousness scale, the Extraversion scale of the Big Five
Inventory, the Contingencies of Self-Worth scale, and Feelings of Inclusion and Actions

scale. Results indicated all participants experienced similar levels of negative affect, although students in the in-person condition rated being ignored as slightly more unpleasant than students in the online condition.

Study two replicated study one, except the vignettes were enacted in real-time scenarios where participants interacted with two research confederates either in an online chatroom or in-person for five minutes in casual conversation, who ignored the participant halfway through the conversation to evoke rejection. Similar to study one, participants in both groups reported similar levels of mood, thwarted belonging, and feelings of exclusion. However, participants in both groups experienced decreases in negative affect following the rejection. Filipkowski and Smyth argue their findings are consistent with previous research findings on emotional numbness as a protective mechanism following rejection and suggest rejection is psychologically aversive regardless of the context in which it occurs.

Some features of social media may also be contributing to feelings of rejection. According to Bevans and Barclay (2012) *'unfriending'* a person on Facebook is a type of social rejection viewed as a purposeful way to avoid and terminate a relationship with another person without that person's knowledge. The authors examined whether being unfriended on Facebook would result in negative cognitive and emotional outcomes (i.e. rumination and negative affect), while accounting for differences in Facebook intensity (i.e. the degree of psychological investment in Facebook) and reasons for being unfriended. The study utilized a sample of undergraduate students (N=547) who had been unfriended on Facebook who completed the Facebook Intensity scale, a rumination Scale

adapted from Colven and Roloff (1991), a negative emotion Scale adapted from Thomas

and Diener (1990), and an adapted questionnaire that assessed the nature of being

unfriended on Facebook (Sibona & Walczac, 2011). Rumination and negative affect were

found to be positively correlated with, and predicted by, Facebook intensity.

Furthermore, rumination and negative affect resulted when Facebook was used primarily

for relationship maintenance and when participants could identify a close relational

partner as the person who unfriended them. These negative outcomes were most

pronounced when participants believed their own Facebook misbehavior was the cause of

being unfriended and when the participant made the initial friend request. Bevans and

Barclay suggest these findings are consistent with the growing body of research that

highlights a dark side of social media use that warrants further investigation.

Research also shows subliminal priming and merely thinking about social media

use has interesting effects on psychological distress caused by social rejection. In two

studies Chiou et al. (2015) investigated whether subliminal priming (i.e. activating mental

content below conscious awareness) and thinking about losing connection with one's

social networking sites could influence the level of distress people felt after they were

rejected. Study one used a sample of 96 undergraduate students in Taiwan who were

randomly assigned to complete a computerized task that included either exposure to a

social media networking site or neutral subliminal prime. Participants then experienced

rejection in a game of Cyberball and completed relatedness and social distress

questionnaires adapted from previous research (Eisenberger et al., 2003; Pavey et al.,

2011; Sheldon & Gunz, 2009). In this study, participants exposed to the social media

networking prime reported a higher sense of relatedness which resulted in less distress compared to participants exposed to the neutral prime who reported a lower sense of relatedness and more distress after experiencing rejection.

In study two, 88 Taiwanese college students who had Facebook accounts were randomly assigned to either recall three conditions that would render them unable to use their social networking sites (experimental condition) or recall three conditions that would render them unable to access their college website (control condition) (Chiou et al.,2015). Participants were then told they had been rejected from participating in a group task and completed the social distress questionnaire from study one. Results from this study showed that people who recalled the loss of social media reported greater distress than those in the control condition. Overall, the findings from these studies indicate that thinking about social media changes the way in which people react to being rejected. Chiou et al. argued, however, that more research is needed to explain this relationship and suggest future research should consider the need to belong as an important individual difference variable that may influence the relationship between social media use and social rejection.

Tobin, Vanmann, Verreynne, and Saeri (2015) found certain social media use behaviors are related to thwarted belonging. Tobin et al. state that while social media can facilitate a sense of belonging, its use can also create threats to belonging when people experience mild forms of social rejection such as feeling ignored or left out by one's social media contacts. Thwarted belonging may be exacerbated by certain Facebook behaviors, including lurking (i.e., lack of active contribution) and ostracism (i.e., failure

to receive feedback from others). In two experiments the authors hypothesized that lurking and ostracism on Facebook would pose a threat to psychological needs. In study one designed to test the effects of lurking, 89 frequent Facebook users were randomly assigned to either browsing only on Facebook for 48 hours (experimental condition) or posting on their Facebook accounts as usual (control condition). Participants also completed the Need Satisfaction scale from Gonsalkorale and Williams (2007) measuring belonging, self-esteem, control, and meaningful existence before and after the experiment. The researchers found people in the lurking condition had lower levels of belonging and meaningful existence, but not control or self-esteem, compared to the control condition.

To test the effects of ostracism, 76 undergraduate students participated in a laboratory-based Facebook activity (Tobin et al., 2015). Facebook accounts were designed by the researchers so that half of the Facebook profiles would not receive feedback on status updates. Participants completed the Need Satisfaction Following Ostracism scale (pretest/posttest) and were randomly assigned to either the experimental group that received no feedback or the control group that did receive feedback on their status updates. Findings revealed that ostracized participants reported lower levels of belonging, self-esteem, control, and meaningful existence compared to non-ostracized participants.

More recent research has investigated how psychosocial factors influence the relationship between social media use and social rejection. Smith et al. (2017) examined whether high school or first-year college students would be more sensitive to and

negatively impacted by social media ostracism, which is a type of social rejection occurring within the online context. It was argued that rejection on social media may have a stronger negative impact for high school students because they have greater belonging needs and are more subject to cyberbullying, another type of social rejection, to a greater extent than college students. This hypothesis was tested using a sample (*N=172*) of high school and college students who were randomly assigned to a vignette-condition describing either ostracism (experimental condition) or inclusion (control condition) on Facebook; participants were instructed to imagine they were the target of the ostracism or inclusion. To test these effects, participants also completed the Need Threat scale to measure threats to belonging, self-esteem, meaningful existence, and control, as well as the Positive and Negative Affect Schedule to assess mood. Frequency of Facebook use was assessed with a single item. Contrary to the authors' expectations, while both high school and college students anticipated negative impacts on mood and psychological needs to being ostracized, college students perceived social media ostracism significantly more negatively and inclusion more positively than high school students. College students reported a greater impact on negative mood as well as all psychological needs, with belonging needs threatened the most after being ostracized. College students also used Facebook more frequently than high school students. Smith et al. suggested future research should consider how other social media platforms in addition to Facebook influence social media ostracism.

As recent research has begun to uncover the impact of social media on social rejection, a new paradigm, *Ostracism Online*, was recently developed to manipulate

rejection using a social media format (Wolf, Levordashka, Ruff, Kraaijeveld, Lueckmann, & Williams, 2015). Prior to introducing Ostracism Online, the majority of research manipulated rejection via Cyberball, experimental variations of false feedback and group task rejection, recalling rejection events, and perspective-taking vignettes. In light of the surge in social media use, Ostracism Online was created as a social media-based platform similar to Facebook in which participants interact with other group members who are in reality preprogrammed computer scripts. Group members can view each other's profiles and communicate in the form of *likes* (similar to a Facebook *like*), which are manipulated by the researcher to control level of ostracism.

To test the effectiveness of Ostracism Online, Wolf et al. (2015) conducted a comparison study utilizing Ostracism Online and the Cyberball paradigm to measure the effects of social rejection on psychological needs and conformity. Participants (*N*=266) were assigned to either the Ostracism Online or Cyberball manipulation. Within these groups, participants were randomly assigned to one of three conditions: ostracism, inclusion, or overinclusion. Following the manipulation, participants completed the Mood and Need-Threat Questionnaire measuring belonging needs, self-esteem, meaningful existence, control, and mood. Finally, participants completed a conformity task conceptually similar to Asch's (1951) line judgment experiment with three computerized confederates from the Ostracism Online manipulation. Results indicate that both paradigms are effective manipulations of social rejection, and Ostracism Online is slightly more effective than Cyberball. In both manipulations ostracized participants reported more threats to belonging, self-esteem, meaningful existence, control, and

negative mood compared to included participants, although need threats were slightly stronger for participants in the Ostracism Online group. Neither Ostracism Online or Cyberball effectively manipulated overinclusion or increased the likelihood of conformity. Overall, Ostracism Online appears to be an effective tool for studying the distress of rejection as elicited by characteristics of social media.

In sum, a growing body of research has identified a limited number of contextual, situational, relational, and dispositional factors that influence the relationship between social media use and social rejection. These relationships are currently understood insofar as some social media features, use patterns, and behavior characteristics play a role in evoking threats to psychological needs and cause psychological distress when people are socially rejected both in-person and online. It remains unknown whether frequency and time spent on social media make the perception of rejection more likely or how its use influences the way in which people think about, feel, and anticipate their own behavior in everyday situations from which rejection can be inferred. The present study attempted to fill this gap in the literature by examining the relationship between social media use and anticipated emotional and behavioral responses to everyday scenarios that reflect ambiguous rejection.

Individual Differences in the Need to Belong

While need to belong theory explains that people have a fundamental drive to form and maintain a minimum number of lasting and meaningful relationships with others, the strength of this drive varies across individuals in the extent to which people desire acceptance and belonging (Leary, Kelly, Cottrell, & Schreindorfer, 2013). That is,

for some people the need to belong is satisfied by maintaining only a few relationships who prefer not to seek additional relationships beyond their small group. In contrast, some people worry excessively about building social connections and need numerous social relationships to satisfy their need to belong (Leary et al., 2013). According to Leary et al. (2013) individual differences in need to belong have been found in previous research, where people with a high need to belong exhibit behaviors that facilitate belonging such as greater cooperation, stronger sensitivity to social cues, and failure to perceive themselves as targets of discrimination, more so than people with a low need to belong. Leary et al. also argues that a high need to belong may be associated with experiencing stronger negative reactions to being rejected. However, the extent to which individual differences in belonging needs influence reactions to rejection has rarely been investigated in the literature, and more research is needed to examine behavioral differences that emerge from high versus low belonging needs (Leary et al., 2013).

To examine the need to belong as an individual difference variable, Tyler, Branch, and Kearns (2016) conducted two studies to investigate whether need to belong strength would impact the interpretation of social cues and self-esteem in positive and negative social situations. The authors reasoned that because people with a high (versus low) need to belong are more concerned with acceptance and thus are more sensitive to social cues, people with a high need to belong may interpret negative (versus positive) social cues as more damaging and experience greater decreases in self-esteem. However, being provided with the opportunity for self-affirmation (i.e. to reaffirm self-value) after experiencing rejection may protect against decreases in self-esteem. In study one, 408

undergraduates completed the Need to Belong scale and read two perspective-taking narratives of two people in a social interaction, where the participants were instructed to imagine themselves as the target of both a positive and negative social interaction. Participants then completed the Relational Communication scale and State Self-Esteem scale. Results show significant decreases in self-esteem in the negative (versus positive) social cue condition, and those who reported high belonging needs experienced the greatest negative impact to self-esteem.

In study two, 207 adults completed the Need to Belong scale and were randomly assigned to be excluded (experimental condition) or included (control condition) in a game of Cyberball. Following Cyberball, participants were randomly assigned to a self-affirmation task where they were instructed to write about their most important value (self-affirmation condition) or least important value (no self-affirmation condition). To determine the impact of the manipulations, participants also completed the State Self-Esteem scale. Similar to study one, participants reporting a high need to belong experienced greater decreases in self-esteem after being excluded than people reporting a low need to belong. However, differences in self-esteem did not emerge if participants could engage in self-affirmation after being excluded. Overall, these findings support the idea that individual differences in need to belong influence interpretations and psychological outcomes of social situations.

In efforts to identify trait differences that may influence negative affect following social exclusion, Beekman, Stock, and Marcus (2016) asked whether individual differences in need to belong and rejection sensitivity (i.e., an oversensitivity to perceive

and be negatively affected by rejection) would influence the degree of stress and negative affect after experiencing social exclusion. The authors argued that a greater desire for social connections and sensitivity to perceive rejection may influence greater physiological and psychological responses to being excluded compared to people low in these traits. To test these assumptions, 132 undergraduates completed the Need to Belong scale, the Adult Rejection Sensitivity Questionnaire, and were then randomly assigned to be excluded (experimental) or included (control) via Cyberball. Stress was measured by salivary cortisol samples collected at baseline and 15 minutes post-manipulation, as well as two scale items that asked participants if they felt stressed after they played Cyberball. Negative affect was measured by a list of eight adjectives to describe current feelings (Zadro, Williams, & Richardson, 2004). As expected, excluded participants reported more negative affect than included participants, and excluded participants who reported a high need to belong had significantly higher cortisol stress levels and reported greater perceived stress and negative affect compared to those with a low need to belong. For participants reporting low need to belong, there were no differences in stress and negative effect found between excluded and included participants. Moreover, rejection sensitivity did not influence stress or negative affect for either included or excluded participants. These findings indicate that individual differences in need to belong can influence the strength of negative affect following exclusion. However, Beekman et al. (2016) argued that future research should examine these relationships using methods other than Cyberball that are more reflective of rejection people may experience in their daily lives.

Research highlighting need to belong as a fundamental human motive explains why social rejection is psychologically painful (Baumeister & Leary, 1995); understanding is limited, however, in how individual differences in the strength of this motive may influence differences in how people experience social rejection. The research suggests that people with high belonging needs are more attentive to negative social cues and experience greater negative affect than people with low belonging needs when they are excluded (Beekman et al., 2016; Tyler et al., 2016). However, it is not yet understood whether a high versus low need to belong makes the perception of rejection more likely, or if differences in belonging needs influence differences in emotional and behavioral reactions to everyday situations from which rejection can be inferred. The present research attempted to fill this gap in the literature by examining whether individual differences in need to belong predict the perception of, and emotional and behavioral responses to, everyday scenarios that may or may not be perceived as rejection.

The Fear of Missing Out

A new construct that has recently emerged in the empirical literature as a consequence of social media use is the *fear of missing out* (Przybylski et al., 2013). Prior to the advent of social media, individuals were not continuously exposed to the social lives of others on a large scale (Buglass et al., 2017). The upsurge in social media use, however, has made the social lives of others highly salient and thus has increased exposure to social events to which the individual was not invited (Buglass et al., 2017). It is argued that exposure to these missed events creates the perception that one's social media connections have more desirable lives, and this creates a fear of missing out on

meaningful social experiences (Buglass et al., 2017). The fear of missing out has thus

been defined as a preoccupation with maintaining constant connections with what others

are doing, deriving from a persistent fear that one is absent or excluded from rewarding

social experiences (Przybylski et al., 2013).

According to Przybylski et al. (2013), the fear of missing out is thought to result

from psychological needs deficits in autonomy (i.e., personal initiative), competence (i.e.,

effective action), and relatedness (i.e., connection with others), as people with deficits in

these areas are sensitive to a fear of missing out on events that have implications for

psychological wellbeing. This sensitivity creates a behavioral dysregulation that increases

social media use, often to problematic levels, in the attempt to fulfill these psychological

needs. Other research suggests the fear of missing out is caused by deficits in the need to

belong, where exposure to missed events poses a social threat, creating perceptions of

being ostracized that thwarts belonging needs (Baker et al., 2016; Buglass et al., 2017).

People who have a strong fear of missing out then increase their social media use in the

attempt to fulfill the need to belong (Beynes et al., 2016; Oberst et al., 2017).

In the first empirical investigation of the fear of missing out, Przybylski et al.

(2013) developed the Fear of Missing Out scale and explored potential emotional and

behavioral correlates of the fear of missing out. In three studies, with a total of 3,179

adult participants, the authors examined how individual differences in the fear of missing

out related to psychological need satisfaction, overall life satisfaction, mood, emotions,

social media use, distracted learning, and distracted driving. Consistent with the theory's

claims, people experiencing a strong fear of missing out reported deficits in autonomy,

competence, and relatedness. Moreover, a strong fear of missing out was positively correlated with social media engagement and negative affect, as well as negatively correlated with mood and overall life satisfaction. College students who reported a strong fear of missing out were more likely to have ambivalent emotions while using Facebook, use social media during class lectures, and use their smartphone while driving compared to students who reported a low fear of missing out. Przybylski et al. argued while this preliminary research provided valuable insight into understanding this new construct, future investigations should consider the fear of missing out in relation to situational factors. The present research attempted to expand this body of literature by accounting for situational factors (i.e., social rejection) influenced by the fear of missing out.

Research has also fleshed out relationships between the fear of missing out, changes in cognition, and negative health outcomes. For example, Baker et al. (2016) investigated whether individual differences in the fear of missing out had different effects on depression, mindfulness, and physical health symptoms. According to Baker et al. (2016) the fear of missing out may trigger feelings of social pain (i.e., psychological distress evoked by feeling rejected), which is associated with negative psychological reactions such as depression, as well as psychosomatic physical health symptoms. Moreover, because the fear of missing out preoccupies individuals with psychological need fulfillment, people who fear missing out are likely to be less mindful and exhibit less cognitive flexibility than people who fear missing out to a lesser extent. These hypotheses were tested using a sample of 386 undergraduates who completed the Fear of Missing Out Scale, the Physical Symptoms Checklist, the Center for Epidemiological

Studies Depression scale, the Mindful Attention Awareness scale, and three questions to assess time spent on social media networking. Results supported the hypotheses, whereby higher levels of a fear of missing out were linked to increased social media use, more depressive and physical health symptoms, and less mindful attention compared to students reporting lower levels of fearing missing out. Baker et al. stated that future work should consider how the fear of missing out is associated with other emotional, cognitive, and behavioral outcomes.

In recent research, Buglass et al. (2017) examined the relationship between online vulnerability and the fear of missing out and also suggested the fear of missing out may be conceptually related to a fear of social rejection. Specifically, the authors state increased social media availability has increased the potential for online vulnerability, which is defined as the likelihood for an individual to experience declines in psychological, reputational, and physical wellbeing resulting from online experiences and activities. The extent to which online vulnerability occurs depends on how users interact with social media sites. In some cases, social media use can enhance wellbeing if users make meaningful connections and are provided with social support when using social media sites. However, psychological detriments can occur if users engage in social surveillance (i.e., using social networking sites for the purpose of tracking and monitoring the behaviors, beliefs, and activities of others), especially when motivations to use social media derive from attempts to restore psychological need and belonging deficits caused by feelings of social ostracism. Those who engage in social surveillance are continuously exposed to status updates, friending behaviors, and photographs

depicting the social lives of their social media *friends*, and users become increasingly

aware of the social events to which they were not invited, thus increasing a fear of

missing out that potentially triggers perceptions and fears of social ostracism. Within this

context, the fear of missing out is perceived as evidence of online vulnerability; this fear

is thought to drive social media use in the attempt to restore psychological need deficits,

which increases the likelihood of social surveillance. Social surveillance, in turn, further

fuels perceptions of social ostracism and the fear of missing out, which leads to increases

in social media network size that makes people more susceptible to decreases in social

and psychological wellbeing.

Buglass et al. (2017) examined these assumptions in part, investigating

relationships between social media use (i.e., Facebook demographics, use frequency,

network size, profile data disclosure, and self-disclosure), the fear of missing out, online

vulnerability, and self-esteem as a measure of psychological wellbeing. Five hundred six

Facebook users in the United Kingdom aged 13-77 completed a battery of surveys,

including the Fear of Missing Out scale, the Rosenberg Self-Esteem scale, and an adapted

version of the Self-Disclosure Index to assess willingness to make emotional self-

disclosures on Facebook. Scale items were created for the study to measure online self-

promotion behaviors, including social network size and the extent of disclosure on

individuals' Facebook profile pages. An instrument to assess online vulnerability was

also created for the study using scale items and relevant literature from Binder, Howes,

and Smart (2012) and Debatin et al. (2009). A repeated measures design was utilized, and

data collection occurred in two phases within a six-month period in efforts to test the

proposed cycle where fear of missing out tendencies increase social media use that further exacerbates the fear of missing out over time.

Findings from this study indicated that increased social media use, the fear of missing out, large social network size, and increased self-disclosure independently predicted increases in online vulnerability in the cross-sectional analysis. Online vulnerability, in turn, was associated with decreases in self-esteem. Participants who reported a stronger fear of missing out also engaged in more self-disclosure, had larger social networks, and reported greater exposure to online vulnerability, and had lower self-esteem. In the longitudinal analysis, increased social network use was associated with online vulnerability over time. Initial reports of low self-esteem increased online vulnerability over time. Low self-esteem reported in phase one also increased social media use and the fear of missing out at phase two, suggesting that psychological vulnerabilities increase the likelihood of using social media and developing a stronger fear of missing out over time. Furthermore, social media use was consistently and positively associated with the fear of missing out in the cross-sectional and longitudinal analyses. The more often participants used social media, the stronger their fear of missing out, which resulted in detriments to self-esteem.

According to Buglass et al. (2017), findings indicate that social media use promotes social media surveillance. Prior to the advent of social media, social events to which individuals were not invited were more likely to go unnoticed. However, the widespread availability of social media has increased the capacity for social surveillance, increasing the potential for individuals to make upward social comparisons as they

browse through myriad status updates and photographs of missed events. This creates the illusion that social media contacts are leading happier lives, thus increasing the fear of missing out. Moreover, the cyclic nature of the fear of missing out suggests that attempts to restore one's sense of belonging through social media are futile and counterintuitively result in lower psychological wellbeing over time; this is because increases in social comparisons via social media surveillance leads to stronger fears of missing out and feelings of social exclusion.

While other research has also suggested the fear of missing out may be related to a fear of social exclusion (Baker et al., 2016; Blackwell et al., 2017), the link between the fear of missing out and social rejection has only been suggested and has not been directly examined in the literature. Moreover, Jones, Barnett, Wadian, and Sonnentag (2016) argue that individual differences in the tendency to perceive or misperceive rejection across various social situations and are especially likely to influence perceptions of rejection when the intent of the rejector is ambiguous. Accordingly, the present study suggests the fear of missing out may be an individual difference factor that influences the extent to which people perceive social rejection in ambiguous situations where rejection might be inferred. This study also took this notion a step further and investigated whether individual differences in the fear of missing out influenced emotional and behavioral reactions to ambiguous rejection.

Summary

The purpose of this research was to examine the extent to which individual differences in social media use, the need to belong, and the fear of missing out predicted

the perception of, and reactions to, ambiguous social rejection in the college student population. College students are the most frequent users of social media, and as such, they are at risk for experiencing the negative consequences of social media use, such as poor academic and social adjustment, feelings of disconnection, detriments to psychological wellbeing, and increased susceptibility to feel socially rejected. Need to belong theory was utilized as the theoretical framework for the present study, as it provides insight into the motivations for social media use, explains the psychological pain and behaviors associated with social rejection, and is implicated in developing a fear of missing out. However, existing literature has not examined individual differences in social media use, the need to belong, and fear of missing out as they are related to social rejection. The present research hypothesized these individual difference variables are important in understanding differences in how people think about, feel, and react to everyday social situations from which rejection might be inferred. The findings from this study can facilitate a greater understanding of the factors that contribute to the negative outcomes associated with social media use and how its use influences psychological consequences of social rejection.

To examine the proposed relationships between individual differences in social media use, the need to belong, and the fear of missing out on the perception of social rejection, Chapter 3 will delineate the research design, sampling procedure, instruments, and statistical approach utilized to answer the research questions.

Chapter 3: Research Design and Methodology

Introduction

The purpose of this study was to examine the extent to which individual differences in the need to belong, fear of missing out, and social media use predicted the perceptions of, and emotional and behavioral reactions to, ambiguous social situations where rejection could be inferred in the college student population. Chapter 3 describes the quantitative research design and statistical procedures utilized in the study. Descriptions of the sample and sampling procedures, participant inclusion/exclusion criteria, recruitment, and data collection are discussed. Reliability, validity, and justification for the instruments chosen to measure the variables are also provided. This chapter includes an explanation of descriptive and inferential data analysis procedures, followed by a discussion on threats to validity and ethical considerations.

Research Design and Rationale

A quantitative nonexperimental survey design was used in this study to investigate the extent to which the need to belong (IV), fear of missing out (IV), and social media use (IV) predicted perceived social rejection (DV). A quantitative research approach is designed to identify numerical changes in a set of measurable characteristics within a population of interest (Kraska, 2010). In contrast, qualitative research captures contextual and interpretive differences regarding a phenomenon of interest (Staller, 2010). As the present study was designed to examine relationships between the independent and dependent variables along a measurable continuum, a quantitative design was best-suited for this research. A nonexperimental design was also chosen

because the variables of interest had already occurred and could not be manipulated by the researcher (see Kraska, 2010). This study was designed to answer questions about the college student population by measuring how individual differences in the need to belong, fear of missing out, and social media use influenced perceptions of, and reactions to, events from which rejection might be inferred. Surveys are often utilized in nonexperimental designs where participants answer questions about their underlying beliefs, attitudes, emotions, and behaviors (Mrug, 2010). This study used an Internet-based survey, which was cost effective and advantageous for reaching a large number of participants in a short period of time within a large geographic area (see Mrug, 2010). Moreover, U.S. college students have easy access to and are the most frequent users of the Internet (see Smith et al., 2011), thus making an Internet-based survey appropriate for this research.

Methodology

Population

The target population for this study was undergraduate college students in the United States. Participants were required to be aged 18 to 24, currently enrolled in an undergraduate program (i.e., traditional on-campus, online, and hybrid format), and had at least one social media account. The sample was limited to U.S. participants to minimize cultural factors that may influence differences in the independent variables (i.e., need to belong, fear of missing out, and social media use) and the perception of social rejection in general. Furthermore, it has been established that college-aged students use social media more than any other age group, and young adults are generally more

impacted by the fear of missing out compared to other age groups (Pryzbylski et al.,

2013; Smith & Anderson, 2018).

Sampling and Sampling Procedures

A convenience sampling strategy was used for this study where participants were

self-selected. The sample was obtained using the Qualtrics participant pool. People

within the pool were notified via email if they qualified to participate based on the

study's inclusion criteria. The inclusion criteria were (a) U.S. college students, (b) 18-24

years of age, (c) who were currently enrolled in an undergraduate program, and (d) had at

least one social media account. International students and people who had children were

excluded from this study. Potential participants who met these criteria were provided

with the link to the survey and instructed to follow the link if they wished to participate in

the study. While probability sampling is preferable to enhance population

representativeness and generalizability of the results, the constraints specific to

conducting research online made random sampling unavailable for this study.

A power analysis using G*Power 3.1 was computed to determine the appropriate

minimum sample size for the study (see Faul, Erdfelder, Buchner, & Lang, 2009). Using

an alpha level of .016, power of .95, three predictor variables (i.e., need to belong, fear of

missing out, and social media use), and a predicted effect size of .15, the recommended

sample size was 147. The scoring procedure for the Rejection Scenarios Questionnaire

(i.e., the DV measurement) produces five distinct scores: one score for emotional

reactions, and four separate scores for the behavioral reactions to the ambiguous rejection

scenarios. This requires performing separate regressions for each DV score, which would

increase the likelihood of type 1 error. The Bonferroni procedure is used to correct for type 1 error and is calculated by dividing the original alpha (.05) by the number of predictor variables (see Mundfrom, Perrett, Schaffer, Piccone, & Roozeboom, 2006). Therefore, using the Bonferroni procedure it was recommended that alpha be set to .016. The medium effect size of .15 was consistent with recent related research on the study variables (see Knausenberger & Echterhoff, 2018).

Recruitment, Participation, and Data Collection

Following IRB approval this study used the Qualtrics survey platform and participant pool to recruit participants and distribute the survey. Potential participants who met the inclusion criteria and wished to participate in the study were directed to a link that included an informed consent form, eligibility screening questions that required participants to confirm they met the inclusion criteria, a demographic questionnaire, and the survey instruments. All data for the research was collected anonymously.

Potential participants were requested to sign an informed consent form prior to participation. This study used passive deception and the consent form stated the nature of the study was to explore how psychological needs are related to social behavior. The consent form also described participation procedures, the voluntary nature of the study, risks and benefits of participation, and privacy practices. Contact information for me and for the Walden University's participant advocate were also provided in case the participants had questions about the research or participant rights. After consent was provided, participants were screened for eligibility. Participants were required to be (a) U.S. college students, (b) 18-24 years of age, (c) who were currently enrolled in an

undergraduate program, and (d) had at least one social media account. Potential

participants who did not meet the inclusion criteria were directed to a "Thank You" page,

restating the participation requirements and researcher contact information. Eligible

participants were directed to a brief demographic questionnaire that assesses age, gender,

college level, and social media platforms used, followed by the survey instruments. The

approximate time to complete all survey items was 20-30 minutes. Upon survey

completion, participants were directed to a "Thank You" page where participants were

fully debriefed about the true nature of the study. My contact information was provided

for questions or comments.

Instrumentation and Operationalization of Constructs

Demographic Questionnaire

The brief demographics questionnaire (see Appendix A) assessed information

including age, gender, current college level (i.e., 1st-4th year), whether they attend school

on a traditional campus, online, or hybrid format, and types of social media accounts

participants held. Participants were provided with a list of the most popular social media

sites according to Smith and Anderson (2018) and asked to select all that applied (i.e.,

YouTube, Facebook, Instagram, Pinterest, LinkedIn, Snapchat, Twitter, and other). The

demographic questionnaire takes less than one minute to complete.

Need to Belong Scale (NTBS)

The NTBS is a 10-item Likert-type scale that was used to measure individual

differences in the dispositional motivation or desire for acceptance and belonging (Leary

et al., 2013). Participants endorsed statements about themselves (e.g., "My feelings are

easily hurt when I feel that others do not accept me."; "I try hard not to do things that will make other people avoid or reject me.") along a 5-point scale ranging from 1 (i.e., *strongly disagree*) to 5 (i.e., *strongly agree*). The NTBS takes approximately two minutes to complete. Three items are reverse scored and the average for all 10 items was computed to create an overall Need to Belong index; higher scores represent a stronger need to belong. The NTBS is published within the public domain and can be used for research purposes without permission.

Reliability and validity. In a series of studies across 15 samples, Leary et al. (2013) determined the NTBS had acceptable internal consistency. Across the samples, Cronbach's alpha ranged from .78 to .87, with a median alpha of .81. Ten-week test-retest reliability was tested using a partial sample (n=104) established at r=.87.

To demonstrate concurrent validity, the NTBS has been used in numerous studies to measure how belonging needs influence various behaviors, often those resulting from social rejection. In two studies examining the need to belong and social pain, Chester, DeWall, and Pond (2016) used the NTBS to determine if the need to belong was related to social pain after experiencing rejection; this relationship was assessed using Cyberball, a virtual ball toss game commonly used to measure threats to belonging where computerized confederates either exclude (experimental condition) or include (control condition) individual participants from game play (Knowles et al., 2015). The authors reported Cronbach's alpha at ≥ .81. Results indicate that a stronger need to belong was associated with greater social pain after experiencing social rejection (β= .20, t(196)=2.15, p=.033). As another indication of concurrent validity, Barnes, Carvallo,

Brown, and Osterman (2010) investigated the relationship between forgiveness and the need to belong. The NTBS was used in conjunction with several measures to determine whether the need to belong was associated with forgiveness likelihood, emotions, and perceived rejection severity after experiencing a negative interpersonal offense. Cronbach's alpha was reported as sufficient at .83. Results showed that participants with higher need to belong scores interpreted interpersonal offenses more negatively ($r=.32$, $p<.01$), exhibited more anger ($r=.30$, $p<.01$), and were less willing to forgive others ($\beta= -.28$, $t= -3.46$, p=.001) than people with low need to belong scores. Need to belong theory suggests that people with high belongingness needs have more negative reactions to thwarted belonging; these findings indicate the NTBS is a valid instrument for measuring individual belonging needs.

Across nine studies with sample sizes ranging from 82 to 325, construct validity was also examined in relation to other constructs that capture the desire to interact with others and need for social acceptance (i.e., affiliative traits, perceived acceptance and social support, the Big Five personality traits, affective dispositions, attachment, identity/value orientations, and personality disorders) (Leary et al., 2013). Eight of the studies used college student samples and one study used a diverse adult sample to determine generalizability of results. Overall, results found mostly nonsignificant relationships or weak significant relationships with small to moderate correlations (.11 to .48) between the NTBS and all other measures with the exception of hurt feelings (.63). Findings suggest the NTBS measures a distinct, yet related construct compared to other instruments designed to measure the desire to interact with others. These tests of validity

indicate the NTBS is a valid instrument.

Fear of Missing Out Scale (FOMOS)

The FOMOS is a 10-item Likert-type scale that was used to assess individual differences in fears, worries, and anxieties people have about being in (or out of) touch with events, experiences, and conversations occurring within their social environment (Przybylski et al., 2013). Participants indicated how true each statement was of their general experiences (e.g., "I fear others have more rewarding experiences than me."; "When I miss out on a planned get-together, it bothers me.") along a 5-point scale ranging from 1 (i.e., *Not at all true of me*) to 5 (i.e., *Extremely true of me*). The scale takes approximately two minutes to complete. The average using all 10 items was computed to yield a single score. The FOMOS is published within the public domain and can be used for research purposes without permission.

Reliability and validity. Przybylski et al. (2013) found that the FOMOS has acceptable construct and criterion-related validity. In the test development with a diverse sample of adults (*N*=1,013), principal components analysis using a maximum likelihood estimation was conducted that included 32 item-pool questions. A strong single factor was identified, although confirmatory factor analysis revealed poor item loadings for 7 items that were dropped from further analyses. To maximize sensitivity of the scale and reduce the number of scale items, a graded-response model was utilized to examine individual item information curves along the latent trait spectrum. Ten items were identified for the final scale that detect low, medium, and high degrees of the fear of missing out. Criterion-related validity was established by using a hierarchical regression

model to examine whether FOMOS scores predicted differences in psychological needs, social media engagement, and measures of psychological wellbeing. Results revealed that higher degrees of fearing missing out significantly predicted psychological needs deficits (β= -.25, p<.001), lower levels of mood (β= -.20, p<.001) and wellbeing (β= -.17, p<.001), and increased social media use (β= .40, p<.001). Furthermore, across three studies, internal consistency was good with Cronbach's alpha reported at .87, .89, and .90, respectively.

Recent research utilizing the FOMOS consistently supports its construct validity. The FOMOS (α=.76) was used to examine the relationship between the fear of missing out, psychological needs satisfaction, relative deprivation, and friend support in a sample of college students (Xie, Wang, Wang, Zhao, & Lei, 2018). Results revealed the fear of missing out was negatively correlated with psychological needs satisfaction (r= -.18, p=<.001) and positively correlated with relative deprivation (r= .20, p=<.001). Further mediation analysis revealed that psychological need satisfaction predicted a fear of missing out when controlling for relative deprivation (β= -.17, p<.001). In other research, the FOMOS (α=.87) was utilized to explore relationships between the fear of missing out, fear of positive and negative evaluation, and negative affect as predictors of problematic smartphone use (Wolniewicz, Tiamiyu, Weeks, & Elhai, 2017). The fear of missing out was significantly and positively related to problematic smartphone use (r=.42, p<.05), and the fear of missing out mediated the relationship between fear of negative evaluations (β= .17, p<.001), fear of positive evaluations (β= -.10, p<.001), and problematic smartphone use. These findings are consistent with the theoretical understanding of the

fear of missing out as a consequence of psychological needs deficits and as a driver of increased social media use.

Social Networking Time Use Scale (SONTUS)

The SONTUS is a 29-item self-report questionnaire that was used to measure time spent, places, and situations in which people have used social networking sites during the past week (Olufadi, 2016). The SONTUS is comprised of five subscales that reflect different contexts where people use social media: relaxation and free periods (e.g., "When you are at home sitting idly"); academic-related periods (e.g., "When you are doing school or job-related assignment at home"); public places-related use (e.g., "When you go to the stadium to watch football, basketball etc."); stress-related periods (e.g., "When you need to reduce your mental stress"); and motives for use (e.g., "When you need to maintain contact with existing friends"). Participants responded to items on an 11-point Likert-type scale, ranging from 1 (i.e., *Not applicable to me during the past week*) to 11 (i.e., *I used it more than 3 times during the past week but spent more than 30 minutes each time*). The scale takes approximately five to seven minutes to complete. Five component scores were derived from the SONTUS, and scores from the five subscales were totaled to produce a single score that ranged from 5 to 23. The global score is interpreted as low (5-9), average (10-14), high (15-19), or extremely high (20-23) use of social networking sites. Permission to use the SONTUS for this study was granted by the scale developer (see Appendix B).

Reliability and validity. Olufadi (2016) utilized several methods to establish reliability and validity. First, a panel of eight academic professionals drafted a 63-item

questionnaire; using a Likert-type scale, each question was rated on its relevance to the

conceptual framework. The Content Validity Index (CVI) was used to rate item validity,

and items were dropped (11) with a CVI score below .83. Face validity was also

established using a panel of 20 people who evaluated items for clarity, grammar,

appropriateness, etc., with a 93-98% approval rating of survey-audience fit for social

media users. A large sample of adults (N=2,049) completed a 52-item version of the

SONTUS. A principal component analysis with a varimax rotation revealed a 5-factor

solution with item loadings below a .55 cut-off point dropped; this resulted in 29 items

for the final scale. The factor loadings ranged from .77 to .82 (relaxation and free

periods), .69 to .86 (academic-related periods), .73 to .84 (public places-related use), .70

to .77 (stress-related periods), and .67 to .82 (motives for use). Cronbach's alpha for the

full scale was .92, and alpha for the five factors were .91, .89, .85, .86, .83, respectively.

Criterion-related validity was established in a confirmatory analysis with a separate

sample (N=1,808) and several goodness-of-fit indices provided support for the 5-factor

model, ranging from .90 to .95. Furthermore, correlations between the SONTUS and

several measures of personality, Internet addiction, and wellbeing were examined. Except

for a significant negative correlation found between internet/social media addiction and

the academic-related periods factor (r= -.22), results showed significant positive

correlations between the five subscales of the SONTUS and Internet/social media

addiction with r values ranging from .26 to .43. Small to moderate correlations were also

found between the SONTUS and the Big Five Personality factors (-.37 to .28) and poor

wellbeing (.36 to .74). These correlations are consistent with the conceptual framework

and support the predictive validity of the SONTUS.

As the SONTUS was recently developed, it has been minimally used in empirical research to affirm its reliability and validity. However, one study could be located that used the SONTUS to measure social media use to assess its relationship to the fear of missing out and problematic Internet use in a sample of Filipino participants (Reyes, Marasigan, Gonzales, Hernandez, Medios, & Cayubit, 2018). Cronbach's alpha for the SONTUS and FOMOS was reported at .93 and .85, respectively. Using a multiple regression analysis, results showed that the fear of missing out explained 17% of the variance in social media use ($R^2 = .66$, $F(1, 1,058) = 519.11$, $p<.001$), and the fear of missing out significantly predicted social media time usage ($\beta= 2.97$, $p<.001$). Moreover, the fear of missing out ($\beta= 1.37$, $p<.001$) explained 33% of the variance in problematic Internet use ($R^2 = .329$, $F(1, 1,058) = 519.11$, $p<.001$). Overall, these results provide support for the concurrent validity of the SONTUS.

Rejection Scenarios Questionnaire (RSQ)

The RSQ is comprised of six interpersonal scenarios that describes hypothetical situations in which another person's behavior might be interpreted as rejection (Jones et al., 2015). The present study utilized this questionnaire to measure perceived social rejection (DV). The scenarios reflect two friend encounters, two romantic interest encounters, and two acquaintance encounters. Participants were instructed to read these scenarios, one at a time, and subsequently complete two brief questionnaires that assessed: (a) anticipated emotional response to the situation, and (b) their anticipated

behavioral response to the person in the situation. The RSO takes approximately 12-15 minutes to complete.

The emotional response subscale assessed the degree to which participants would feel seven different emotions (i.e. upset, angry, happy, sad, rejected, ashamed, and irritated) on a 5-point Likert-type scale, ranging from 1 (*not at all*) to 5 (*a lot*). Emotional responses were averaged across the six scenarios to produce a single negative emotional response score, with higher averages indicating an overall heightened negative emotional response. The behavioral response subscale assessed anticipated behavioral reactions of the person who perceives rejection in each situation across four categories (i.e., avoid, complain, retaliate, and act friendly). Two different behavioral reactions were included for the avoid, complain, retaliate, and act friendly categories, for a total of eight possible behavioral reactions (i.e., for avoid, "ignore the fact that your friend is not responding to your text message"; "avoid texting your friend by texting someone else"). Participants were asked to rate the likelihood of reacting to the situation in each of the eight ways ranging from 1 (*not likely at all*) to 5 (*very likely*). Participants' ratings for each category were averaged across the six scenarios to yield individual total scores for avoid, complain, retaliate, and act friendly (reverse scored). Higher average scores on the behavioral reactions subscale indicate a heightened overall negative behavioral reaction. Permission was granted by the primary author to use the RSQ for the present study (see Appendix C).

Reliability and validity. On the emotional subscale for the RSQ, Jones et al. (2015) reported a Cronbach's alpha of .86 for the negative emotional response score. For

the behavioral subscale across the four behavioral categories, Cronbach's alpha was reported as follows: avoid (.74), complain (.83), retaliate (.76), and not act friendly (.83). Jones' et al. (2015) version of the RSQ was adapted from two previous studies utilizing child and adolescent samples to examine responses to ambiguous situations wherein minor forms of rejection might be inferred (Barnett, Barlett, Livengood, Murphy, & Brewton, 2010; Barnett, Nichols, Sonnentag, & Wadian, 2013). The adaptions made by Jones et al. were situational changes appropriate for a college student sample. For example, Barnett et al. (2010, 2013) used scenarios referring to gym class, recess, and class parties, whereas Jones et al. (2015) used scenarios reflecting campus and dating situations.

Using the RSQ, Barnett et al. (2010) examined whether attitudes toward teasing and ambiguous teasing scenarios could predict emotional and behavioral reactions in a sample of fifth and sixth graders. The ambiguous scenarios were worded to reflect the sample population's educational/developmental level and experiences with teasing. Cronbach's alpha for the emotional subscale was .80; the behavioral subscale yielded the following alphas: avoid (.58), complain (.66), retaliate (.72), and not act friendly (.71). Results from this study indicated that the more frequently participants reported be teased in a negative way, the more likely they were to report anticipated negative feelings from the ambiguous rejection scenarios (boys, $\beta = .39$, $p = .001$; girls, $\beta = .22$, $p = .05$). Anticipated behavioral reactions from the ambiguous rejection scenarios were also negative in nature, whereby both boys and girls were significantly likely to retaliate against a teaser (boys, $\beta = .16$, $p = .01$; girls, $\beta = .14$, $p = .02$). These findings support the

concurrent validity of the RSQ and suggest it is adequate in evoking emotional and behavioral responses to ambiguous rejection.

In a similar study using a sample of adolescents, Barnett et al. (2013) used the RSQ to examine ambiguous teasing on Facebook. For this study the scenarios were worded to reflect ambiguous teases that may occur on Facebook. Cronbach's alpha for the RSQ emotional subscale was .89; alphas were not reported for the behavioral subscale. The results showed that when participants anticipated a negative emotional reaction to the ambiguous teasing situations, they were significantly more likely to respond by avoiding (r=.38. p <.01), retaliating, (r=.36. p <.01) and complaining (r=.42, .58, p <.01) and were less likely to act friendly (r= -.35. p <.01) to the teaser in the situations. This study further supports the concurrent validity of the RSQ and suggests it is an acceptable measure to expose participants to ambiguous rejection and to accurately identify anticipated emotional and behavioral reactions to social rejection.

Data Analysis Plan

Data collected from the Qualtrics survey platform was downloaded into the SPSS version 25.0 for data analysis. Hierarchical multiple regression was used to determine the extent to which the need to belong, fear of missing out, and social media use predicted changes in emotional and behavioral responses to perceived social rejection. In hierarchical multiple regression independent variables are entered into the regression equation in steps in order of predictive power based on theoretical reasoning to determine the extent to which each independent variable or blocks of variables adds to the explained variance in a dependent variable (Segrin, 2010). The theoretical framework and relevant

literature suggest the need to belong may be the strongest predictor of perceived social rejection, followed by social media use, and the fear of missing out (Baumeister & Leary, 1995; Przybylski et al., 2013). The perceived social rejection instrument is divided into emotional and behavioral subscales and does not yield a combined single score, thus creating more than one dependent variable. Therefore, using hierarchical multiple regression required computing hierarchical regressions for each dependent variable separately (Dattalo, 2013). Assumptions for multiple regression were tested in SPSS prior to the regression analysis (i.e., normality, linearity, homoscedasticity, multicollinearity, and independence of residuals). Normality was tested using histograms and Q-Q plots, linearity was examined using scatterplots, a scatterplot of residuals was used to test for homoscedasticity, multicollinearity was tested using Variance Inflation Factor (VIF) values, and independence of residuals were examined using the Durbin-Watson d test.

Research Questions

Research Question 1: To what extent does the need to belong, as measured by the Need to Belong scale (NTBS), relate to perceived social rejection (i.e., emotional reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) emotional subscale, among college students?

H_o: The need to belong is not a significant predictor of perceived social rejection (i.e., emotional reactions).

H_a: The need to belong is a significant predictor of perceived social rejection (i.e., emotional reactions).

Research Question 2: To what extent does the fear of missing out, as measured by the Fear of Missing Out scale (FOMOS), relate to perceived social rejection (i.e., emotional reactions) as measured by the Rejection Scenarios Questionnaire (RSQ) emotional subscale, among college students?

H_o: The fear of missing out is not a significant predictor of perceived social rejection (i.e., emotional reactions).

H_a: The fear of missing out is a significant predictor of perceived social rejection (i.e., emotional reactions).

Research Question 3: To what extent does social media use, as measured by the Social Networking Time Use scale (SONTUS), relate to perceived social rejection (i.e., emotional reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) emotional subscale, among college students?

H_o: Social media use is not a significant predictor of perceived social rejection (i.e., emotional reactions).

H_a: Social media use is a significant predictor of perceived social rejection (i.e., emotional reactions).

Research Question 4: To what extent does the need to belong, as measured by the Need to Belong scale (NTBS), relate to perceived social rejection (i.e., behavioral reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) behavioral subscale, among college students?

H_o: The need to belong is not a significant predictor of perceived social rejection (i.e., behavioral reactions).

H_a: The need to belong is a significant predictor of perceived social rejection (i.e., behavioral reactions).

Research Question 5: To what extent does the fear of missing out, as measured by the Fear of Missing Out scale (FOMOS), relate to perceived social rejection (i.e., behavioral reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) behavioral subscale, among college students?

H_o: The fear of missing out is not a significant predictor of perceived social rejection (i.e., behavioral reactions).

H_a: The fear of missing out is a significant predictor of perceived social rejection (i.e., behavioral reactions).

Research Question 6: To what extent does social media use, as measured by the Social Networking Time Use scale (SONTUS), relate to perceived social rejection (i.e., behavioral reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) behavioral subscale, among college students?

H_o: Social media use is not a significant predictor of perceived social rejection (i.e., behavioral reactions).

H_a: Social media use is a significant predictor of perceived social rejection (i.e., behavioral reactions).

Threats to Validity

Several threats to validity have been identified for this study. First, self-selection to participate in the research poses a threat to validity because there is no way to confirm whether sample characteristics are reflective of the overall target population. It is possible

that participants who join research participant pools are inherently different from people

within the population who do not volunteer for research, thus limiting the generalizability

of results. Unknown eligibility is another threat to validity, especially in web-based

surveys, where researchers must rely on participant honesty in meeting the

inclusion/exclusion criteria to participate. To minimize this threat, six screening questions

were asked about age, college enrollment status, whether participants have children, and

number of social media accounts prior to beginning the survey. Internet-based survey

research can also be vulnerable to nonresponse bias that occurs when eligible participants

do not respond to the survey request or survey items are left incomplete. In such cases, it

is unknown whether those who did not complete some or all items have characteristics

different from participants who completed all survey items (Kalaian & Kasim, 2008). To

reduce nonresponse bias, the Qualtrics survey platform is equipped with item response

validation to ensure participants answered all survey questions.

Ethical Procedures

Prior to data collection, this study was approved by the Walden University

Institutional Review Board (Approval Number: 10-01-19-0248475). Because participants

were asked about personal feelings and behaviors experienced in the typical daily lives of

the target population, the study posed minimal risk (National Research Council, 2014).

While it was not anticipated that participating posed risks above and beyond what is

normally encountered in everyday life, participants were informed in the consent form

that expressing their feelings can evoke emotional stress. To address this risk participants

were referred to Mental Health America

(http://www.mentalhealthamerica.net/search/node) on the consent form and debriefing

page to locate mental health resources/facilities most easily accessible to them should

they experience emotional stress from their participation in the study. Steps were also

taken to ensure participants did not feel unduly pressured to participate. The informed

consent process provided participants with a description of the study, risks and benefits of

participation, and participants' right to privacy that is protected by collecting data absent

any personal identification information. There were also no negative consequences that

would result from withdrawing from the research at any time. Finally, the Qualtrics

survey platform uses encrypted software to protect data. Raw data downloaded from

Qualtrics into SPSS for analysis was stored on a password-protected computer accessible

only by me. Data will also be stored for a minimum of five years on a password-protected

flash drive in a secure and locked safe that only I can access.

Summary

The purpose of this study was to examine the extent to which individual

differences in the need to belong, fear of missing out, and social media use predicted

perceived social rejection (both emotional and behavioral responses) among college

students. This study utilized a quantitative nonexperimental survey design with a target

population of 18-24-year-old U.S. undergraduate college students, currently enrolled in

an undergraduate program who had at least one social media account. People excluded

from the study were international students and people with children. The survey was

web-based and used the Qualtrics Survey Platform; participants were recruited from the

Qualtrics participant pool. The instruments selected for this research were described and

reliability and validity were established. Hierarchical multiple regression was used to analyze and describe the data. Threats to validity and ethical considerations were also addressed. Chapter 4 will provide a detailed discussion of the data analysis process and research findings.

Chapter 4: Results

Introduction

The purpose of this quantitative survey study was to examine the extent to which individual differences in need to belong, fear of missing out, and social media use predict the perceptions of social rejection, specifically, the emotional and behavioral reactions to ambiguous social rejection scenarios among the college student population. Six research questions in this study were tested using hierarchical multiple regression. In this chapter the research questions and hypotheses are restated, followed by a description of the data collection and screening procedures. Descriptive statistics and evaluation of statistical assumptions are also provided. The chapter concludes with a summary of results of the hierarchical multiple regression analysis.

Research Questions

Research Question 1: To what extent does the need to belong, as measured by the Need to Belong scale (NTBS), relate to perceived social rejection (i.e., emotional reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) emotional subscale, among college students?

H_o: The need to belong is not a significant predictor of perceived social rejection (i.e., emotional reactions).

H_a: The need to belong is a significant predictor of perceived social rejection (i.e., emotional reactions).

Research Question 2: To what extent does the fear of missing out, as measured by the Fear of Missing Out scale (FOMOS), relate to perceived social rejection (i.e.,

emotional reactions) as measured by the Rejection Scenarios Questionnaire (RSQ) emotional subscale, among college students?

H_o: The fear of missing out is not a significant predictor of perceived social rejection (i.e., emotional reactions).

H_a: The fear of missing out is a significant predictor of perceived social rejection (i.e., emotional reactions).

Research Question 3: To what extent does social media use, as measured by the Social Networking Time Use scale (SONTUS), relate to perceived social rejection (i.e., emotional reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) emotional subscale, among college students?

H_o: Social media use is not a significant predictor of perceived social rejection (i.e., emotional reactions).

H_a: Social media use is a significant predictor of perceived social rejection (i.e., emotional reactions).

Research Question 4: To what extent does the need to belong, as measured by the Need to Belong scale (NTBS), relate to perceived social rejection (i.e., behavioral reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) behavioral subscale, among college students?

H_o: The need to belong is not a significant predictor of perceived social rejection (i.e., behavioral reactions).

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Research Question 5: To what extent does the fear of missing out, as measured by the Fear of Missing Out scale (FOMOS), relate to perceived social rejection (i.e., behavioral reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) behavioral subscale, among college students?

H_o: The fear of missing out is not a significant predictor of perceived social rejection (i.e., behavioral reactions).

H_a: The fear of missing out is a significant predictor of perceived social rejection (i.e., behavioral reactions).

Research Question 6: To what extent does social media use, as measured by the Social Networking Time Use scale (SONTUS), relate to perceived social rejection (i.e., behavioral reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) behavioral subscale, among college students?

H_o: Social media use is not a significant predictor of perceived social rejection (i.e., behavioral reactions).

H_a: Social media use is a significant predictor of perceived social rejection (i.e., behavioral reactions).

Data Collection

Data collection occurred across a 3-day period in October 2019. Study participants were recruited from the Qualtrics participant panel based on the study's inclusion criteria requiring participants to be U.S college students, aged 18 to 24, currently enrolled in an undergraduate program (i.e., traditional on-campus, online, and hybrid format), and had at least one social media account. International students and

students with children were excluded. The survey took place in an online format and began with the consent form that explained the purpose of the study was to "explore how psychological needs are related to social behavior." The consent form also included a description of procedures, the voluntary nature of the study, risks and benefits, privacy, and contact information. The survey was anonymous; no identifying information was collected to protect participant privacy. Respondents who did not provide consent were directed to the end of the survey. Respondents who did provide consent were directed to six screening questions designed with a skip logic feature to disqualify participants who did not meet the inclusion/exclusion criteria. Respondents who did not meet the inclusion/exclusion criteria were directed to a thank you page ending the survey.

Respondents who met all inclusion criteria were directed to the survey portion of the study. All survey questions were equipped with a forced validation feature that required participants to answer all survey questions to prevent missing data. After all survey questions were answered, participants were directed to a debriefing page that explained the use of incomplete disclosure about the purpose of the study, a practice typically used when revealing the true purpose of the study might bias participant responses. Debriefing informed participants of the true nature of the study, which was to "examine how individual differences in the need to belong, fear of missing out, and social media use influence emotional and behavioral reactions to social situations from which social rejection might be inferred." Participants were given the option to withdraw their data without penalty after the true nature of the study was disclosed. Qualtrics did not

reveal how many respondents met the inclusion and exclusion criteria or chose to withdraw their data after being debriefed, so it is not possible to calculate response rates.

The forced validation procedure obviated the need to remove responses to missing or incomplete data. The total sample size for the study was $N = 157$, providing adequate power with an alpha level of .016. Alpha was adjusted to .016 using the Bonferroni procedure to reduce the likelihood of Type I error. Three predictor variables (i.e., need to belong, fear of missing out, and social media use) and two outcome variables (i.e., anticipated emotional reactions and anticipated behavioral reactions) were used to examine the research questions and hypotheses.

Demographics

The demographics (i.e., gender, age, current college level, college format, types of social media accounts used) for participants are displayed in Tables 1 and 2. The average age of participants was 20.3 ($SD = 1.81$), and the majority were female ($n = 122$, 77%). Participants most frequently reported being in their second year of college ($n = 46$, 29%), although the sample is nearly evenly distributed across first through fourth-year categories. The majority of students also reported attending college in a traditional on-campus setting ($n = 101$, 64%).

Table 1

Frequencies: Gender, Age, Current College Level, and College Attendance Format

Variable		*n*	*%*
Gender	Male	35	22.3%
	Female	122	77.7%
Age	18	27	17.2%
	19	34	21.7%
	20	30	19.1%
	21	26	16.6%
	22	14	8.9%
	23	15	9.6%
	24	11	7.0%
Current college level	1st year	35	22.3%
	2nd year	46	29.3%
	3rd year	37	23.6%
	4th year	39	24.8%
College attendance format	On campus	101	64.3%
	Online	15	9.6%
	Hybrid	41	26.1%

Students were asked about the number and type of social media accounts they hold. Approximately 12% ($n = 19$) of students reported having 1 to 2 accounts, 35% ($n = 55$) reported having 3 to 4 accounts, 42.7% ($n = 67$) reported having 5 to 6 accounts, and 10.2% ($n = 16$) reported having 7 to 8 accounts. The majority of students indicated they used Instagram ($n = 134$, 85.4%) followed by Snapchat ($n = 124$, 79%), YouTube ($n = 122$, 77.7%), Facebook ($n = 119$, 75.8%), Twitter ($n = 99$, 63.1%), Pinterest ($n = 74$, 47.1%), LinkedIn ($n = 37$, 23.6%), and Other ($n = 9$, 5.7%).

Table 2

Frequencies: Number and Type of Social Media Accounts of Participants

Variable		*N*	*%*
Number of social media accounts	1-2	19	12.1%
	3-4	55	35.0%
	5-6	67	42.7%
	7-8	16	10.2%
YouTube		122	77.7%
Facebook		119	75.8%
Instagram		134	85.4%
Pinterest		74	47.1%
LinkedIn		37	23.6%
Snapchat		124	79.0%
Twitter		99	63.1%
Other		9	5.7%

As a convenience sampling method was used in this study, it is unknown whether the sample characteristics are representative of the U.S. undergraduate population. Accordingly, the results of the study cannot be generalized to all U.S. undergraduate students. Although probability sampling would increase the sample representativeness and generalizability, the constraints specific to conducting research online made random sampling unavailable in this study; external validity is therefore limited.

Results

Descriptive Statistics

The total sample included 157 students who completed the study. The following means and standard deviations were calculated for the three predictor variables: need to belong ($M = 3.18$, $SD = .74$), fear of missing out ($M = 2.52$, $SD = .83$), and social media

use (SONTUS) (M = 12.87, SD = 3.27). Means and standard deviations were also calculated for the following outcome variables using the RSQ: negative emotional reaction (M = 2.59, SD=.70), avoid (M = 2.94, SD = .64), complain (M = 2.10. SD = .73), retaliate (M = 1.77, SD = .74), not act friendly (M = 3.36; SD = .76). Table 3 displays the means and standard deviations for the predictor and outcome variables.

Table 3

Descriptive Statistics for Predictor and Outcome Variables

Variable	N	M	SD	Min	Max
Need to belong	157	3.18	.74	1.40	4.90
Fear of missing out	157	2.52	.83	1.00	5.00
Social media use	157	12.87	3.27	5.00	22.00
Negative emotional reaction	157	2.59	.70	1.00	4.31
Avoid	157	2.94	.64	1.50	4.67
Complain	157	2.10	.73	1.00	3.92
Retaliate	157	1.77	.74	1.00	3.67
Not act friendly	157	3.36	.76	1.92	5.00

In addition to deriving a global score for social media use, the SONTUS also provides classifications that define low, average, high, and extremely high social media use. Specifically, a global score of 5 to 9 (low user), 10 to 14 (average user), 15 to 19 (high user), and 20 or greater (extremely high user). More than half of the sample is considered an average user of social media (n = 87, 55.4%). The SONTUS classifications for participants are displayed in Table 4.

Table 4

Frequencies for SONTUS Classifications

Categories	*n*	*%*
Low social media use	23	14.6
Average social media use	87	55.4
High social media use	43	27.4
Extremely high social media use	4	2.5

The total negative emotional reaction score was derived from participants rating their emotions on a scale from 1 (*not at all*) to 5 (*a lot*) on how much they felt upset, angry, happy, sad, rejected, ashamed, and irritated after reading each of the six rejection scenarios. To further examine the extent to which participants felt each emotion in response to the rejection scenarios, means and standard deviations for each emotion across the six scenarios were computed (Table 5). Mean scores for feeling rejected were higher than any other emotion (M=3.10, SD=1.02), followed by feeling upset (M=3.07, SD=.90), irritated (M=2.92, SD=.92), sad (M=2.80, SD=.97), angry (M=2.58, SD=.93), ashamed (M=2.26, SD=.92), and happy (M=1.39, SD=.47).

Table 5

Descriptive Statistics for Distinct Emotions

Emotion	*N*	*M*	*SD*	*Min*	*Max*
Upset	157	3.07	.90	1.00	4.83
Angry	157	2.58	.93	1.00	4.83
Happy	157	1.39	.47	1.00	3.00
Sad	157	2.80	.97	1.00	4.83
Rejected	157	3.10	1.02	1.00	5.00
Ashamed	157	2.26	.99	1.00	4.83
Irritated	157	2.92	.92	1.00	5.00

Evaluations of Statistical Assumptions

Assumptions for multiple regression were tested prior to the regression analysis (i.e., normality, linearity, homoscedasticity, multicollinearity, and independence of residuals). Normality was tested using the Shaprio-Wilk test and Q-Q plots. Table 6 provides the results of the Shaprio-Wilks test and indicates that not all variables are normally distributed. The need to belong, negative emotional reaction, and avoid are normally distributed, whereas fear of missing out, social media use, complain, retaliate, and not act friendly were not normally distributed. Q-Q plots for all variables are also provided in Appendix D and demonstrate that all data points are very close to or on the line for each variable with the exception of *retaliate*. Therefore, the assumption of normality was partially met.

Table 6

Shaprio-Wilk Normality Testing for Study Variables

Variable	Statistic	*df*	*p*	Skewness	Kurtosis
Need to belong	.989	157	.253	.136	-.439
Fear of missing out	.977	157	.011	.372	-.225
Social media use	.979	157	.017	-.109	.159
Negative emotional reaction	.985	157	.100	-.211	-.534
Avoid	.992	157	.511	.140	-.117
Complain	.965	157	.001	.388	-.635
Retaliate	.861	157	.000	.844	-.608
Not act friendly	.974	157	.004	.343	-.511

Linearity between predictor and outcome variables was examined using scatterplots. Scatterplots demonstrating linear relationships between each predictor and

outcome variable are provided in Appendix E. The linearity assumption was met for the data.

Multicollinearity was assessed by examining the variance inflation factor (VIF). Table 7 displays the VIF for the predictor variables. The data suggest the predictor variables are not highly correlated; the multicollinearity assumption has been met, as VIF values are well below 10 and tolerance scores are above 0.2.

Table 7

Collinearity Diagnostics for Predictor Variables

Variable	Tolerance	VIF
(Constant)		
Need to belong	.698	1.433
Social media use	.965	1.036
Fear of missing out	.701	1.427

The Durbin-Watson *d* test was conducted to examine independence of residuals. Table 8 provides the Durban-Watson test results for each of the five regressions, using the three predictor variables (i.e., need to belong, fear of missing out, social media use) in each regression. The Durbin-Watson scores are close to 2.0, indicating the assumption of independence of residuals was met.

Table 8

Model Summary: Durbin-Watson d Test

Outcome Variable	Durbin-Watson
Negative emotional reaction	2.044
Avoid	2.017
Complain	1.988
Retaliate	2.122
Not act friendly	1.887

Homoscedasitcity was examined using scatterplots of the standardized residual and standardized predicted values for the five regressions (see Appendix F). Examination of the scatterplots indicates the variance of residuals is constant for all regressions. The assumption of homoscedasticity was met.

P-P plots for all five regressions were used to examine the distribution of residuals (see Appendix G). Except for the *retaliate* outcome variable, the residuals were normally distributed for all regressions. Therefore, the assumption of normally distributed residuals is closely met.

In addition to testing the assumptions for multiple regression, Cronbach's alpha was computed to test the reliability of the instruments used for the current sample. Table 9 provides the Cronbach's alpha coefficients (*a*) for each instrument, and each had acceptable internal consistency, ranging from .72 to .94.

Table 9

Cronbach's Alpha Coefficients for Study Instruments

Instrument	α
NTBS	.806
FOMOS	.875
SONTUS	.869
RSQ Negative emotion reaction subscale	.945
RSQ behavior - Avoid subscale	.721
RSQ behavior - Complain subscale	.840
RSQ behavior - Retaliate subscale	.884
RSQ behavior - Not act friendly subscale	.816

Hierarchical Multiple Regression Analysis

Five separate hierarchical multiple regressions were conducted to determine the strength of the predictor variables: need to belong, fear of missing out, and social media use on the outcome variables of (a) negative emotion reaction, (b) avoid, (c) complain, (d) retaliate, and (e) not act friendly behavior reactions to perceived social rejection. In hierarchical multiple regression predictor variables are entered into the regression equation in steps in order of predictive power based on theoretical reasoning. Accordingly, 3-stage multiple regressions were conducted for each of the five regressions; need to belong was entered at stage one, social media use was entered at stage two, and fear of missing out was entered at stage three. The variables were entered in this order as the theoretical framework and relevant literature suggest the need to belong may be the strongest predictor of perceived social rejection followed by social media use and fear of missing out.

Emotional Reactions to Perceived Social Rejection

The first regression examined the relationship between the predictor variables and negative emotional reactions. The results revealed at stage one, need to belong significantly contributed to the regression model, $F (1,155) = 40.63$, $p < .001$, and accounted for 20.8% of the variance in negative emotional reaction. Social media use entered at stage two also significantly contributed to the model, $F (2,154) = 41.70$, $p < .001$, and explained an additional 14.3% of the variance in negative emotional reactions. Finally, the addition of fear of missing out further contributed significantly to the model at stage three, $F (3,153) = 31.06$, $p < .001$, accounting for an additional 2.8% of the variance in negative emotion reaction. Collectively, the three predictor variables accounted for 37.9% of the variance in negative emotional reactions to perceived social rejection. Effect sizes for the models (R^2) range from .208 to .379, indicating small to medium effect. Tables 10 and 11 present the regression model summary.

Table 10

Model Summary: Predictors of Negative Emotional Reactions

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.456	.208	.203	.62809
2	.593	.351	.343	.57015
3	.615	.379	.366	.55988

Table 11

ANOVA Results for 3-Stage Regression Model: Negative Emotional Reactions

Model		SS	df	MS	F	p
1	Regression	16.030	1	16.030	40.636	.000
	Residual	61.146	155	.394		
	Total	77.177	156			
2	Regression	27.116	2	13.558	41.708	.000
	Residual	50.061	154	.325		
	Total	77.177	156			
3	Regression	29.216	3	9.739	31.068	.000
	Residual	47.961	153	.313		
	Total	77.177	156			

Research Questions 1 through 3 asked to what extent does the need to belong (RQ1), fear of missing out (RQ2), and social media use (RQ3) as measured by the Need to Belong scale (NTBS), Fear of Missing out scale (FOMOS), and Social Networking Time Use Scale (SONTUS), relate to perceived social rejection (i.e., emotional reactions), as measured by the Rejection Scenarios Questionnaire (RSQ) emotional subscale, among college students? Table 12 presents the coefficients for each predictor variable. The hierarchical regression revealed in stage one, the need to belong was a significant predictor of negative emotional reactions, $\beta = .456$ ($t = 6.375$, $p = < .001$), with higher need to belong scores associated with higher negative emotional reaction scores. Stage two revealed that social media use significantly predicted negative emotional reactions, $\beta = .385$ ($t = 5.840$, $p = < .001$), whereby higher social media use scores were associated with higher negative emotional reaction scores. The final model revealed that all three predictor variables significantly predicted negative emotional

reactions to rejection, whereby higher scores on social media use ($\beta = .371$, $t = 5.726$, $p = < .001$), higher scores on the need to belong ($\beta = .286$, $t = 3.747$, $p = < .001$), and higher scores on the fear of missing out ($\beta = .197$, $t = 2.588$, $p = .011$) were associated with higher negative emotional reaction scores. Therefore, the null hypotheses were rejected for research questions 1-3. The results suggested that increases in the strength of one's need to belong, fear of missing out, and social media use were associated with heightened negative emotional reactions to perceived social rejection.

Table 12

Coefficients: Predictors of Negative Emotional Reactions

Model		*B*	*SE*	β	*t*	*p*
1	(Constant)	1.220	.221		5.530	.000
	Need to belong	.431	.068	.456	6.375	.000
2	(Constant)	.351	.249		1.408	.161
	Need to belong	.369	.062	.391	5.933	.000
	Social media use	.083	.014	.385	5.840	.000
3	(Constant)	.282	.246		1.143	.255
	Need to belong	.270	.072	.286	3.747	.000
	Social media use	.080	.014	.371	5.726	.000
	Fear of missing out	.167	.064	.197	2.588	.011

Behavioral Reactions to Perceived Social Rejection

Four separate hierarchical regressions were used to examine research questions 4 through 6 that asked to what extent does the need to belong (RQ4), fear of missing out (RQ5), and social media use (RQ6) as measured by the Need to Belong scale (NTBS), fear of missing out scale (FOMOS), and Social Networking Time Use scale (SONTUS), relate to perceived social rejection (i.e., behavioral reactions), as measured by the

Rejection Scenarios Questionnaire (RSQ) behavioral subscale, among college students?

The four regressions were needed to examine four distinct behavioral reactions to

perceived rejection (i.e. avoid, complain, retaliate, and not act friendly).

Avoidant behavior reactions to perceived social rejection. The first of these

regressions examined avoidant behavioral reactions to perceived social rejection. The

results indicated at stage one that need to belong significantly contributed to the

regression model, $F(1,155) = 7.327$, $p = .008$, accounting for 4.5% of the variance in

avoidant behavior reactions. Social media use entered at stage two also significantly

contributed to the model, $F(2,154) = 7.234$, $p = .001$, accounting for an additional 4.1%

of the variation in avoidant behaviors. Finally, the fear of missing out entered at stage

three further contributed significantly to the model $F(3,153) = 7.810$, $p < .001$,

accounting for an additional 4.7% of the variance in avoidant behaviors. Together the

three predictor variables accounted for 13.3% of the variance in avoidant behaviors to

perceived social rejection. Effect sizes for the models (R^2) range from .045 to .133,

indicating a small effect. Tables 13 and 14 provide the regression model summary.

Table 13

Model Summary: Predictors of Avoidant Behavioral Reactions

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.212	.045	.039	.62723
2	.293	.086	.074	.61569
3	.364	.133	.116	.60164

Table 14

ANOVA Results for 3-Stage Regression Model: Avoidant Behavior

Model		SS	df	MS	F	p
1	Regression	2.883	1	2.883	7.327	.008
	Residual	60.979	155	.393		
	Total	63.862	156			
2	Regression	5.484	2	2.742	7.234	.001
	Residual	58.377	154	.379		
	Total	63.862	156			
3	Regression	8.481	3	2.827	7.810	.000
	Residual	55.381	153	.362		
	Total	63.862	156			

In examining the regression coefficients (Table 15), stage one revealed that need to belong was a significant predictor of avoidant behaviors, $\beta = .212$ ($t = 2.707$, $p = .008$), in which higher need to belong scores were associated with higher avoidant behavioral reaction scores. At stage two social media use significantly predicted avoidant behaviors, $\beta = .205$ ($t = 2.620$, $p = .01$), where higher social media use scores were associated with higher avoidant behavior scores. However, when social media use was entered at stage two, the need to belong was no longer a significant predictor of avoidant behavior due to the adjusted p value of .016, $\beta = .178$ ($t = 2.274$, $p = .024$). The fear of missing out entered at stage three was a significant predictor of avoidant behavior, $\beta = .259$ ($t = 2.877$, $p = .005$), whereby higher fear of missing out scores were associated with higher avoidant behavior scores. The need to belong was also nonsignificant at stage three, $\beta = .040$ ($t = .446$, $p = .657$). Therefore, for research question 4 the null hypothesis was rejected only in the first model that included the need to belong as a single significant

predictor of avoidant behavior. The null hypotheses for research questions 5 and 6 were

rejected, as the fear of missing out and social media use included in the full model were

significant predictors of avoidant behavioral reactions to perceived social rejection. These

findings suggested that increases in social media use and fear of missing out were

associated with heightened avoidant behavior reactions to perceived social rejection.

Table 15

Coefficients: Predictors of Avoidant Behavioral Reactions

Model		*B*	*SE*	β	*t*	*p*
1	(Constant)	2.360	.220		10.713	.000
	Need to belong	.183	.067	.212	2.707	.008
2	(Constant)	1.939	.269		7.199	.000
	Need to belong	.153	.067	.178	2.274	.024
	Social media use	.040	.015	.205	2.620	.010
3	(Constant)	1.856	.265		7.010	.000
	Need to belong	.035	.077	.040	.446	.657
	Social media use	.037	.015	.188	2.447	.016
	Fear of missing out	.199	.069	.259	2.877	.005

Complaining behavior reactions to perceived social rejection. The second

regression examined complaining behavioral reactions to perceived social rejection. At

stage one, need to belong significantly contributed to the model, $F(1,155) = 9.487$, $p =$

.002, accounting for 5.8% of the variance in complaining. Social media use was entered

at stage two and significantly contributed to the model, $F(2,154) = 14.376$, $p < .001$,

explaining an additional 9.9% of the variance in complaining. Fear of missing out was

entered at stage three and further significantly contributed to the model, $F(3,153) =$

15.069, $p < .001$, accounting for an additional 7.1% of the variance with a total of 22.8%

of the variance in complaining behaviors explained by the model. Effect sizes for the

models (R^2) range from .058 to .228, indicating a small effect. Tables 16 and 17 provide

the model summary for complaining behavior.

Table 16

Model Summary: Predictors of Complaining Behavioral Reactions

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.240	.058	.052	.70807
2	.397	.157	.146	.67175
3	.478	.228	.213	.64503

Table 17

ANOVA Results for 3-Stage Regression Model: Complaining Behavior

Model		SS	df	MS	F	p
1	Regression	4.756	1	4.756	9.487	.002
	Residual	77.710	155	.501		
	Total	82.467	156			
2	Regression	12.974	2	6.487	14.376	.000
	Residual	69.492	154	.451		
	Total	82.467	156			
3	Regression	18.809	3	6.270	15.069	.000
	Residual	63.658	153	.416		
	Total	82.467	156			

An examination of the regression coefficients (Table 18) revealed that need to

belong at stage one significantly predicted complaining behavior, β = .240 (t = 3.080, p

=.002), with higher need to belong scores associated with higher complaining behavior

scores. At stage two, both social media use, β = .320 (t = 4.267, p <.001) and need to

belong, β = .186 (t = 2.877, p =.014), significantly predicted complaining behavior,

whereby higher social media use and need to belong scores were associated with higher

complaining behavior scores. At stage three, the need to belong was not a significant

predictor of complaining behavior, $\beta = .017$ ($t = .199$, $p = .842$); although social media

use, $\beta = .299$ ($t = 4.137$, $p < .001$ and the fear of missing out, $\beta = .318$ ($t = 3.745$, $p > .001$)

predicted complaining behavior with higher scores on social media use and fear of

missing out associated with higher complaining behavior scores. Accordingly, the null

hypothesis for question 4 was rejected for models one and two, accounting for the need to

belong as a single predictor in conjunction with social media use as predictors of

complaining behaviors. The null hypotheses for research questions 5 and 6 were rejected

where social media use and fear of missing out in the full model were both significant

predictors of heightened complaining behavior resulting from perceived social rejection.

Table 18

Coefficients: Predictors of Complaining Behavioral Reactions

Model		B	SE	β	t	p
1	(Constant)	1.356	.249		5.453	.000
	Need to belong	.235	.076	.240	3.080	.002
2	(Constant)	.608	.294		2.069	.040
	Need to belong	.182	.073	.186	2.477	.014
	Social media use	.071	.017	.320	4.267	.000
3	(Constant)	.492	.284		1.734	.085
	Need to belong	.017	.083	.017	.199	.842
	Social media use	.066	.016	.299	4.137	.000
	Fear of missing out	.278	.074	.318	3.745	.000

Retaliation behavior reactions to perceived social rejection. The third

regression examined retaliation behavioral reactions to perceived social rejection. The

model at stage one showed the need to belong did not significantly contribute to the model, $F(1,155) = .286$, $p =.594$. Stage two revealed social media use significantly contributed to the model, $F(2,154) = 7.424$, $p = .001$, accounting for 8.8% of the variance in retaliation behavior. At stage three, the fear of missing out also significantly contributed to the model, $F(3,153) = 7.652$, $p < .001$, accounting for an additional 4.2% of the variation in retaliation behavior. Together social media use and the fear of missing out contributed to 13% of the variance in retaliation behavioral reactions to perceived social rejection. Effect sizes for the significant models (R^2) range from .088 to .130, indicating a small effect. Tables 19 and 20 provide the model summary for retaliation behaviors.

Table 19

Model Summary: Predictors of Retaliation Behavioral Reactions

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.043	.002	-.005	.74196
2	.297	.088	.076	.71154
3	.361	.130	.113	.69702

Table 20

ANOVA Results for 3-Stage Regression Model: Retaliation Behavior

Model		SS	df	MS	F	p
1	Regression	.157	1	.157	.286	.594
	Residual	85.329	155	.551		
	Total	85.487	156			
2	Regression	7.518	2	3.759	7.424	.001
	Residual	77.969	154	.506		
	Total	85.487	156			
3	Regression	11.153	3	3.718	7.652	.000
	Residual	74.334	153	.486		
	Total	85.487	156			

Table 21 provides the coefficients for the above model. The need to belong was not a significant predictor of retaliation at any stage in the model. Therefore, the null hypothesis for research question 4 was not rejected. In stage two, social media use predicted retaliation, $\beta = .298$ ($t = 3.813$, $p < .001$) where higher social media use scores were associated with higher retaliation behavior scores. Stage three revealed both social media use, $\beta = .281$ ($t = 3.666$, $p < .001$) and fear of missing out, $\beta = .246$ ($t = 2.735$, $p = .007$) were significant predictors of retaliation. The null hypotheses for research questions 5 and 6 were rejected, and results suggested that increases in social media use and fear of missing out were associated with heightened retaliation behavior in response to perceived social rejection.

Table 21

Coefficients: Predictors of Retaliation Behavioral Reactions

Model		*B*	*SE*	β	*t*	*p*
1	(Constant)	1.632	.261		6.262	.000
	Need to belong	.043	.080	.043	.535	.594
2	(Constant)	.924	.311		2.968	.003
	Need to belong	-.007	.078	-.007	-.096	.924
	Social media use	.067	.018	.298	3.813	.000
3	(Constant)	.833	.307		2.714	.007
	Need to belong	-.138	.090	-.138	-1.535	.127
	Social media use	.064	.017	.281	3.666	.000
	Fear of missing out	.219	.080	.246	2.735	.007

Not acting friendly behavioral reactions to perceived social rejection. The

final regression examined not acting friendly in relation to perceived social rejection. The

regression showed that none of the predictor variables had a relationship with not acting

friendly behaviors. Specifically, the need to belong at stage one, $F(1,155) = 3.386$, $p =$

.068, social media use at stage two, $F(2,154) = 2.200$, $p = .114$, and the fear of missing out

at stage three, $F(3,153) = 1.745$, $p = .160$ were not associated with not acting friendly

behaviors. Tables 22–24 provide the model summary and coefficients for not acting

friendly behaviors in response to perceived social rejection. As no significant

relationships were found between any predictor variable and not acting friendly at any

stage of the model, the null hypotheses for questions 4-6 regarding not acting friendly

behavior were not rejected.

Table 22

Model Summary: Predictors of Not Act Friendly Behavioral Reactions

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.146	.021	.015	.75304
2	.167	.028	.015	.75301
3	.182	.033	.014	.75341

Table 23

ANOVA Results for 3-Stage Regression Model: Not Acting Friendly Behavior

Model		SS	df	MS	F	p
1	Regression	1.920	1	1.920	3.386	.068
	Residual	87.897	155	.567		
	Total	89.817	156			
2	Regression	2.495	2	1.247	2.200	.114
	Residual	87.322	154	.567		
	Total	89.817	156			
3	Regression	2.971	3	.990	1.745	.160
	Residual	86.846	153	.568		
	Total	89.817	156			

Table 24

Coefficients: Predictors of Not Act Friendly Behavioral Reactions

Model		B	SE	β	t	p
1	(Constant)	3.831	.264		14.485	.000
	Need to belong	-.149	.081	-.146	-1.840	.068
2	(Constant)	4.028	.329		12.228	.000
	Need to belong	-.135	.082	-.132	-1.643	.102
	Social media use	-.019	.019	-.081	-1.007	.316
3	(Constant)	4.061	.332		12.249	.000
	Need to belong	-.088	.097	-.086	-.906	.366
	Social media use	-.017	.019	-.075	-.931	.353
	Fear of missing out	-.079	.087	-.087	-.916	.361

Summary

A series of hierarchical multiple regressions were used to determine if the need to belong, fear of missing out, and social media use significantly predicted negative emotional reactions, as well as avoidant, complaining, retaliation, and not acting friendly behaviors in response to ambiguous social rejection scenarios from which rejection might be inferred among the college population. The results revealed that all three predictor variables significantly predicted negative emotional reactions. For avoidant behavior reactions, social media use and the fear of missing out provided the best model fit and significantly predicted avoidant behavior; the need to belong only when entered as a single predictor was significantly related to avoidant behavior. Complaining behavior was found to be significantly predicted by the need to belong and social media use, although a slightly better model fit was achieved in the final model where social media use and fear of missing out significantly predicted complaining behavior, making need to

belong nonsignificant in this model. Social media use and fear of missing out were both predictors of retaliation behavior; the need to belong was not a significant predictor of retaliation. Finally, none of the predictor variables was significantly related to not acting friendly behavior. Chapter 5 includes interpretations of the findings, limitations of the study, implications for social change, and recommendations for future research.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this study was to examine the extent to which individual differences in the need to belong, fear of missing out, and social media use predict the perceptions of, and emotional and behavioral reactions to, ambiguous social situations where rejection could be inferred in the college student population. Within the last decade, college students in the United States have experienced a decline in mental health (e.g., loneliness and disconnection, psychological distress, and a fear of missing out on rewarding social experiences), and research suggests the upsurge in social media use may be a contributing factor (Cain, 2018; Lipson et al., 2019). College students use social media as their primary source of social interaction and are presumably motivated to do so in part because its use helps satisfy fundamental belonging needs (Beynes et al., 2016; Reich & Vorderer, 2013). Contrary to students' expectations, social media use can thwart one's sense of belonging, induce a fear of missing out on potentially rewarding social experiences, and increase exposure to missed events that may evoke perceptions of social rejection (Buglass et al., 2017; Twenge, 2017; Wolf et al., 2015). Social rejection is a painful psychological experience that threatens fundamental belonging needs and can result in a variety of negative psychological consequences (i.e., hurt feelings and mood disturbances) as well as dysfunctional interpersonal behaviors such as conflict and aggression (Leary, 2017). The purpose of this research was to address a gap in the literature by examining the influence of the need to belong, fear of missing out, and social media use on perceptions of, and reactions to, social rejection.

A quantitative nonexperimental cross-sectional survey research design was used to examine the effect of three predictor (independent) variables on two outcome (dependent) variables. Online surveys were distributed to U.S. undergraduate students aged 18-24 who were currently enrolled in an undergraduate program that had at least one social media account. The predictor variables were (a) the need to belong (i.e., the motivation to form and maintain a minimum number of meaningful relationships with other people; see Baumeister & Leary, 1995); (b) social media use (i.e., the quantity and quality of time spent on online social networking sites whereby people can observe and interact with others; see Olufadi, 2016); and (c) the fear of missing out (i.e., a preoccupation with maintaining constant connections with what others are doing, deriving from a persistent fear that one is absent or excluded from rewarding social experiences; see Przybylski et al., 2013). The two outcome variables were (a) emotional reactions to perceived social rejection (i.e., the emotional reaction to a situation from which social rejection might be inferred; see Jones et al., 2015); and (b) behavioral reactions to perceived social rejection (i.e., the behavioral reaction to a situation from which social rejection might be inferred; see Jones et al., 2015). Four distinct behavioral reactions to perceived rejection were measured: (a) avoidance, (b) complaining, (c) retaliation, and (d) not acting friendly.

A hierarchical multiple regression model revealed that the need to belong, social media use, and fear of missing out were significant predictors of emotional reactions to perceived social rejection. The need to belong also significantly predicted avoidance and complaining behavior, but not retaliation or not acting friendly. Social media use and the

fear of missing out significantly predicted avoidance, complaining, and retaliation, but did not predict not acting friendly behavior. In this chapter the interpretations of the research findings are discussed, followed by limitations of the study, recommendations for future research, and implications for social change.

<div align="center">**Interpretation of Findings**</div>

Emotional Reactions to Perceived Social Rejection

Research Questions 1 through 3 asked to what extent does the need to belong (RQ1), fear of missing out (RQ2), and social media use (RQ3) as measured by the Need to Belong scale, Fear of Missing Out scale, and Social Networking Time Use scale, respectively, relate to perceived social rejection (i.e., emotional reactions), as measured by the Rejection Scenarios Questionnaire emotional subscale, among college students? The null hypotheses were rejected, indicating that increases in need to belong, social media use, and fear of missing out significantly predict heightened negative emotional reactions to perceived social rejection. The three predictors collectively provided the best model fit to account for changes in emotional reactions to perceived social rejection. Social media use had the strongest effect on negative emotional reactions followed by need to belong and the fear of missing out. These findings are generally consistent with previous research and the theoretical framework used in this study; although the strength of predictors that emerged in the data were inconsistent with theoretical assumptions.

Need to belong. Need to belong theory suggests that real, implied, or imagined threats to belonging (i.e., social rejection) can lower relational value (Leary, 2017). Relational value refers to the extent to which one feels their relationship with another

person is important, meaningful, and valuable (Leary, 2017). When the appraisal of an event leads a person to believe their relational value is less than they desire, it evokes perceptions of social rejection, leading to a variety of negative emotional reactions including hurt feelings, sadness, anger, anxiety, emotional numbing, loneliness, jealousy, and general distress (Baumeister & Leary, 1995; Leary, 2017). This is consistent with the findings of this study, which indicated the ambiguous rejection scenarios were perceived as threats to belonging that evoked feelings of rejection, being upset, irritation, sadness, anger, and shame, with rejection being the strongest of these emotional reactions reported. In addition, this study found that a stronger need to belong was associated with increases in negative emotional reactions to perceived social rejection. This finding is also consistent with existing literature indicating that a stronger need to belong is associated with increases in stress and negative affect following rejection (Beekman et al., 2016; Tyler et al., 2016).

Social media use. Given that social media use is in part motivated by attempts to meet belonging needs, it was presumed that need to belong would be the strongest predictor of negative emotional reactions (James et al., 2017; Knowles et al., 2015). However, in this study, social media use had the strongest effect on negative emotional reactions to perceived social rejection, whereby increases in social media use was associated with stronger negative emotional reactions to rejection. An alternative theoretical framework considered for this study discussed in Chapter 1 was Williams' (2007) need-threat model, which has been used frequently in the social rejection literature with regard to ostracism in the online context. The need-threat model postulates that

rejection-related experiences produce not only threats to belonging, but also to self-esteem, control, and meaningful existence, accounting for a variety of short and long-term negative emotional and behavioral effects after experiencing rejection.

According to Smart-Richman and Leary (2009), however, threats to self-esteem, control, and meaningful existence result from secondary features of a rejection event or can be threatened by other situations unrelated to rejection events. It is plausible that some aspects of social media use (e.g., passive versus active use, type of sites used, motivations for use in addition to belonging) play a role in perceived threats to self-esteem, control, and meaningful existence that also influence negative emotional and behavioral reactions to rejection. Smith et al. (2016) found that increased social media use was associated with increased threats to belonging, self-esteem, control, and meaningful existence in instances of social media ostracism. Future research should examine how threats to these needs in addition to belonging may amplify negative emotional reactions to rejection with regard to social media use and ambiguous social rejection.

The existing literature on the psychological effects of social media use is mixed. On one hand, social media use has been associated with facilitating social adjustment, decreasing negative feelings such as loneliness, and providing a means of social support (Kim et al., 2016; Yang & Brown, 2013). On the other hand, social media use has also been associated with negative outcomes such as feelings of disconnection, psychological disturbances, and poor academic adjustment (Frost & Rickwood, 2017; Giunchiglia et al., 2018; Vorderer et al., 2017). The present findings provide support for the negative

consequences of social media use. A gap in the literature was also addressed by showing

that social media use is associated with perceptions of social rejection in ambiguous

situations where rejection can be inferred. The literature indicates that certain use

characteristics (i.e., lurking, degree and valence of feedback, using the *like* feature) are

associated with thwarted psychological needs and negative outcomes (Bevans & Barclay,

2012; Tobin et al., 2015). Social media use characteristics were not examined in this

study. Future research should consider how use characteristics influence the perceptions

and emotional reactions to social rejection, especially in situations where rejection is

ambiguous.

Fear of missing out. The fear of missing out was also found to significantly

predict negative emotional reactions to perceived social rejection in the present study,

whereby increases in the fear of missing out was associated with increases in negative

emotional reactions to perceived social rejection. This study filled a gap in the literature

supporting the assumption that the fear of missing out may be conceptually related to

fears of social rejection (Buglass et al., 2017). Prior to the present study, the fear of

missing out as a factor in the perception of social rejection had only been suggested and

had not been directly investigated in the literature, although a relationship between the

fear of missing out and negative psychological outcomes has been documented (Baker et

al., 2016; Buglass et al., 2017; Przybylski et al., 2013). It has been suggested that the fear

of missing out results from psychological needs deficits in autonomy, competence, and

relatedness; in the attempt to fulfill these needs people, engage in social surveillance (i.e.,

using social networking sites for the purpose of tracking and monitoring the behaviors,

beliefs, and activities of others) (Buglass et al., 2017; Przybylski et al., 2013). Social surveillance, in turn, is thought to increase exposure to status updates, photos, and videos depicting social events to which the individual was not invited, triggering perceptions of social rejection (Buglass et al., 2017).

While this study did not provide direct evidence of the impact of social surveillance on developing a fear of missing out, the current findings suggest that the fear of missing out does have an impact on the perceptions of, and emotional reactions to, ambiguous social rejection in situations where rejection can be inferred. As the fear of missing out is a relatively new construct within the scientific literature, much remains to be learned about the conditions under which the fear of missing out develops. Future research should directly examine whether social surveillance plays a role in the perception of social rejection.

Behavioral Reactions to Perceived Social Rejection

Research questions 4 through 6 asked to what extent does the need to belong (RQ4), fear of missing out (RQ5), and social media use (RQ6) as measured by the Need to Belong scale, Fear of Missing Out scale, and Social Networking Time Use scale respectively, relate to perceived social rejection (i.e., behavioral reactions), as measured by the Rejection Scenarios Questionnaire behavioral subscale, among college students? Four distinct behavioral reactions to perceived rejection were examined (i.e., avoid, complain, retaliate, and not act friendly). The null hypotheses were rejected for some behaviors, but not for others, depending on the predictors entered across the hierarchical

regression models. In the remainder of this section I will draw on the literature to provide possible explanations for the mixed findings that emerged in the present research.

The literature review revealed that after experiencing social rejection, people may exhibit prosocial, antisocial, or withdrawal behaviors in the attempt to restore belonging through seeking social connectedness and protecting oneself against future episodes of rejection (Smart-Richman & Leary, 2009). Each of these behaviors is a product of competing motives for social connectedness, self-defense, and avoiding future rejection, all of which work to help satisfy belonging needs (Smart-Richman & Leary, 2009). Moreover, there exists a multitude of dispositional, relational, contextual, and situational factors that influence the wide range of behaviors resulting from feeling rejected (Smart-Richman & Leary, 2009). One goal of the present research was to take these factors into account and investigate whether, and the strength to which, social media use, individual belonging needs, and the fear of missing out may predict how people respond to social rejection. The present study's findings regarding how each of the predictor variables influenced each of the distinct behavioral reactions to perceived social rejection are discussed below.

Avoidance. The need to belong, social media use, and fear of missing out all predicted avoidant behavioral reactions to perceived social rejection. The null hypotheses were therefore rejected for research questions 4 through 6 in relation to avoidant behavior. However, when the need to belong was controlled for in the regression models, only social media use and the fear of missing out predicted avoidance. That is, the need to belong predicted avoidant behavior when it was used as a single predictor variable in the

first model, indicating that a stronger need to belong was associated with heightened

avoidant behavior. However, the fear of missing out and social media use collectively

provided the best model fit to account for changes in avoidant behavior. Accordingly,

these findings suggest that a stronger fear of missing out and increases in social media

use are associated with heightened avoidant behavioral reactions to perceived social

rejection.

The literature review indicated that people sometimes exhibit signs of social

avoidance and can withdraw physically, socially, and psychologically after being

rejected, although withdrawal responses to rejection have been minimally investigated in

the literature (Smart-Richman & Leary, 2009). The present study supports the assertion

that rejection does pose a threat to belonging needs that can motivate withdrawal

behaviors and lead people to avoid the source of rejection. According to Smart-Richman

and Leary (2009), the motivation to withdraw and exhibit avoidant behaviors is most

likely to emerge when the rejected individual believes their own misbehavior is the cause

of the rejection and when relational alternatives exist. When these beliefs are present, the

individual can safely avoid the source of rejection to pursue other potentially meaningful

relationships. Most relevant to the present study is the possibility of relational alternatives

as an explanation for avoidance. Specifically, social surveillance and social media use in

general expose people to myriad possibilities for building social relationships with the

potential for constant connectivity (Twenge, 2017). Accordingly, the more people engage

in social surveillance and use social media, the more likely relational alternatives are

available. This may explain the avoidant behavior that emerged as a result of perceived

social rejection in the present study. This suggestion should be examined in future research to determine the extent to which social media use and the fear of missing out influence the appraisal of relational alternatives in response to social rejection.

      Complaining. The need to belong, social media use, and fear of missing out all significantly predicted complaining behavioral reactions to perceived social rejection. Therefore, the null hypotheses were rejected for research questions 4 through 6 in relation to complaining behavior. In the first model, with need to belong as a single predictor, stronger belonging needs predicted heightened complaining behavior. When social media use was added in the second model, increases in the need to belong and social media use predicted increases in complaining behavior. When the fear of missing out was added in the final model, the need to belong was no longer a predictor of complaining; increases in social media use and a stronger fear of missing out predicted heightened complaining behavioral reactions to social rejection.

      Complaining is a type of indirect aggression influenced by anger that is intended to cause harm to others by inducing guilt or hurt feelings (Richardson & Hammock, 2011). Throughout the literature, aggression is cited as the most common behavioral response to rejection, presumably influenced by the need to defend oneself against threats to belonging and other psychological needs (Smart-Richman & Leary, 2009; Williams, 2007). In more recent research, the fear of missing out has also been associated with increased relational aggression on Facebook; relational aggression in this instance is presumed to help restore psychological needs deficits (Abell, Buglass, & Betts, 2019).

Antisocial motivations and aggression are likely to emerge when rejection is perceived as unfair or unjust, the value of the relationship is low, and rejection ambiguity is high (Smart-Richman & Leary, 2009; Zimmer & Nesdale, 2013). Accordingly, the ambiguous rejection scenarios used in the present study may have created high rejection ambiguity and therefore provide one possible explanation for complaining behavior. There is also some indication that social media may play a role in the perceptions that increase the likelihood of aggression after being rejected. For example, Firth et al. (2019) suggested that reliance on social media for making social connections results in having many weak social connections, which has a negative impact on how people interpret online and real-world rejection-related events. When individuals have many weak social connections that do not satisfy belonging needs, any given social relationship may be viewed as less valuable. This is consistent with need to belong theory which suggests that relationships are generally substitutable (Baumeister & Leary, 1995). That is, relationships that pose a threat to belonging that do not help fulfill one's need to belong can be substituted for relationships that do help fulfill belonging needs (Baumeister & Leary, 1995). Taken together, perhaps social media users who have many weak social connections are more likely to view the relationship with the rejector as less valuable and more substitutable, thus increasing the propensity for aggressive behavior, in this case complaining behavior, after being rejected. The degree to which social media use and the fear of missing out influence the appraised value of relationships in instances of rejection should be investigated in future research.

Retaliation. The present study found no relationship between need to belong and retaliation; therefore, the null hypothesis for research question 4 in relation to retaliation behavior was not rejected. However, social media use and the fear of missing out significantly predicted retaliation, whereby increases in social media use and a stronger fear of missing out were associated with heightened retaliation strength. Thus, the null hypotheses for research questions 5 and 6 for retaliation behavior were rejected.

Given that aggression is the most common response to thwarted belonging and rejection, it is surprising that the need to belong was not related to retaliation in the present study. However, it has been suggested that rejection can elicit prosocial or antisocial behaviors depending on the specific psychological needs that were threatened by the rejection episode (Ren, Wesselmann, & Williams, 2018). Informed by the need-threat model, threats to psychological needs for control and meaningful existence are most likely to result in aggressive behavior, whereas threats to belonging and self-esteem are most likely to produce prosocial or withdrawal behaviors in response to rejection (Ren et al., 2018). It is possible that for social media users, threats to meaningful existence and one's sense of control are sometimes more prevalent than belonging threats when faced with potential rejection. Tobin et al. (2015) found that threats to meaningful existence and control were associated with social media use. Moreover, recent research has suggested a link between social media use, the fear of missing out, and aggressive behavior. Specifically, previous studies have found associations between increased social media use resulting in high exposure to social exclusion events, which increased overt and relational peer aggression; aggression in this instance is thought to derive from self-

control challenges and inability to delay gratifications (Gimenez, Maquilon, & Arnaiz, 2015; Martinez-Ferrer, Moreno, & Musitu, 2018). Hefner, Knop, and Vorderer (2018) also found that people with a high fear of missing out were more likely to engage in bullying behavior via group mobile phone messaging compared to those with lower levels of a fear of missing out, whereby aggression was thought to be a product of high social validation needs. Accordingly, it is plausible that psychological needs other than belonging needs may help explain the emergence of aggressive behavior following rejection.

Not acting friendly. In relation to not acting friendly behavior, the null hypotheses for research questions 4 through 6 were not rejected. No significant relationships were found between the need to belong, fear of missing out, and social media use as predictors of not acting friendly behavior. The null findings in the present study are surprising and somewhat inconsistent with the literature, as prosocial behaviors have been found in response to thwarted belonging needs and being rejected (Ren et al., 2018; Smart-Richman & Leary, 2009). In Jones et al.'s (2015) study and in this study, prosocial responses were examined by asking participants to rate how likely they would be to act friendly in response to the rejection scenarios. However, consistent with the procedures used in Barnett et al. (2013) and Jones et al. (2015) the *act friendly* responses were reverse scored and relabeled as *not act friendly*.

It is possible that the instrument used to measure not acting friendly behavior does not adequately capture not acting friendly using these specific rejection scenarios or is psychometrically flawed. For example, Jones et al. (2015) found not acting friendly

was unrelated to the ambiguous rejection scenarios; several indices of fit were also examined and indicated poor model fit. According to Weems (2007), reverse scoring can negatively affect the psychometric properties of a scale due to the potential for participants to interpret and respond to the item in the same way, irrespective of item wording. Therefore, in future research, different instruments to measure prosocial behavioral responses should be used to determine whether the need to belong, fear of missing out, and social media use are related to prosocial behavioral reactions to social rejection.

Limitations of the Study

This study was limited to U.S. college students aged 18-24 currently enrolled in an undergraduate program and had at least one social media account. Therefore, results from the study cannot be generalized beyond this population. It is possible that students who are older or those attending community college or vocational programs may respond to the survey questions differently. Excluded from this study were international students or students with children. Given that 24% of the U.S. college population is comprised of international students, and 26% of the total U.S. national undergraduate student body are student parents, a sizable segment of the overall U.S. college population was excluded from the present study (Noll, Reichlin, & Gault, 2017; Zong & Batalova, 2018). Thus, including these subpopulations of college students in the present study may have produced different results.

Another limitation is the potential of response bias that may result from using a convenience internet sample. People who self-select to participate in Internet-based

research may be different from people who do not elect to participate in research, thus potentially limiting representation of the target population (Stroebe et al., 2018). Moreover, questionable eligibility is a threat to validity, especially in web-based surveys, where researchers must rely on participant honesty in meeting the inclusion/exclusion criteria to participate. Although screening questions were used to minimize this threat, there is no way to determine the extent to which participants answered the screening questions honestly. Response bias can also occur when eligible participants do not respond to the survey request or withdraw from the study before its completion. In such cases, it is unknown whether those who do not respond or withdraw from the research have different characteristics from the present sample (Kalaian & Kasim, 2008). For the present research it is unknown the extent to which response bias may have impacted the findings.

A limitation stated in Chapter 1 was concern about the potential for underreporting social media use. Research suggests people underestimate their social media usage by 40% (Giunchiglia, et al., 2018). The instrument used to measure social media use (i.e., SONTUS) in the present study was designed to reduce underreporting (Olufadi, 2016). While the findings from this study suggests that the SONTUS may help reduce underreporting, another potential limitation of assessing social media use in general emerged from the research. Specifically, certain social media use characteristics (i.e. lurking, degree and valence of feedback, using the *like* feature, types of social media used) may be important in understanding the relationship between social media use and the emotional and specific behavioral reactions to perceived rejection (Bevans & Barclay,

2012; Tobin et al., 2015). As social media use characteristics were not examined in the present study, it is unknown how these characteristics influenced the results of this study.

Certain inconsistencies found in this study call into question the trustworthiness of some findings. For example, retaliation is the most common behavior documented in the social rejection literature that is thought to be caused by thwarted belonging (Smart-Richman & Leary, 2009); retaliation was unrelated to belonging needs in the present study. There is also some concern regarding the reliability and validity of the *not act friendly* subscale of the RSQ whereby the subscale may not accurately conceptualize not acting friendly behavior and/or is psychometrically flawed due to reverse scoring procedures. Therefore, results for retaliation and not acting friendly behaviors in response to perceived social rejection in the present study should be interpreted with caution and investigated further in future research.

Lastly, a potential limitation is the accuracy in capturing people's real-world behavior when using survey instruments in an online format. The instrument used to measure perceived social rejection (i.e., RSQ) utilizes rejection vignettes that depict common real-world situations, which ideally increases the accuracy in capturing real-world behavior. However, participants' anticipated emotional and behavioral reactions to ambiguous rejection which they did not directly experience may be very different from emotions and behaviors that emerge from actually experiencing ambiguous rejection in real-world situations. Therefore, emotions and behaviors that result from real-world ambiguous rejection experiences cannot be inferred from my findings.

Recommendations

This study addressed gaps in the literature by investigating individual belonging needs, social media use, and the fear of missing out as contributing factors in emotional and behavioral reactions to perceived social rejection. However, much remains to be learned about the interrelationship between psychological needs, social media use, the fear of missing out, and social rejection. It is important to consider in future research how these interrelationships may be impacting the wellbeing of college students.

Future research on the effects of social media on social rejection for college students should expand upon the population used in this study to include a broader age range of students as well as students attending different types of colleges (e.g., community, vocational, graduate) and attendance modalities (i.e., traditional, online, hybrid). Although attendance modality was asked as demographic question in the present study, the majority of participants were traditional students, thus comparisons between modalities and the research variables were not examined. Evidence suggests that nontraditional college students attending these types of college programs across different modalities have different goals, motivations, life experiences, and responsibilities that differ from traditional college students (List & Nadasen, 2017). Moreover, international students and students with children are faced with a variety of cultural transitions, social demands, and family-school balance issues that can interfere with academic adjustment and performance, wellbeing, and psychological functioning (Brooks, 2015; Redfern, 2016). Each of these factors has implications for psychological needs and may influence social media use, the fear of missing out, and perceptions of social rejection. Thus,

examining these unique characteristics in future research will enhance generalizability to the overall college student population, currently experiencing declines in mental health.

As indicated in the literature review, social media use characteristics have important implications for the outcomes associated with social media use. The literature is mixed regarding the benefits and disadvantages of social media, and evidence suggests that how it is used may be a key factor in determining outcomes. For example, comparative social media use, such as making upward social comparisons, passive use (i.e., browsing and scrolling through social media feeds without active contribution), having many superficial online connections, posting and receiving negative comments, and using the *like* feature are associated with negative outcomes such as depression, anxiety, feelings of exclusion, loneliness, and decreased overall wellbeing (Frost & Rickwood, 2017; Ozimek & Bierhoff, 2019). In contrast, active social media use, i.e., posting and receiving positive comments, disabling the *like* feature, and interaction that facilitates meaningful relationship building promote feelings of connectedness, increase perceived social support, and facilitate positive social adjustment (Frost & Rickwood, 2017; Jacobson & Forste, 2011; Ozimek & Bierhoff, 2019). This study focused on time spent using social networking sites and did not examine social media use characteristics. With the wide array of social media platforms available, it is important to investigate further how use characteristics in addition to time influence perceptions of and reactions to social rejection that may have implications for positive/negative outcomes associated with social media use.

This study provided support for the idea that social media may be changing the way in which people think and behave when they are faced with social rejection. It is important to investigate further how social media use may be directly influencing the perceptions of social relationships and cognitive patterns that emerge from being rejected. Smart-Richman and Leary (2009) proposed a multimotive model of rejection that explains various cognitive construals that influence prosocial, antisocial, and withdrawal behaviors that result from rejection. Specifically, the model suggests that six construals guide behavioral reactions to rejection: fairness of the rejection, expectations of relationship repair, pervasiveness of rejection, value of the damaged relationship, perceived cost of the rejection, and the possibility of relational alternatives. Each of these construals is, in turn, associated with the three conflicting motives (i.e., acceptance seeking, harming others, and withdrawal) that emerge as individuals attempt to fulfill belonging needs after being rejected. The interpretation of findings section addressed some ways in which social media use and the fear of missing out may be influencing these construals to produce different behavioral reactions to rejection. Future research should examine these construals and relationships to social media use and the fear of missing out to determine their impact on behavioral reactions to social rejection.

Based on this study's findings, future research should also consider utilizing the need-threat model to investigate relationships between psychological needs, the fear of missing out, social media use, and behavioral reactions to social rejection. While the sting of social rejection results from low relational value that threatens belonging needs, there are a variety of situational, relational, dispositional, and contextual features that influence

all instances of social rejection (Smart-Richman & Leary, 2019). Social media use and the fear of missing out may be important features of rejection episodes that threaten needs other than belonging and may therefore account for differences in behavioral reactions to rejection. The need-threat model suggests that rejection threatens belonging, self-esteem, meaningful existence, and control needs; the precise needs that are threatened influence the behaviors that emerge following rejection (Ren et al., 2018; Williams, 2007). As the present research was guided by need to belong theory and only investigated individual belonging needs, additional research should utilize the need-threat model to examine relationships between other psychological needs, social media use, the fear of missing out, and social rejection.

Within the social rejection literature, the majority of existing research is cross-sectional in nature, and little is known about the long-term consequences of social rejection. Moreover, research on the impact of social media use on human behavior is still it its infancy. Longitudinal research is needed to determine the long-term consequences of how psychological needs, social media use, and fear of missing out influence perceptions of social rejection and whether these factors lead to chronic psychological problems. It has been established that social rejection causes psychological disturbances and that social media use has been associated with feeling rejected, negative emotions, and psychological symptoms (Frost & Rickwood, 2017; Leary, 2017, Wolf et al., 2015). It remains unknown how social media use over time and how a chronic fear of missing out may influence psychological needs and the persistent perception of social

rejection. How relationships between these factors influence mental health changes over time is an important topic of inquiry.

Implications

Mental health problems for U.S. college students are increasing at an alarming rate (Cain, 2018). The intent of this study was to examine factors that may be contributing to the declining mental health of U.S. college students. Social rejection is a painful psychological experience that leads to emotional disturbances and behavioral dysregulation (Leary, 2017; Smart-Richman & Leary, 2009). The literature review suggested that social media use may interfere with belonging needs, leading to a fear of missing out that influences perceptions of social rejection (Buglass et al., 2017). Findings from this study further suggest that individual belonging needs, social media use, and a fear of missing out contribute to perceptions of social rejection inferred from ambiguous situations and to negative emotional and behavioral reactions to perceived social rejection. If social media use is influencing psychological functioning in a way that can ultimately lead to negative emotional and behavioral consequences, then interventions regarding its use has implications for social change in improving the mental health of college students.

Positive Social Change Implications

This study's findings can encourage social change by informing education on the psychological effects of social media use. Building a healthy college campus environment has always been a challenge for college administrators and educators (Linvill, 2019). In today's social climate, colleges are increasingly relying on social

media to engage with prospective and current students in part because young adults use social media as their primary source of connection to the world (Coyne et al., 2013; Peruta & Shields, 2017). As social media have become an integral part of the college experience, it is imperative that students receive formal education on the benefits and disadvantages of social media use, including dangers posed by using social media and how its use can both facilitate social connectedness and undermine it. Teaching students how social media influence social psychological aspects of relationships, communication, and properly construing information has implications for helping students understand the conditions under which their social media use practices influence psychological needs, social surveillance, a fear of missing out, and feelings of social rejection (Linvill, 2019). In a digital-mediated world that can expose people to a wide array of social rejection situations in an online context (i.e., ostracism, exclusion, prejudice, discrimination, unrequited love, abandonment, neglect, betrayal, bullying, and avoidance), it is important to teach students how their online interactions can affect perceptions of these situations and what impact it can have on psychological health (Smart-Richman & Leary, 2009).

Along these same lines, more and more faculty are modifying pedagogical strategies to incorporate social media into the classroom to maximize engagement with Millennial students. (Manca & Ranieri, 2016). Beyond teaching the psychological effects of social media use, however, educators should be mindful about social media use in the classroom. If social media use is incorporated into teaching strategies and curriculum, then its use should facilitate social connectedness among students by devising classroom

tasks that promote collective action and steer students away from online situations that may inadvertently trigger perceptions of exclusion, prejudice, and discrimination.

The findings of this study can also be utilized by campus psychological services to inform psychological interventions. College therapists are becoming increasingly concerned with the impact social media use has on meeting social needs and students' psychological wellbeing (Yavich et al., 2019). For example, Linvill (2019) noted that cyberbullying and racial hostility are significant problems on college campuses, which have been exacerbated by the heavy reliance on social media. These examples reflect overt forms of rejection that are well-known to cause psychological problems for students (Schenk & Fremouw, 2012). Findings from this study suggest, however, that overt forms of rejection are not necessary to trigger feelings of social rejection and negative emotional and behavioral reactions; social media played a role in these perceptions and reactions to rejection. Moreover, it is becoming an increasingly common practice for students with psychological problems to be assessed for social media addiction (Cain, 2018). One goal of this study was to extend the literature by examining factors that may suggest why social media use has been associated with psychological difficulties. This study suggests that perceptions of social rejection is one such factor. Campus therapists may find the present study's findings useful insofar as they suggest one way in which thwarted belonging, social media, and fear of missing out caused by social media surveillance may be contributing to feeling socially rejected accompanied by psychological distress. Therefore, this information can be utilized to help inform appropriate diagnostic and therapeutic strategies such as inquiring about students' online

activities and teaching healthy social media use habits that facilitate meaningful social interaction.

Theoretical, Methodological, and Empirical Implications

Over 20 years of research has utilized need to belong theory to explain the psychological disturbances associated with thwarted belonging and social rejection (Leary, 2017). This study contributed to this body of literature, further demonstrating that the need to belong is important in understanding reactions to social rejection. Although individual differences in belonging needs has rarely been investigated in the literature (Leary, 2013), findings from this study indicated that students with stronger belonging needs have stronger negative reactions to ambiguous social rejection situations compared to those with low belonging needs. Moreover, previous research suggested a link between social media use and the fear of missing out as contributing factors in perceiving social rejection, although this link had not been directly investigated. This study addressed this gap, demonstrating that students who use social media more frequently, and those with a stronger fear of missing out, have stronger negative reactions to perceived social rejection.

The findings in this study suggest, however, that a combination of theoretical approaches may be necessary to understand the impact of psychological needs, social media use, and the fear of missing out on social rejection. Social media expose people to many types of situations, stimuli, and experiences that can be construed as social rejection. Thus, it is possible that thwarting other psychological needs in addition to belonging are important considerations in fully understanding emotional and behavioral

reactions to social rejection. For instance, the need-threat model (Williams, 2007) as discussed in the implications and recommendations sections, suggested that social media may play a role in thwarted belonging, control, self-esteem, and meaningful existence needs. The fear of missing out is also thought to be driven by social media surveillance which deprives users of psychological needs for autonomy, competence, and relatedness (Przybylski et al., 2013). Moreover, Smart-Richman and Leary's (2009) multimotive model suggests the cognitive processes influenced by psychological needs and motivations are equally important to determining emotional and behavioral outcomes following rejection. The strength to which social media use and the fear of missing out thwart any combination of these needs, and influences cognitive processes during rejection situations, are important topics of investigation that should be explored.

Although this study found important relationships between the research variables, the relationship between social rejection as a cause of declining mental health of college students cannot be established with the methodological approach used in this study. The nonexperimental nature of the present study does not allow causality to be inferred, and examining psychological symptomology resulting from perceived social rejection was beyond the scope of this study. However, the initial demonstration of relationships between the research variables lays the groundwork for future experimental research that could examine the degree to which social media use, psychological needs, and the fear of missing out influence psychological distress following social rejection.

Conclusion

One in three college students experiences psychological distress that warrants clinical attention, and over half of U.S. undergraduate students report feelings of hopelessness, debilitating depression, loneliness, and overwhelming anxiety (ACHA, 2016; Lipson et al., 2019). Psychological distress, in turn, undermines academic progress and interferes with college adjustment, motivation, and achievement (McIntyre et al., 2018; Peltzer & Pengpid, 2017). The aim of this study was to examine factors that may be contributing to the alarming increase of mental health problems for U.S. college students. In this digitally driven era, college students rely on social media as their lifeline to the social world; research is just beginning to uncover the psychological effects of its use. For college students, social media can be a double-edged sword: On one hand, social media can facilitate social adjustment and strengthen social bonds as students learn to navigate new and unfamiliar environments. On the other hand, its use can interfere with belonging needs that are critical to psychological health and fuel a fear of missing out, contributing to feelings of disconnection, and feeling socially rejected.

Much remains to be learned about the relationship between social media, social rejection, and psychological health. However, this research attempted to narrow this gap by demonstrating that social media use, individual belonging needs, and the fear of missing out play a role in perceptions of social rejection inferred from ambiguous situations, as well as negative emotional and behavioral reactions to perceived social rejection. Social rejection is a painful, yet inevitable, aspect of the human experience that has various short- and long-term effects on mental health and wellbeing. Given that social

media have also become a ubiquitous aspect of the human experience, it is necessary to

consider their influence collectively in building healthy campus communities and

improving mental health on college campuses.

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Appendix A: Demographic Questionnaire

What is you gender?

- Male

- Female

- Prefer not to say

What is your age?

- 18

- 19

- 20

- 21

- 22

- 23

- 24

What year of college are you currently completing?

- 1st year

- 2nd year

- 3rd year

- 4th year

How do you attend classes?

- On campus

- Online

- Hybrid format (i.e. on campus and online)

What types of social media accounts do you hold? Please select all that apply

- YouTube

- Facebook

- Instagram

- Pinterest

- LinkedIn

- Snapchat

- Twitter

- Other

Appendix B: SONTUS Permission Letter

Mon 4/15/2019 2:48 PM
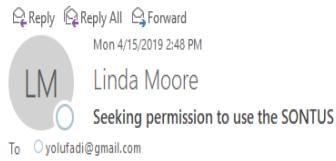
LM Linda Moore

Seeking permission to use the SONTUS

To yolufadi@gmail.com

Hello Dr. Olufadi,

My name is Linda Moore and I am a PhD student at Walden University. I am currently working on the proposal for my dissertation on the effects of social media, the need to belong, and the fear of missing out on perceived social rejection. I read your research on the SONTUS scale development and I am seeking permission to use the SONTUS scale in my research from the following article:

Olufadi, Y. (2016). Social networking time use scale (SONTUS): A new instrument for measuring the time spent on the social networking sites. Telematics & Informatics, 33(2), 452–471.

I would also be happy to share the results from my research with you when it is complete. You can reach me at this email if you have any questions.

Thank you in advance,

Linda Moore
Walden University – PhD student – Social Psychology
Linda.moore3@waldenu.edu

Mon 4/15/2019 3:48 PM
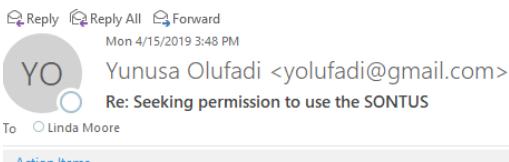
YO Yunusa Olufadi <yolufadi@gmail.com>

Re: Seeking permission to use the SONTUS

To Linda Moore

Action Items

Hello Linda,
Please go ahead and use the scale for your research.

Kind regards,

Yunusa Olufadi
Doctoral Candidate
Department of Mathematical Sciences
The University of Memphis
View my LinkedIn Profile

Appendix C: RSQ Permission Letter

Wed 10/17/2018 4:27 PM

LM Linda Moore

Requesting permission to use inferred rejection vignettes for dissertation

To tuckerj@ksu.edu

Hello Mr. Jones,

My name is Linda Moore and I am a PhD student at Walden University. I am currently working on the proposal for my dissertation on the effects of social media and fear of missing out on perceived social rejection. I read your research on inferred social rejection and would like to use the ambiguous rejection vignettes as well as the emotional and behavioral response scales from the following study:

Jones, T. L., Barnett, M. A., Wadian, T. W., & Sonnentag, T. L. (2016). Individual differences associated with emotional and behavioral responses to ambiguous social situations in which rejection might be inferred. *Journal of General Psychology, 143*(4), 298–310. https://doi-org.ezp.waldenulibrary.org/10.1080/00221309.2016.1214102

One of the scenarios is provided in the appendix, however, I would like to use the friend, romantic, and acquaintance scenarios from the rejection condition, as well as any psychometric information you may have. Your assistance would be greatly appreciated, and I would be happy to share the results of my research with you. You can reach me at this email or at 817-879-9399 if you have any questions.

Best Regards,

Linda Moore
PhD Student – Social Psychology
Walden University

Wed 10/17/2018 4:39 PM
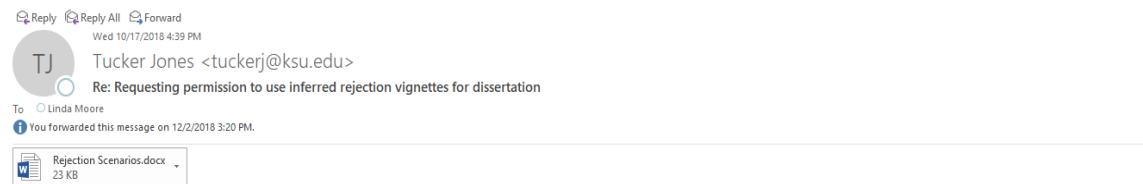
TJ Tucker Jones <tuckerj@ksu.edu>

Re: Requesting permission to use inferred rejection vignettes for dissertation

To Linda Moore

You forwarded this message on 12/2/2018 3:20 PM.

Rejection Scenarios.docx
23 KB

Hi Linda,

Thank you for your email. Attached are the vignettes we used in this study as well as the anticipated emotional/behavioral responses. I would love to see the results from your research when they are available!

I hope all is well.

Tucker

Tucker Jones, M.S.
Doctoral Student, Department of Psychological Sciences
Graduate Teaching Assistant, Teaching & Learning Center
Coordinator, GTA Professional Development Series
Kansas State University

Appendix D: Q-Q Plots of Variables

Figure D1. Normal Q-Q plot: Need to belong.
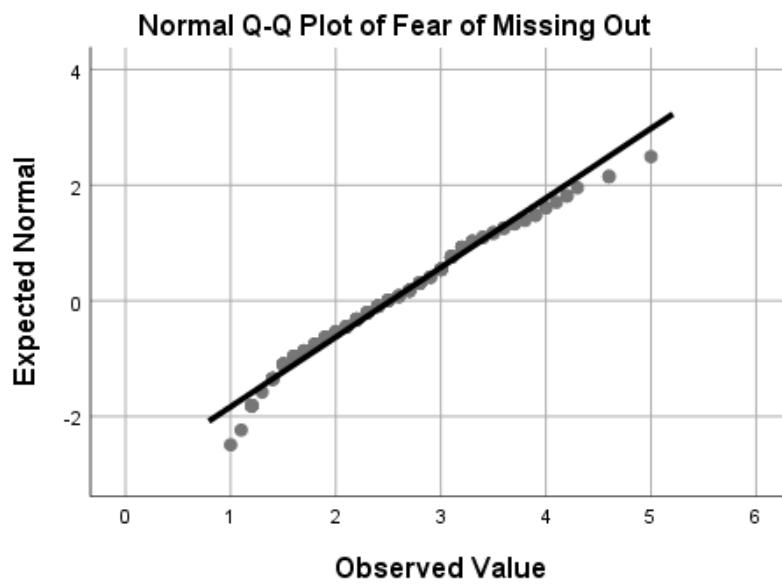
Figure D2. Normal Q-Q plot: Fear of missing out.
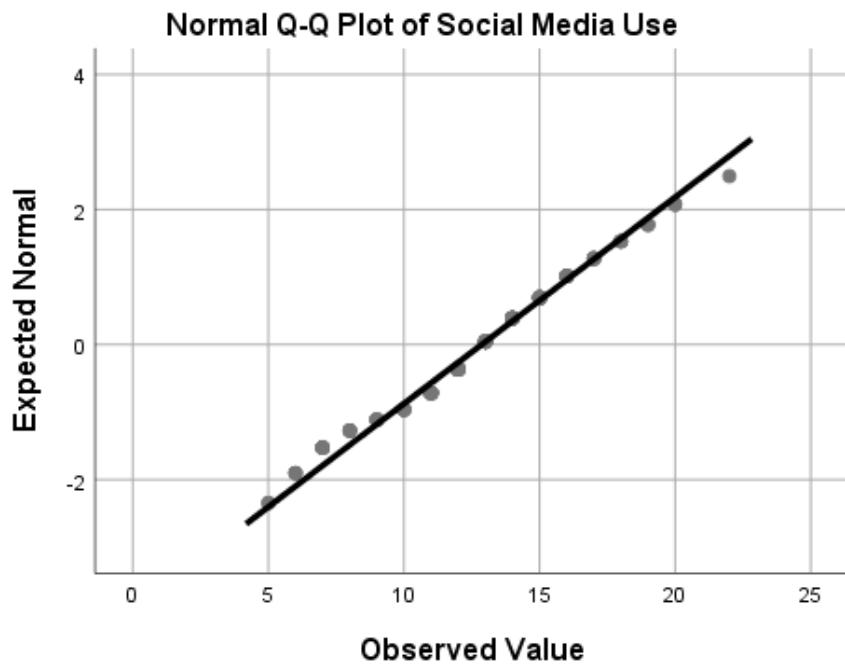
Figure D3. Normal Q-Q plot: Social media use.
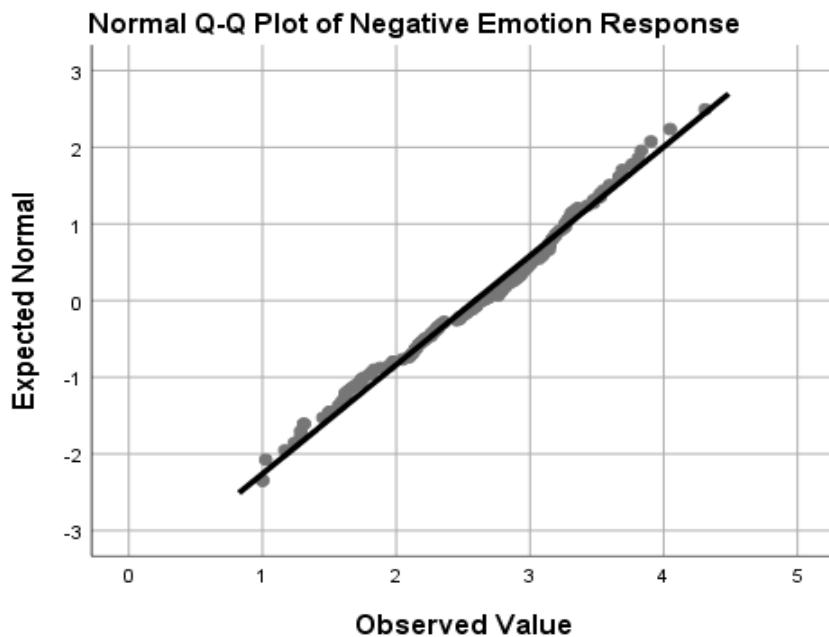
Figure D4. Normal Q-Q plot: Negative emotional reactions.
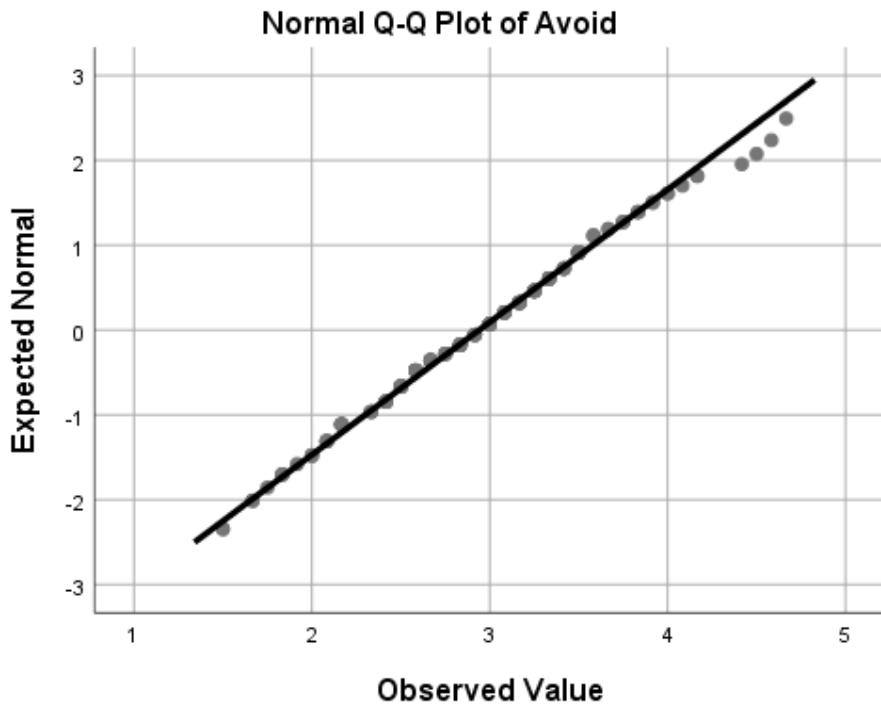
Figure D5. Normal Q-Q plot: Avoidant behavioral reactions.
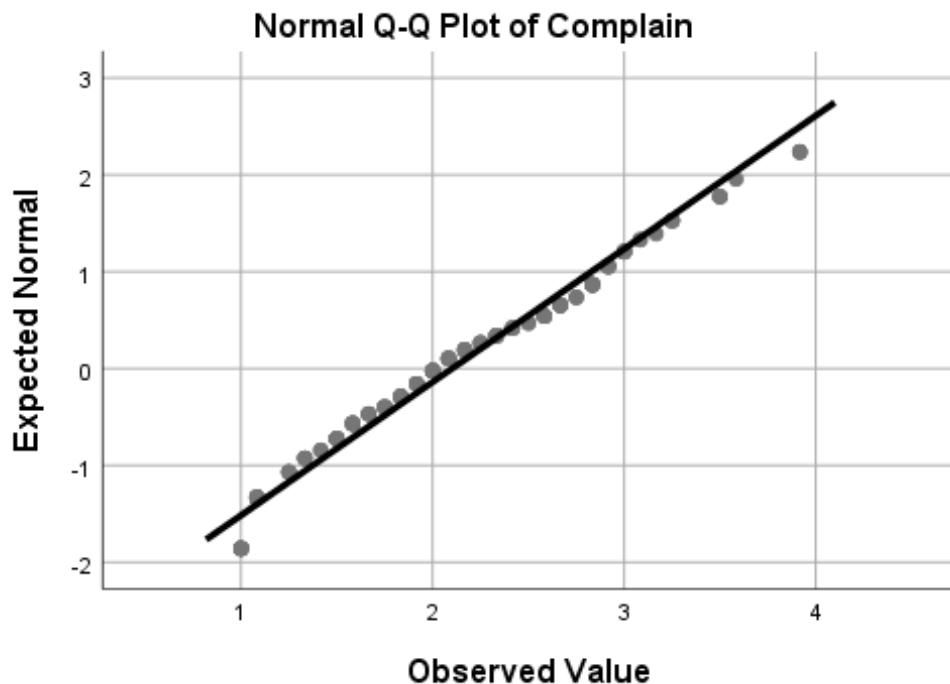
*Figure D6.* Normal Q-Q plot: Complaining behavioral reactions.
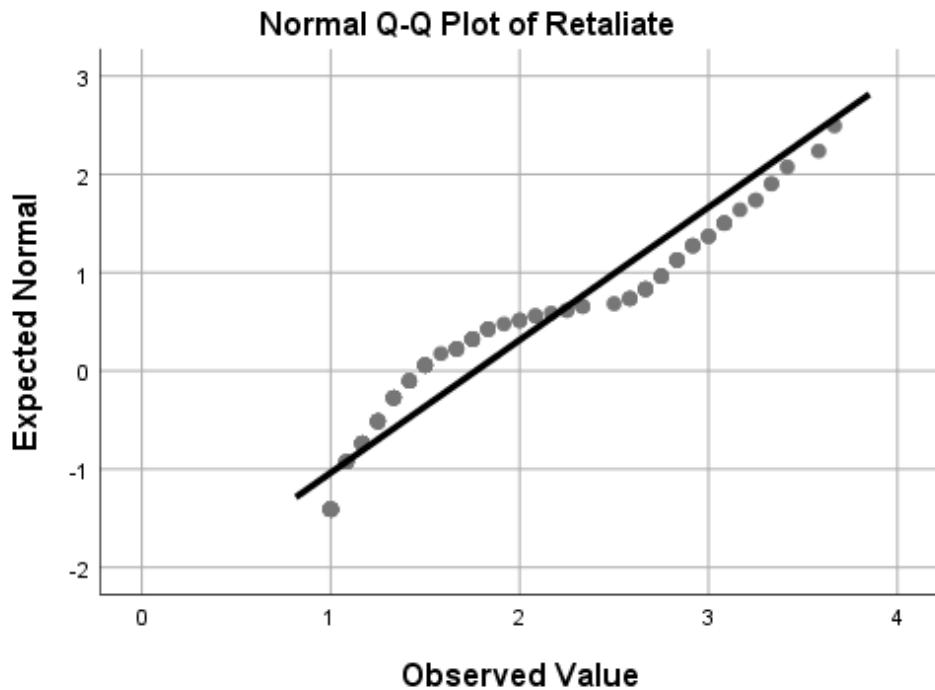
*Figure D7.* Normal Q-Q plot: Retaliation behavioral reactions.
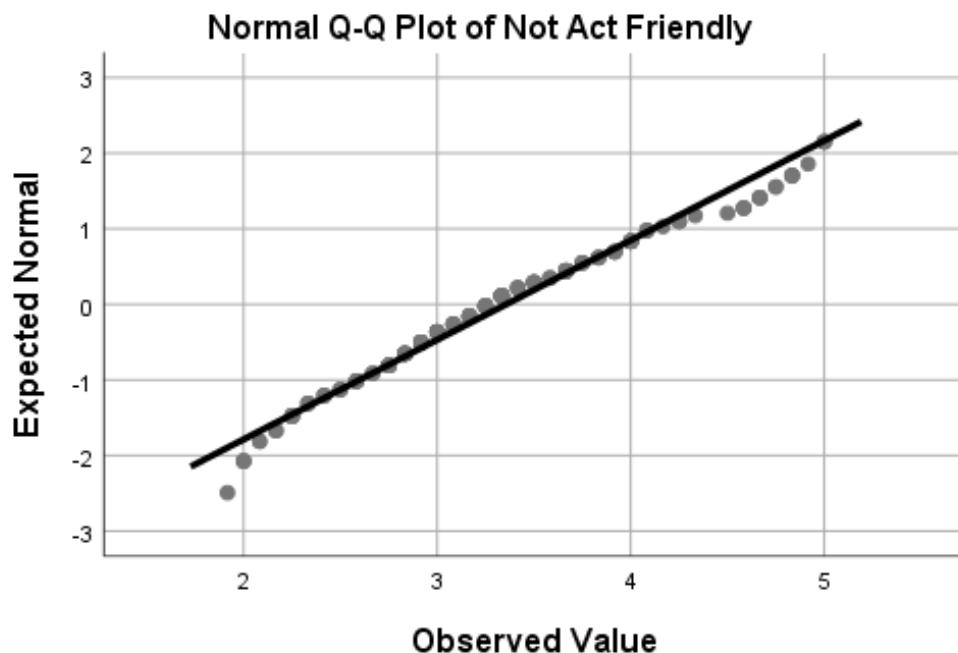
Figure D8. Normal Q-Q plot: Not act friendly behavioral reactions.

Appendix E: Scatterplots for Assumption of Linearity

Figure E1: Scatterplots for predictor variables and negative emotional reactions.

Figure E2: Scatterplots for predictor variables and avoidant behavioral reactions.

Figure E3: Scatterplots predictor variables and complaining behavioral reactions.
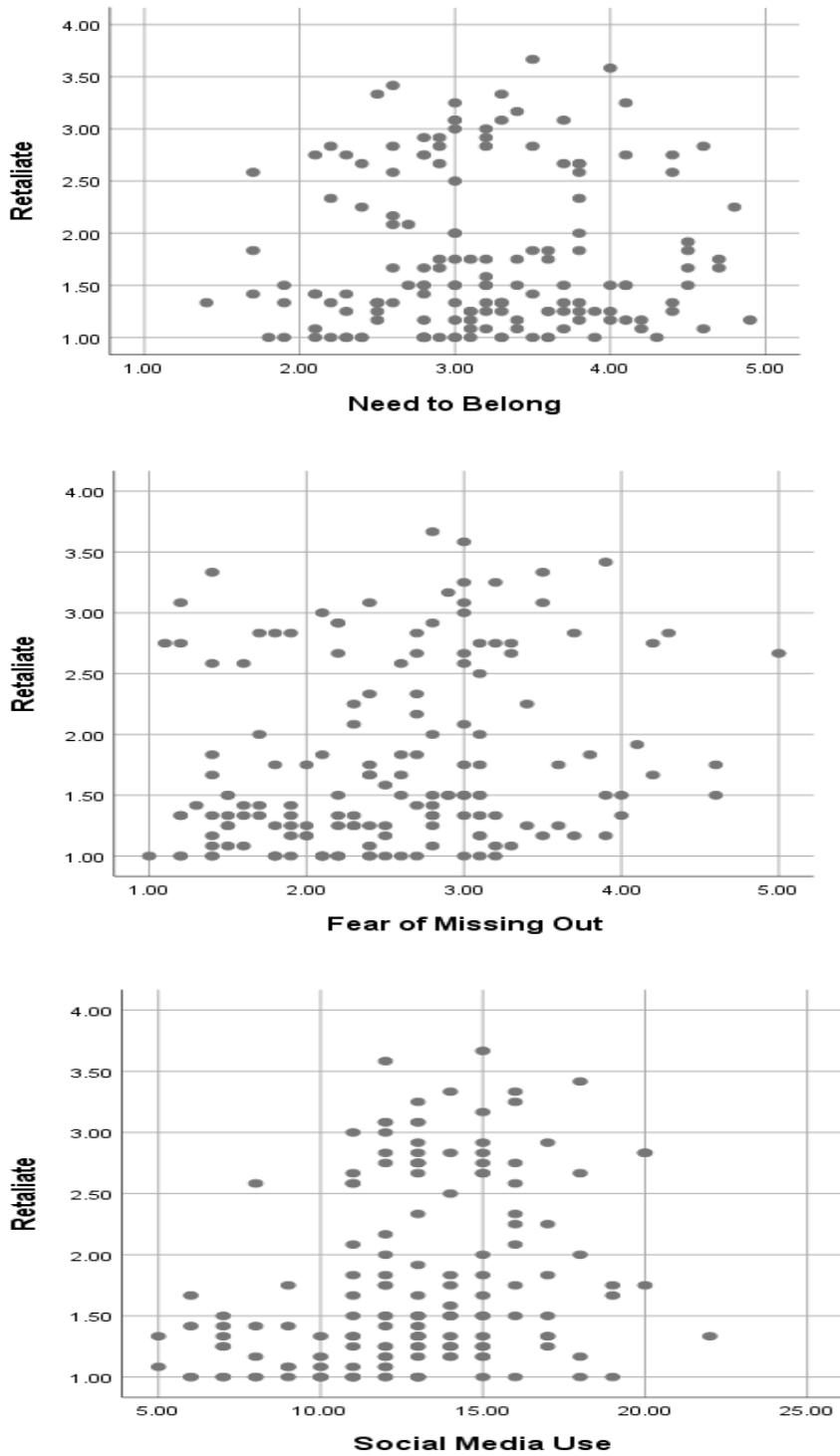
Figure E4: Scatterplots for predictor variables and retaliation behavioral reactions.
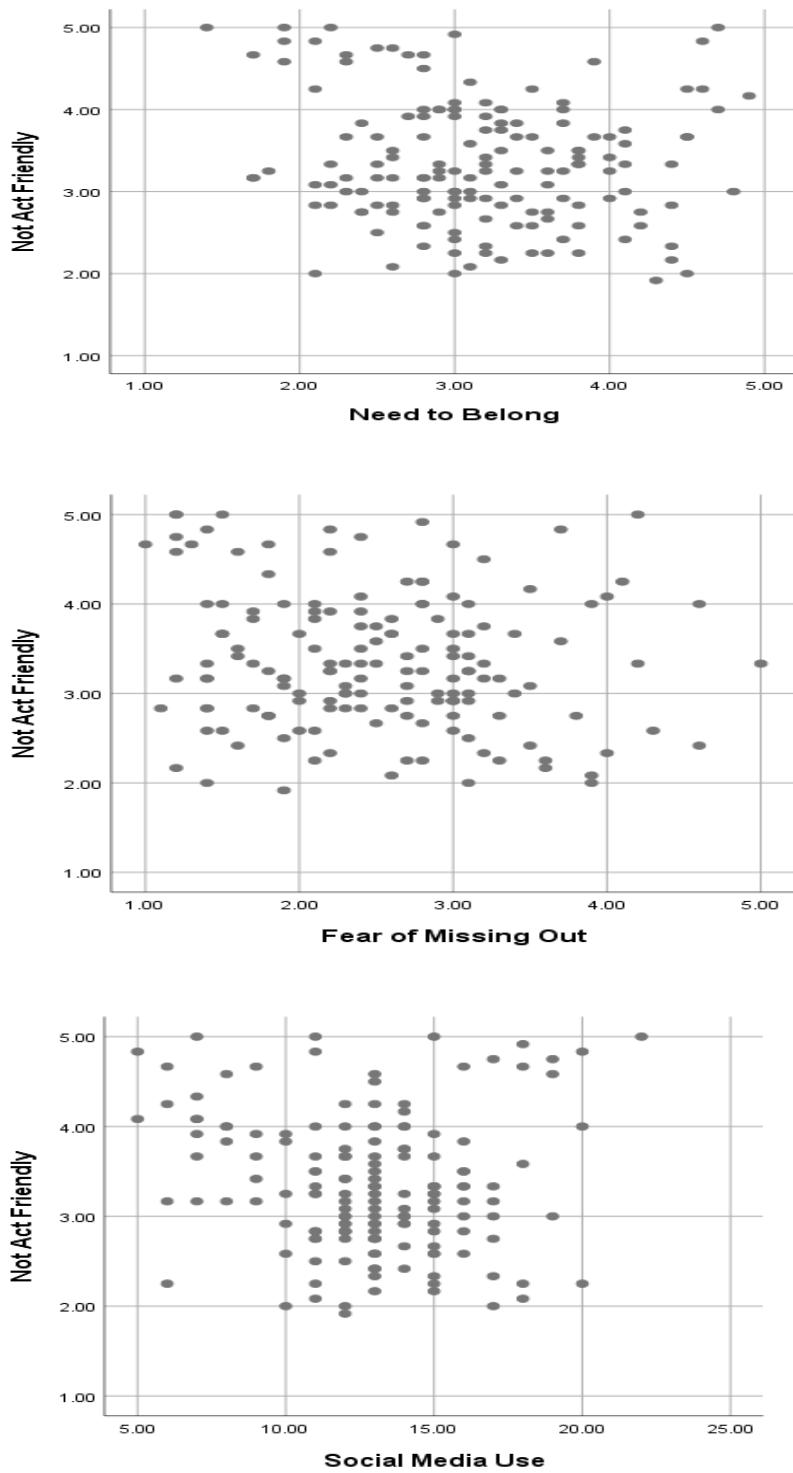
Figure E5: Scatterplots for predictor variables and not act friendly behavioral reactions.

Appendix F: Scatterplots for Assumption of Homoscedasticity
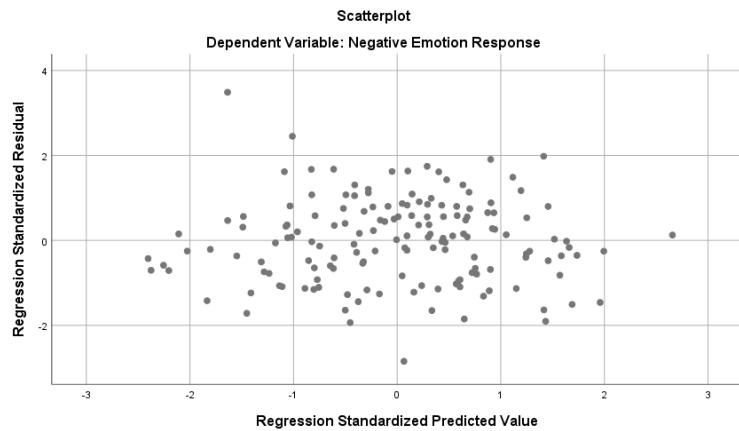
Figure F1. Residual scatterplot: Negative emotional reactions.
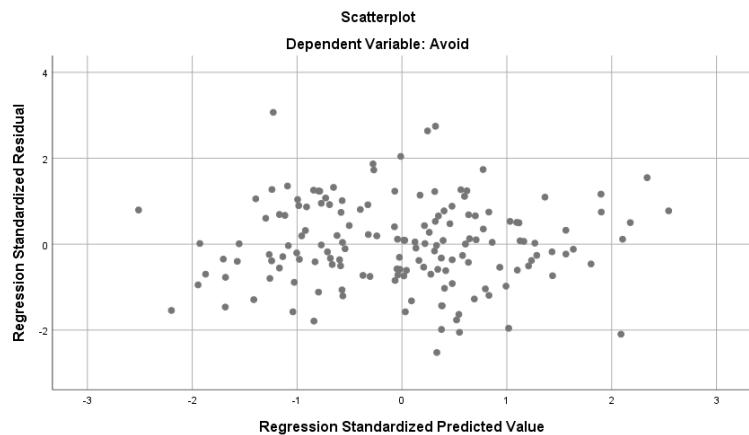
Figure F2. Residual scatterplot: Avoidant behavioral reactions.
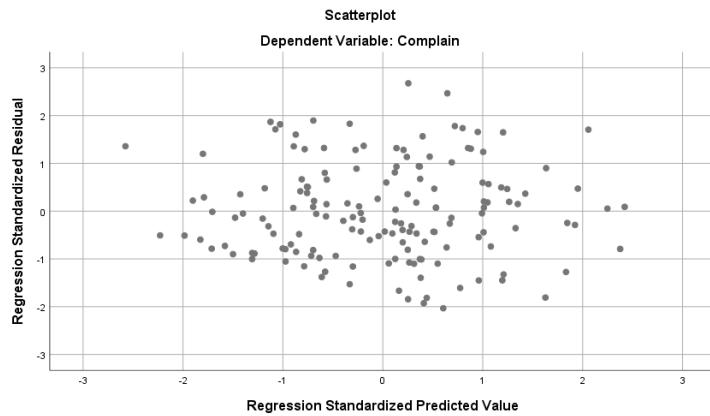
Figure F3. Residual scatterplot: Complaining behavioral reactions.
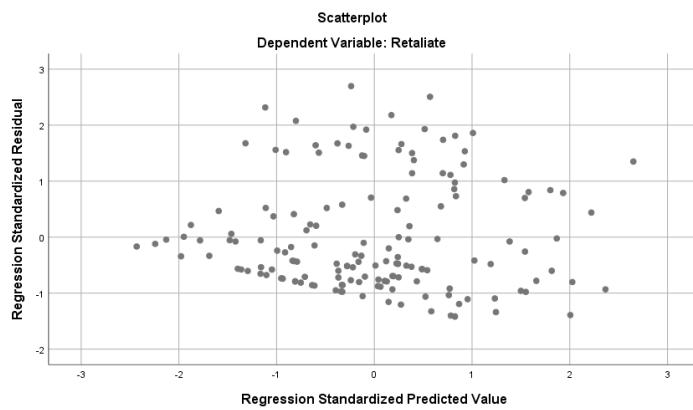
Figure F4. Residual scatterplot: Retaliation behavioral reactions.
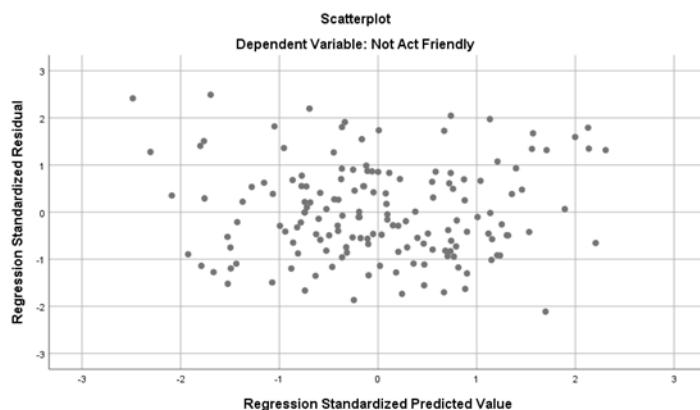
Figure F5. Residual scatterplot: Not act friendly behavioral reactions.

Appendix G: P-P Plots for Normality Distribution of Residuals
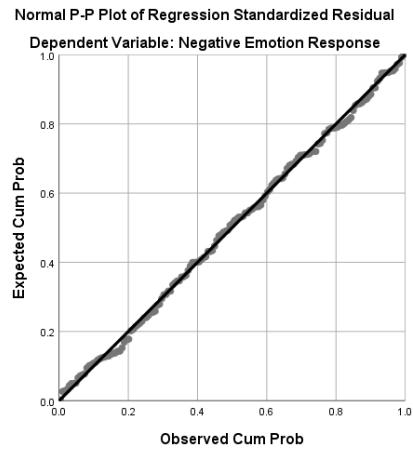
*Figure G1.* P-P Plot of Residuals: Negative Emotional Reactions.
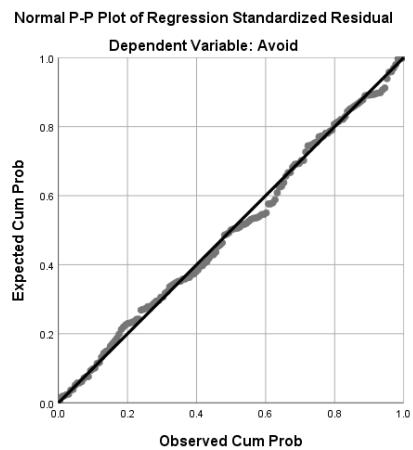
*Figure G2.* P-P Plot of Residuals: Avoidant Behavioral Reactions.

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Complain
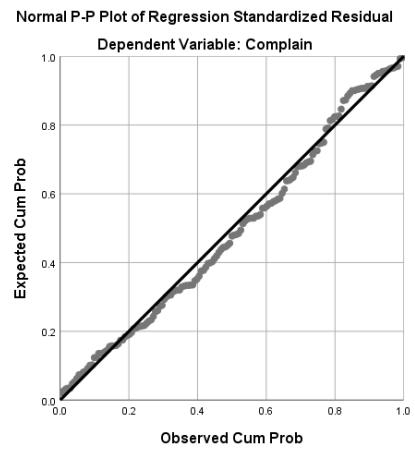
Figure G3. P-P Plot of Residuals: Complaining Behavioral Reactions.

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Retaliate
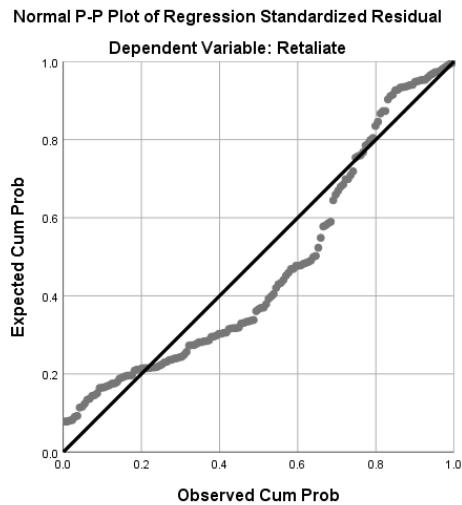
*Figure G4.* P-P Plot of Residuals: Retaliation Behavioral Reactions.
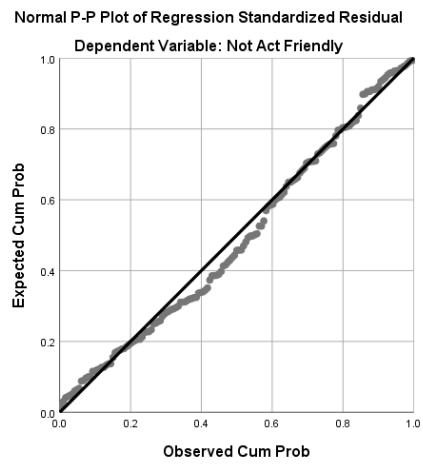
Figure G5. P-P Plot of Residuals: Not Act Friendly Behavioral Reactions.