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Depression and Time Spent on Facebook Predicting Facebook Usage and Social Support

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Abstract

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by

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Abstract

Social media is a medium of communication worldwide, but it is not clear whether there is a relationship between depression and the use of social media. The purpose of this research was to explore this possible relationship. The stress generation hypothesis of depression (SGHD) states that people with depression encounter higher rates of stress than their nondepressed counterparts. In the context of social media, people with depressive symptoms may use social media in ways that increase their stress and worsen their depressive symptoms. To test this hypothesis, this study was designed to determine whether a higher level of maladaptive Facebook use and lower social support is present among people with depressive symptoms. Data were collected via questionnaire from 156 volunteers and analyzed using regression analysis. The regression analysis results were that time spent on Facebook, and depressive symptoms were significantly predictive of both active and passive Facebook use. Neither depressive symptoms nor time on Facebook predicted active nonsocial usage style. Regression analysis also indicated that the social support subscales of attachment and integration support were predicted by depression and time spent on Facebook. A social implication of these findings is that social media use may benefit people with depression. Future research that explores the relationship between Facebook use and social support would have further social change implications by offering recommendations for specific types of Facebook usage to increase attachment and integration support.

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Dedication

A special thanks to my family for all their love and support. I heard the secret to living well is to pick your parents carefully. I love and appreciate both of my parents very much, Ron and Lynda Kincaid. Thank you for your help in editing and lifting my spirits. To my wife (Denise) and children (Ron & Rich), thank you for your love and support. Also, thank you to my sisters (Sara, Kathy, & Ellen) for their love and wit.

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Chapter 1: Introduction to the Study

The use of social media has become prevalent in the United States and across the world. These social media sites allow individuals to share stories, pictures, and ideas across vast geographical distances. Facebook is the most popular social networking site (Statistica, 2019). The use of Facebook can be an important source of social support for individuals. However, depression and the amount of time spent on Facebook may predict the type of social media use and the perception of social support. For example, some depressed people may use Facebook in ways that diminish social support, which could worsen depressive symptoms. But most research on Facebook and other social media has been focused on college-aged students (17–24 years) who use social media to create social support. Sampling of broader populations is needed to make inferences about groups larger than high school and college students.

The current study was unique for several reasons. First, previous research has not examined if depression and time predict Facebook usage style and social support. Second, this study includes a broader population than college-aged students. Third, the study used the Passive Active Use Measure (PAUM; Gerson et al., 2017), which is the first standardized measurement of Facebook use and has only recently become available for social media research. This study uncovers insights into the predictive relationship of depression and time with Facebook usage and the perception of social support. A social change implication is that information generated from this study can be disseminated to the public about how Facebook can best be used to form social support for individuals with increased depressed symptomology.

This chapter begins with a background section that briefly outlines the major topics of the study. The chapter also contains a problem statement, purpose statement, research questions, theoretical framework, nature, definitions, assumptions, scope, limitations, and the significance of the study. Chapter 1 concludes with a summary and transition to Chapter 2.

Background

Selected articles related to depressive symptoms, time spent on Facebook, social media use, and social support are described in this section.

Social Media Depression

Facebook depression is a term used in social media research to explain the link between Facebook and depressive symptoms (Blease, 2015). The assumption is that the more time people spend on social media websites, the more depressive symptoms they experience (Tromholt, 2016). A weakness of this generalization is that not all people use Facebook in the same manner and may not have the same outcomes. However, individuals experiencing depression may tend to behave in ways that can worsen symptoms. Coyne and Downey (1991) and Hammen (1991) introduced the stress generation hypothesis of depression (SGHD), which states that depressive symptomology influences behaviors and social media usage style. The SGHD might predict outcomes of social media use (Liu, 2013; Liu & Alloy, 2010). When applied to Facebook, the SGHD might indicate that depressed people are using social media in ways that exacerbate or alleviate depressive symptomology.

Facebook Use

Traditionally, Facebook use was conceptualized as either passive or active. But Gerson et al. (2017) concluded by factor analysis that a 3-item conceptualization yielded more reliable results. The three usage styles are active social, active non-social, and passive. Incorporating these three styles into studies can provide a more nuanced perspective on Facebook usage. But based on a review of the literature, no studies have made use of the 3-item conceptualization. Further, little research has evaluated whether social support plays a role in the type of active Facebook usage for adults, focusing on adolescents instead (Frison & Eggermont, 2016; Scherr et al., 2019). People may change from passive to active Facebook use because of depressive symptomology (Scherr et al., 2019). Understanding more about the usage style and the subsequent associations between depression and social support remains to be explored.

Social Support

The need for social support provides a basis for evaluating social media usage. For instance, certain types of Facebook usage, such as passive use, harm social support (Skopp et al., 2018). Passive Facebook usage is negatively associated with affective well-being among adults (Verduyn et al., 2015). Research on loneliness has also shown that emotional loneliness was low among moderate to low Facebook users and high among active users (Wang et al., 2018). Thus, social support may play an important role in the outcome of social media usage. However, little is known about how depressive symptoms and the amount of time spent on social media may alter the use of Facebook and the

perception of social support. This study contributes to an understanding of how social media may contribute to psychological health.

Problem Statement

Facebook makes it possible for users to meet and connect with individuals through the social media platform. Users share life experiences and communicate with others via postings and writing messages. Many of the posted images, videos, and stories shared online are fragmented or glamorized versions of life (Appel et al., 2018). Such images are often carefully selected to emphasize successes while downplaying failures. These images of success may contribute to envy or depression through harmful social comparison to the perceived superiority of others (Appel et al., 2018).

When individuals view postings on Facebook, they typically exhibit dichotomized behaviors (Appel et al., 2018). A more active method of Facebook use is when users directly exchange ideas with posting individuals (Verduyn et al., 2015). But little is known about the potential benefits of active use. Alternatively, readers may passively use Facebook by viewing postings without communicating with the content creator (Verduyn et al., 2015). Passive usage is conceptualized as harmful because it is associated with increased envy and possibly deepened depression (Scherr et al., 2018; Verduyn et al., 2015). Facebook users may be active and passive in their use of social media. The type of usage may change depending on the user's affect states and the amount of time spent on social media.

Numerous studies have described how depression influences the type of use for social media. Blease (2015) reported that users conversing online about depression may

be an adaptive behavior. Moreno et al. (2011) estimated that 25% of college students with Facebook accounts referenced depression. Lerman et al. (2016) also indicated that one of the primary reasons for college students posting about depression was to ask for help. Another study determined that Facebook users experienced a decreased sense of social comparison when actively communicating (Frison &Eggermont, 2015). Interpretation of existing data indicates that active social media involvement elicits greater social support, with social media acting as a self-help group for active users. However, the link has not been explored in the existing literature.

Most current studies that evaluated social media have assumed that the social media experience is harmful (Aalbers et al., 2018; Blease, 2015; Branely & Covey 2018; Feinstein et al., 2013; Moreno et al., 2011; Tromholt, 2016). But other studies of Facebook have been shown to help maintain social support (Skopp et al., 2018). Recruitment of social support is an explanation for usage style among Facebook users with depressive symptoms. For instance, depressive symptoms among Facebook users have been demonstrated to predict the user switching from passive to active social media usage (Scherr et al., 2018). An identified gap in the literature is whether symptoms of depression and the amount of time spent on social media predict Facebook usage style and the perception of social support (Scherr et al., 2018).

The way that depression alters the type of social media use is important for providing effective mental health services. Clinicians may want to explore clients' use of social media as an expression of depressive symptoms. People with depressive symptoms may engage in social media as a way to increase social support. Understanding the

relationships between depression, the amount of time spent on social media, social media usage, and social support can direct online and offline mental health treatment. Most Americans use social media in a variety of ways with little to no knowledge of possible long-term consequences. Passive social media use may be affecting people's mood and promoting depression. Conversely, the amount of time spent on social media may be lessening depression through a sense of social support. Understanding these relationships may better allow people to be responsible and healthy users of social media.

Purpose

The purpose of this quantitative, cross-sectional, correlational study was to test the SGHD, which states that the greater the depressive symptoms, the more people will exacerbate these symptoms (Scherr et al., 2018). One example is the tendency for people with depression to distance themselves from social support, causing an increase in depressive symptomology (Scherr et al., 2018). When applied to social media, depressive symptomology and the amount of time spent on social media may predict more passive types of Facebook usage. This passive usage would thereby lessen the experience of social support online. To test this application of theory, the independent variable of depressive symptoms was operationalized by the Patient Health Questionnaire-9 (PHQ-9; Kroenke et al., 2001). The PHQ-9 is a self-report measure that determines emotional and physical depressive symptomology. In this study, the dependent variable of usage was defined as active nonsocial, active social, or passive Facebook usage. Scherr et al. (2018) defined passive Facebook use as browsing profiles and reading posts without interacting. Active Facebook use was defined as posting, chatting, and otherwise creating content on

social media. Active nonsocial was defined by reposting or sharing nonoriginal content online. These variables are best measured by the PAUM (Gerson et al., 2017). Another dependent variable was the perception of social support. This construct was determined by Facebook users indicating the level or extent to which people feel emotional support. Emotional support was conceptualized as social integration, confirmation of worth, material support, and orientation support from others on Facebook. These levels were ascertained from the subtests of the Social Provisions Scale-10 (SPS-10; Caron, 2013), revised from the SPS scale by Cutrona and Russell (1987).

Research Questions and Hypotheses

Research Question 1: To what extent do the variables of depression and the amount of time spent on Facebook daily predict the construct of active social Facebook usage, nonsocial active Facebook usage, and passive Facebook use?

$H_0$1: There is no predictive relationship between one or both variables of depression and the amount of time spent on Facebook daily and the construct of active social Facebook usage, nonsocial active Facebook usage, and passive Facebook use.

H_a1: A significant predictive relationship exists between one or both variables of depression and the amount of time spent on Facebook daily and the construct of active social Facebook usage, nonsocial active Facebook usage, and passive Facebook use.

Research Question 2: To what extent do the variables of depression and the amount of time spent on Facebook daily predict emotional support, social integration, confirmation of worth, material support, and orientation support?

$H_0$2: There is no predictive relationship between one or both of the variables of depression and the amount of time spent on Facebook daily and the construct of emotional support, social integration, confirmation of worth, material support, and orientation support.

H_a2: A significant predictive relationship exists between one or both of the variables of depression and the amount of time spent on Facebook daily and the construct of emotional support, social integration, confirmation of worth, material support, and orientation support.

Theoretical Framework

The SGHD is predicated on the idea that depressed people experience more stress than nondepressed individuals (Hammen, 1992). Persons with prior or present depression encounter higher rates of stress than their nondepressed counterparts (Conway et al., 2012). Essentially, a history of depression is predictive of future depression (Frison & Eggermont, 2016; Hammen, 1992; Liu et al., 2014; Pantic, 2014; Scherr et al., 2018). The SGHD theorizes that people experiencing depression behave in ways that increase interpersonal stress and thus exacerbate depression (Hammen, 1992). Therefore, depression tends to be recurrent due to alterations in behavior such as excessive reassurance seeking from others (Salkovskis & Kobori, 2015).

Individuals with depressive symptomology are likely to engage others online in ways that increase interpersonal stress. This engagement may consequently decrease the levels of perceived social support they receive online. Additionally, a strong correlation has been reported between depressive symptoms and low levels of social support (Coyne

& Downey, 1991). Depressed symptomology is linked with less emotional control and decreased problem-solving ability (Coyne & Downey, 1991). While increased depression levels are positively associated with reassurance seeking (Salkovskis & Kobori, 2015) and isolative behaviors (Scherr et al., 2018). These symptoms have been linked to Facebook usage style (Appel et al., 2018; Frison & Eggermont, 2016; Scherr et al., 2018). The SGHD has been used in several social media studies to explain the relationship between depression and social media interactions (Keser et al., 2017; Scherr et al., 2018). Few studies have explored the variables of depression, social support, and social behaviors. But the SGHD states that depression should be considered as an independent variable in social media research. Thus, this study used the SGHD framework to consider depression and time as independent variables to predict social support and Facebook usage.

Nature of Study

This study was a quantitative analysis using the SGHD framework. It was conducted to determine whether depressive symptoms are predictive of Facebook usage and the perception of social support. I sought adult users of Facebook for participants. The study utilized the PHQ-9 (Kroenke et al., 2001) to assess the level of depressive symptoms. The PAUM (Gerson et al., 2017) evaluated the type of active or passive Facebook usage. The SPS, as referenced from Cutrona and Russell (1987), determined the level of perceived support. Multiple regressions assessed the predictive relationship between variables.

Definitions

Active nonsocial users: Generate content but do not actively engage in social media interactions (Gerson et al., 2017). Active nonsocial Facebook usage was measured by the construct of nonsocial Facebook use of the PAUM.

Active social Facebook usage: Measured by the construct of active Facebook use of the PAUM (Gerson et al., 2017). Active Facebook use was defined as posting, chatting, and otherwise creating content on social media.

Confirmation of worth: A form of social support in which a person's skills, perspective, and abilities are validated. It was measured by the confirmation construct in the SPS-10 (Caron 2013).

Depression: A loss of interest in activities, slowing down of thought, fatigue, feelings of worthlessness, diminished concentration, reoccurring thoughts of death (American Psychiatric Association, 2013). Depression was measured by the PHQ-9 (Kroenke et al., 2001) among Facebook users.

Emotional support or attachment: The sense of security and safety in relationships. This was measured by the emotional support domain of the SPS-10 (Caron 2013).

Facebook: The most popular social networking site that is used to communicate with friends and family (Statistica, 2019).

Material social support: The sharing of physical resources. It was measured by the material construct in the SPS-10 (Caron 2013).

Passive Facebook users: Browse profiles and read posts without interacting. Passive Facebook usage was measured by the construct of passive Facebook use of the PAUM (Gerson et al., 2017).

Reassurance: A form of social support in which a person's skills, perspective, and abilities are validated. This construct was measured by the orientation subtest in the SPS-10 (Caron 2013).

Social integration: Refers to a sense of belonging and the idea that others share similar concerns and appreciate similar things. Social integration was measured by the social integration domain of the SPS-10 (Caron 2013).

Social networking sites: Forms of electronic communication in which participants share and communicate messages, pictures, videos, and/or other content (Caron, 2013)

Social support: Relationships that are supportive and promote a positive self-image. Social support is associated with greater coping and adaptive responses to life stressors. Social support was measured by the various subtests of the SPS-10 (Caron 2013).

Supportive guidance: Exists when there is an individual who provides advice or direction. Supportive guidance was measured by the orientation construct in the SPS-10 (Caron 2013).

Time spent daily on Facebook: Defined by the number of hours and minutes spent participating in any way on Facebook. Time spent was measured in minutes.

Assumptions

There were six major assumptions in this study. First, it was assumed that a normal distribution of depression levels was reported. Second, it was assumed that participants gave an accurate and honest account of their level of depression. The third assumption was that participants provided an accurate account of the type and quantity of Facebook usage. The fourth was that participants accurately answered the level of social support. Fifth, it was assumed that all participants were over 18 years old and honestly answered the inclusion criteria. The sixth assumption was that this sample of Facebook users represented the general adult population of Facebook users.

These assumptions are necessary for the context of the study because Facebook is an online service. The research needed to be conducted online to reach a representative sample of adult Facebook users effectively. Verification of personal data (e.g., age, gender, depression level) of all participants was not possible in a study conducted online.

Other assumptions in the study included the assumptions of regression analysis. The five assumptions of a regression are linear relationship, multivariate normality, multicollinearity, no auto correlation, and homoscedasticity. These assumptions are assumed for demographic variables among participants such as gender, age, and ethnicity. Residuals were visually examined by a scatterplot of standardized predicted values with standardized residual values. Violations of these assumptions were statistically controlled for in the regressions.

Scope and Delimitations

This study targeted typical adult Facebook users. The scope of this study was limited to adults living in the United States and fluent in English. Population demographic data were collected and used as potential covariates and confounds. The study targeted the adult population as it is an understudied demographic (Moreno et al., 2011). It was assumed that average users exhibited a broad range of depressive symptomology, as reflected in the general public. This was chosen to best generalize the results of the study to typical Facebook users living in the United States. Finally, this study represented one point in time (i.e., a one-time sampling). It was not possible to determine whether there are seasonal effects, such as short day-length (less exposure to sunlight) or holidays, though many factors may affect depression symptomology.

There are delimitations for the study. Due to time and financial restrictions, this study excluded participants under the age of 18, not fluent in English, or currently living outside the United States. The literature review was expansive and includes relevant subjects to depression, social media usage, and social support. However, there is a considerable volume of literature available on the topic of social media research. Thus, the literature review was relatively limited to these subjects. A comprehensive discussion on selected literature is available in Chapter 2.

A multivariate regression analysis was selected for purposes of methodology because the current study contains two continuous independent variables with multiple continuous dependent variables. A regression analysis was chosen because it provides a predictive description of the relationships between multiple continuous variables. To

answer the research questions, a multivariate linear regression must be used. Demographic data were collected in this study only for the evaluation of potential violations of regression assumptions.

Limitations

Limitations are design considerations from a proposed methodology that could affect the outcome and/or generalizability of a study. Limitations of this study are recognized as internal validity and threats to external validity. Internal validity refers to the extent that a study is free from errors. External validity is the extent that research findings can be universalized. Limitations of internal and external validity will be addressed in more detail in Chapter 3.

Limitations of Internal Validity

This study utilized self-report surveys consisting of specific questions that could be interpreted differently by the participants: the PHQ-9, SPS-10, and PAUM. I was not able to answer any questions from the participants. There was no way to be certain that confusion about questions or social desirability did not affect the responses.

Limitations to External Validity

A convenience sample may not represent the full population of Facebook users. One example is that younger people spend more time on Facebook (Wang et al., 2018) and thus may have been more likely to take a survey about Facebook. The use of demographic data helped assess whether the sample collected was representative of the population for generalization of the findings.

Significance

The purpose of this study was to determine whether depression symptoms and the amount of time spent on Facebook predict Facebook usage style and the perception of social support. This study examined a broader group than most other research. This study explored the SGHD (Hammen, 1992) as well as examined the possibility of clinical utility of social networks. These new treatment directions included the need to educate people about the transactional connections between their depressive symptomology, online usage style, and social support. The results of this study may lead clinicians to engage in more psychoeducational practices. The study generated information that can be helpful to the public about how Facebook may be best used to form social support for individuals with increased depressed symptomology.

Summary

Research is needed to explore how depression and the amount of time using social media may predict how individuals use social media and the type of social support they receive. Most studies have targeted college and high school students (Aalbers et al., 2018; Anderson et al., 2012; Appel et al., 2018; Błachnio & Przepiorka, 2016; Blease, 2015; Feinstein et al., 2013; Frison & Eggermont, 2016). Thus, there is little research that utilized adults. The purpose of the study was to determine if depression and time may predict Facebook usage style and the subsequent social support user's experience.

The results of this study supply a corollary to the SGHD theory that depression leads to behaviors that exacerbate depression. These behaviors include online passive use of social media that decreases positive social support. The findings of this study can

improve current psychoeducational approaches that encourage healthy uses of social media and stronger social support. An understanding and application of this research by clinicians may assist in positive social change. Chapter 2 provides a literature review to explore the topic and relevant themes in greater detail.

Chapter 2: Literature Review

Facebook and social media are a growing means of communication. Images and stories between people are communicated directly and indirectly. But self-images are carefully selected to represent the most favorable aspects of oneself, which may cause envy through harmful social comparisons with others as well as depressive symptoms (Appel et al., 2018). At the same time, people may be using social media as a means for social support (Moreno et al., 2011). This literature review explores these concepts through peer-reviewed articles. It establishes major concepts and themes that support assessing depression as a predictor of social media use and social support. This review explores significant variables and expands the topics with relevant research. Topics included many factors of depression. The SGHD (Coyne & Downey, 1991) explains the need for the use of depression as a predictor variable in social media research. Next, the review explores how social media may be used as a forum for people with similarities. Social support is explored and outlined as a multifactorial construct that occurs due to the usage style of Facebook users. Thus, the types of social media usage styles are explained with the current understanding of research. These variables outline how understanding depression as a predictor of social media usage style and social support was a gap in the literature that needed to be addressed.

Literature Search Strategy

The literature search was conducted primarily through online resources. These resources included the Walden University Library and Google Scholar. Searches within the Walden University Library used the PsycARTICLES and PsycINFO databases.

Expanded searches obtained publications within the following databases: Primary Search, PsycBOOKS, PsycEXTRA, PsycTESTS, Research Starters – Education, Social Work Abstracts, SocINDEX with Full Text, Computers & Applied Sciences Complete, Academic Search Complete, eBook Collection (EBSCOhost) and Library, Information Science & Technology Abstracts. Google Scholar was utilized for additional websites referenced for updated social media statistics and general references.

Keywords used in a combination or singularly included *depression, social network, Facebook, Twitter, males, females, usage, active, passive, mental health, youth, adult, stress generation, empirical, quantitative, qualitative, analysis, behavior, support,* and *implications.* The scope of the literature review included peer-reviewed publications from 1990 to 2019. Classic papers included Coyne and Downey (1991) and Hammen (1991) that introduced the SGHD. This hypothesis provided the framework for many current research articles and studies on depression and social media.

Theoretical Foundation

Past depression is the best predictor of future depression because depressed individuals behave in ways that generate more stress. This theory is called the SGHD, which states that individuals with a history of depression encounter higher rates of stress than their nondepressed counterparts (Conway et al., 2012). Stress and depression in the SGHD are a self-feeding cycle, which explains the reoccurrence of depression over time. Many studies have supported past depression as a powerful predictor of future depression (Coyne & Downey, 1991; Frison & Eggermont, 2016; Hammen, 1992; Liu, 2014; Liu et al., 2014; Pantic, 2014; Scherr et al., 2018).

The creation of stress has been linked to interpersonal behaviors that create tension in relationships. One example is excessive reassurance seeking from others (Salkovskis & Kobori, 2015). In the short-term, seeking reassurance causes relief, but longer-term creates demands on interpersonal relationships that create additional stresses (Salkovskis & Kobori, 2015). Additionally, individuals experiencing high levels of depressive symptomology often engage in rumination. Rumination occurs when an individual focuses on depressive symptoms or situations (Hasegawa et al., 2018). This also plays a distinctive role in future depression, intensifying depressive symptomology (Hasegawa et al., 2018). Rumination can explain why individuals seek excessive reassurance as a means to lessen depressive symptoms. This reassurance ultimately worsens depression because it is theorized to exhaust social supports.

Social supports have a unique role in SGHD theory because much of the stresses are experienced interpersonally. As depressive symptoms worsen, the perception of social support diminishes (Coyne & Downey, 191). This link has been demonstrated to lessen a sense of control and problem solving for the individual (Coyne & Downey, 1991). This results in more isolative behaviors, which may contribute to worsening symptomology (Scherr et al., 2018). Isolation has been demonstrated to relate to worse mental health outcomes. Individuals with poor mental health are more likely to isolate and, in turn, have weakened social networks (Baggio et al., 2017).

The SGHD can be applied in the study of social media utilization by individuals with depressive symptoms. The way in which social media is used by the individual can be linked with emotional outcomes. When people passively use social media, they are

more likely to become envious and display increased depressive symptoms (Scheer et al., 2018). In contrast, people who use Facebook more actively and create content have been associated with a decrease in emotional loneliness (Wang et al., 2018). SGHD can explain online interactions and is the foundation theory for other research of social media interactions (Liu et al., 2014; Pantic, 2014; Scherr et al., 2018). It provides a structured framework in which depression is used to predict social media behaviors and social supports. In this study, the SGHD provided a linear structure for the measurement of depression and time spent on social media predicting Facebook usage and social support.

Conceptual Framework

The conceptual framework is that depression levels and time spent on social media relate to Facebook usage style and social support. The SGHD theory explains that as depressive symptoms and time spent on social media increase, this affects the way Facebook is used and social support is experienced. Individuals with increased symptomology are more likely to use social media in ways that may increase interpersonal stress online. Thus, people with depression may experience fewer positive online social interactions. Some studies demonstrated that people tend to group with other people of similar mental health status online (Baggio et al., 2017). This grouping may naturally lead people to new online groups of social support (Blease, 2015). But further research is necessary on how depression may be influencing the use of social media (Scherr et al., 2018). Online support and active social media usage may be a useful tools in helping to address depressive symptoms.

Literature Review Related to Key Variables and Concepts

Depression

Depression is a serious mood disorder that affects the way individuals think, feel, function, and relate to the world around them. The impact is felt by social support and collectively has an economic cost to countries. It is marked as the sixth highest economic health burden in the United States, the United Kingdom, and Italy (Berto et al., 2000). The high costs of depression include hospitalizations, medication, therapies, as well as costs to employers (Berto et al., 2000). Any actions that alleviate or worsen the prevalence or symptomology of depression deserve evaluation.

Lifespan

Depression develops across the lifespan and is affected by glucocorticoids. Throughout human development, glucocorticoids are important for normal maturation; however, exposure to high levels of glucocorticoids as a result of stress alters the development of the brain (Lupien et al., 2009). Functional magnetic resonance scanning has shown stressors increase activity in the hypothalamus-pituitary-adrenal (HPA) axis, which can occur at any time throughout a lifespan and cause a shift in the way people think and react to stress. Animal models confirm that increased HPA axis activity causes memory damage, decreased learning capacity, and more biological resources spent on maladaptive behaviors. The alteration in HPA axis activity in reaction to stress also affects emotions and cognition. Therefore, across the lifespan, glucocorticoids are predictive of cognitive decline and increased psychopathology (Lupien et al., 2009).

Emotional Responses

Emotional responses can alter the salience of stimuli. People with major depression have stated that they remembered the bad events more clearly than good events (Joorman & Gotlib, 2008). Emotion has a significant effect on the constructions of memories (Carstensen & Mikels, 2005). In essence, when a depressed individual thinks of a neutral event, that depressed individual is more likely to remember the neutral event in a negative manner. Individuals with low self-regard consistently downgrade themselves, and depressed individuals tend to engage in more self-blaming and suicidal ideations (Beck, 1963). Emotion serves as a filter or lens through which people have an innate tendency to seek verification. Attentional focus is biased toward mood congruent stimuli (Becker & Leinenger, 2011). Accordingly, when a person recalls a memory, the memory is experienced or influenced by the person's current mood (Schachter & Addis, 2007). Happier people tend to recall nonmood-related congruent memories when exposed to negative stimuli (Joorman et al., 2009). But the medial prefrontal cortex has a top-down effect on attention, which means that attention to stimuli operates at both conscious and unconscious levels (Smith et al., 2014; Williams et al., 2009). When people understand the effects of a mood disorder such as depression, they can alter their thoughts, memories, or stimuli that are reinforcing the negative mood state. Simply stated, conscious awareness of mood can alter the appraisal of situations.

Appraisals have a powerful effect on the creation of mood states. Appraisals are an interpretation of a situation. Voluntary changes to appraisals can efficiently alter the emotional intensity of reactions (Siemer et al., 2007). When individuals are seen to

reappraise situations, alterations in mood and valence have been demonstrated (Siemer et al., 2007). Appraisals can act as priming cues for situations (Storbeck & Clore, 2007). Thus, negative appraisals may cue negative cognitions that shift attentional processes and memories towards confirmation of the mood state. Negative moods elicit predictions of further negative mood states, in essence, a self-fulfilling prophecy.

Further, an individual's mood can alter self-focused discussions, but identifying mood and emotion can increase emotional regulation. Rumination is a self-focused discussion about the causes and outcomes of mood. Rumination is initially an adaptive aspect of problem-solving (Brennan et al., 2015). The negative mood, however, can overcome the beneficial reflective ponderings of future actions (Brennan et al., 2015). The adaptive thoughts are replaced with brooding or a passive comparison to unrealistic standards (Brennan et al., 2015). Mood has a powerful unconscious effect on the regulation of emotion. This creates problems for affect regulation. People unconscious of their levels of distress are more prone to sudden and emotional outbursts (Williams et al., 2009). Consequently, emotional control can be obtained through conscious processes (Williams et al., 2009).

Loneliness

The relationship between loneliness and mental health is robust. People tend to group with similar people; hence, individuals with poorer mental health group together (Baggio et al., 2017). But loneliness has also been associated with poorer social skills (Liebke et al., 2017). Social deficits likely contribute to loneliness and lead to more depressive states through negative appraisals and emotions. The subsequent rumination

leads to loneliness (Feinstein et al., 2013). Social isolation has an exacerbating effect on depression, and the remedy is social interaction. Social network diversity has been found to be positively associated with neuronal activation (Dziura & Thompson, 2014).

Recent developments in technology have created more opportunities for social interaction through social media. There are competing ideas on the effect of social media on mental health. Researchers have indicated that Facebook leads to envy and rumination (Feinstein et al., 2013; Tromholt, 2016), and social media causes rises in depression by displacing offline relationships (Kraut et al., 1998, p. 1029). However, the relationship between online social interaction and loneliness is much more complex. Available data do not provide a simple answer to whether Facebook usage is good or bad for mental health. Facebook enhances social connectedness; however, overuse has led to an increased sense of isolation (Wang et al., 2018). Individuals may also perceive having less support when passively using social media, whereas active use of Facebook is positively associated with the perception of social support (Frison & Eggermont, 2016). People with depressive symptoms may use social media to seek out others with similar experiences, gaining social support for depression (Moreno et al., 2011) through social connectedness (Verdyun, 2015). Though people may reinforce negative moods by supporting negative appraisal processes, social media may also be a massive online support group that abates depressive symptoms.

Social Media

Social media has become immensely popular, with over 2 billion users in the world (Statistica, 2019). Social media is defined as any electronic medium that allows for

an exchange of ideas. These transformations represent a major change in the way in which ideas are communicated and people are connected. Each social media platform has unique properties. Accordingly, certain types of social media have targeted interpersonal communication (Tyler, 2002). The concepts of language, homophily, and usage are essential in studies of social media and psychology. These concepts introduce a natural tendency for grouping for various pursuits. As demonstrated through research, individuals on social media seek similar people for self-confirmation and social support (Baggio et al., 2017). These variables are likely sources of both stress and resilience factors in coping with depressive symptoms.

Social Media Language

One aspect that contributes to the understanding of Facebook use as a social resource is social media language. The concept of social media having a social language is complex. Individuals communicate differently to intended and imaginary audiences. The perception of an audience composed of similar individuals mediates social media language and other communication, as people post what they think their audience wants to hear based on seeing them as a mirror-image of themselves (Marwick & Boyd, 2011). For example, posts with more certainty words are viewed as more positive, and fewer uses of "I" have been attributed to greater confidence (Orehek & Human, 2017). Navigation of multiple audiences may contribute to the ambiguity of communication such as self-harm language, which can be used to alert family, friends, or authorities to critical situations (Kern et al., 2016).

In addition to focusing on an imaginary audience, two principles govern the self-censorship of posting on social media. The first is flattening, in which large, diverse audiences are combined. The second is polysemy or coded messages in posts for a more specific audience (Marwick & Boyd, 2011). Self-censorship is a balance of being acceptable to the imagined audience and the need for the author to communicate a sense of authenticity. Keeping the balance between a sense of community and maintaining authenticity is a struggle. The need for language and communication through the network has promoted a new understanding of online language. This new sense of online communication is already prominent in the way that college students and many adults develop romantic attachments (i.e., use of online dating; Menkin et al., 2015). This trend places more emphasis on the use of technology and language in all types of relationships.

Additionally, the integration of computers and communication is computer-mediated communication (Klein, 2013). New factors in communication and language such as the immediacy of response, the frequency of transmission, interaction with familiar versus new individuals, relationship status updates, and other factors are featured in relationships (Klein, 2013). The immediacy of communication can also be an indicator for many of the anxieties prevalent in online communications (Klein, 2013). Communication "talk spurts" are common in which pauses are frequent. The discontinuation of communication may be a deliberate cessation of communication or merely an interruption of communication flow due to an interfering activity (Klein, 2013). Individuals often experience increased anxiety when communication flow is disrupted, because the disruption is often interpreted erroneously.

Gender and adolescents. Some researchers assumed there are gender differences in social media communication. Support for this assertion has not been consistent (Branley & Covey, 2018; Frison & Eggermont, 2016; Menkin et al., 2015; Ohannessian, 2009; Yu, 2014). One study researched adolescents and found females in the 9th and 10th grade tended to use more social media than their male classmates (Ohannessian, 2009). Similarly, Andreassen et al. (2016) found that female adolescents demonstrated greater use of social media. This may indicate that females have different uses for social media communication. In contrast, Valkenburg and Peter (2007) failed to find any significant gender difference in social media use among adolescents. Mixed findings indicate that future studies will need to consider the possibility of gender effects.

Ohannessian (2009) also discussed dichotomous outcomes of social media for kids. First, social media may increase alienation by allowing adolescents to experience too much communication digitally. This is harmful because alienation is correlated with an increase in pathologies. Conversely, social media may promote the acquisition of new social communication skills. Very few studies explore if adults follow the same patterns of social media communication as adolescents.

Language contributes to understanding how individuals select specific social media groups. For example, individuals higher in the personality trait of openness are more likely to use Facebook (Marshall et al., 2018). A grouping of people high in openness is likely to equate to greater disclosure of emotion. Moreno et al. (2011) found that college students routinely openly discuss depressive symptoms on Facebook. Discussions of depression and self-focused language were positively associated with

negative psychological states, including depression (Moreno et al., 2011; Orehek & Human, 2017). The characteristic of openness among Facebook users may explain why it is favored for discussing depressive symptoms. The next section explores the formation of groups in response to commonality and psychological needs.

Social Media Homophily

Each social media platform tends to cater to specific audiences. Likewise, audiences within social media platforms tend to self-sort into similar groups. The tendency for similar, but not dissimilar, people to be friends is referred to as *homophily*. Baggio et al. (2017) found that social media homophily applied to sex, race, and mental health. This study also confirmed the hypothesis that individuals with poor mental health are more marginalized than those with good mental health (Baggio et al., 2017). The concept of homophily on social media sites extends beyond mental health. A research study that investigated political participation (Lu & Gall Myrick, 2016) found emotional responses to issues on social media mediated users self-sorting into groups based on similarity, or homophily. This indicates that self-sorting behaviors are present across social needs. Individuals may select a social media service that provides a type of desire social support (i.e., political or emotional) that confirms their perspectives or appraisal. The concept of homophily was extended to self-confirmation biases, i.e., belonging to a group that reaffirmed a personal viewpoint. Thus, social media provides individuals with a means to find similar people and reinforce personal perspectives.

The assertion of homophily occurring on social media was supported by studies on toxic masculinity and social media. Toxic masculinity is the reinforcement of male

dominance (Parent et al., 2018). Such ideology tends to group online in specific social media forums, thus finding support for such belief continuity (Parent et al., 2018). These groupings provide a basis of encouragement to share individual perspectives. Also, there are online groups with views with whom an individual differs, and individuals may try to confront or "troll" (Parent et al., 2018). Negative interactions of this type demonstrate that social media is often used as an outlet for ideologies. Both studies by Parent et al. (2018), and Lu and Myrick (2016) found that engagement with an ideological threat could lead to anxiety that, in turn, could lead to avoidance. Accordingly, avoidance and homophily, at least partially, explain the role of personality traits among social media platforms.

Social Media Platforms

Two of the most common social media platforms are Twitter and Facebook. Twitter has over 60 million users each month (Statistica, 2019). Facebook had over 2 billion users as of the 4th quarter in 2018 (Statistica, 2019). Between these two popular social media sites, personality differences among users were discovered (Marshall et al., 2018). Marshall et al. (2018) found that Twitter users tend to be higher in openness and Machiavellianism. Openness in Twitter was associated with sharing information updates about intellectual and creative topics (Marshall et al., 2018). Machiavellianism was associated with a tendency to manipulate or promote social desirability. Groups that display high openness and Machiavellianism include artists, celebrities, and politicians (Marshall et al., 2018). In contrast to Twitter users, Facebook users tended to display openness without Machiavellianism (Marshall et al., 2018). The concept of grouping by

personality is relevant because it implies that some select populations, such as depressed individuals, are more likely to congregate on Facebook. This grouping is because Facebook users tend to be open with less tendency toward being manipulative (Marshall et al., 2018).

Knowles et al. (2015) confirmed that Facebook can either magnify a sense of belonging or worsen social isolation. The feeling of disconnection has led people to use Facebook and subsequently find a social connection (Knowles et al., 2015). Social media can serve as a restorative social resource for people with pervasively higher belonging needs (Knowles et al., 2015). There is a tendency for individuals with higher social needs to befriend strangers on social media (Knowles et al., 2015), potentially recruiting new social support. Conversely, if social exclusion on social media occurs, then the exclusion further increases the sense of isolation for a depressed individual (Knowles et al., 2015). The concepts of homophily, language, and usage are essential in studies of social media and psychology. These concepts introduce a natural tendency for grouping within various pursuits. As demonstrated through Knowles et al. (2015) research results, individuals on social media seek similar people for self-confirmation and social support.

Social Media Social Support

Social support is associated with greater coping and adaptive responses to life stressors. Better problem solving and reduced incidences of mental health crisis have all been positively associated with social support (Coyne, 1991; Frison & Eggermont, 2016; Jacobs & Struyf, 2013; Liu & Wei, 2018; Milgrom et al., 2019; Sharifian & O'Brien,

2019). Individuals with social support have fewer depressive symptoms, a situation often referred to as “the rich get richer.” Conversely, individuals without social support have greater depressive symptomology; thus, the “poor get poorer” (Scherr et al., 2018). Social supports play an important role in adaptive coping.

A person’s environment and behavior may support or inhibit development of social supports. Hammen (1992) explained how behaviors associated with depressive symptoms can damage an individual's social support. Animal studies have provided helpful models to consider when evaluating behavior and depressive symptoms. Mice with depressive symptoms tended to isolate themselves, thus avoiding social support. Consequentially, the mice developed worse depressive symptomology (Lehman & Herkenham, 2011; Shen et al., 2019). The results indicated that rodents behave congruently with the SGHD (Coyne & Downey, 1991). The rodents’ behavior created additional stress and reduced resiliency (Lehmann & Herkenham, 2011; Shen et al., 2019). Conversely, enriched environments specifically encouraged social interaction and support among mice. Lehman and Herkenham (2011) modeled social defeat in rodents and determined that enriched environments had a resiliency effect. Even defeated rodents coped better when they received social support. These observations in rodents have also been observed in people. Thus, there is a close connection between the environment and the level of social support.

The internet is a relatively new environment for people to find enriched social support. Social media allows instant communication that people can use to form and establish social support systems. These relationships can now include people who are

geographically distant from each other (American Psychological Association, 2009). Due to geographical or physical barriers, people once marginalized can now form friendships digitally over vast distances with considerable ease. Much of what makes social media beneficial is in the way that people choose to use it (Moreno et al., 2011). As a social resource, it becomes a resiliency factor against depressive symptomology. Facebook serves as a social resource, fulfilling the need to belong to a group and to develop social support (Knowles et al., 2015). The development of social support is a broad construct that encompasses several different aspects of healthy relationships. Individuals seek social support in six essential ways: support or attachment, social integration, reassurance of worth, guidance, sense of reliable alliance, and opportunity for nurturance (Weiss, 1974). Weiss (1974) used these six factors to describe the various social needs of individuals.

Attachment represents a need for security, safety, and emotional support (Pynnönen et al., 2018). This need may be met through relationships with close friends or spouses. An example of how attachment can be beneficial is that close emotional support for caregivers of Alzheimer's patients significantly decreased the perceived burden of the caregivers (Wilkerson et al., 2018). Caregivers with social support stayed with the job longer and experienced less burnout.

Social integration refers to a sense of belonging and the idea that others share similar concerns and appreciate similar things. The use of social media satisfies integration needs. It facilitates information sharing, connection, interaction, and cooperation (Ng, 2019). These interactions and collaborations constitute integration into

social interactions. The enhancement and sharing of knowledge and information maintain and serve decision-making and group interests (Ng, 2019). In essence, groups with more interaction and implementation of ideas are stronger than individuals. Groups may also present a steady source of reassuring information.

Reassurance is a form of social support in which a person's skills, perspective, and abilities are validated. Reassurance is a soothing aspect of relationships that offers psychological protection from stressors. In patients with obsessive-compulsive disorders, it may be the only type of assistance when other treatments are unavailable (Salkovskis & Kobori, 2015). Reassurance seeking can be a mixed reinforcer, helpful in the short term and harmful to relationships in the long term. Excessive reassurance seeking has been demonstrated to damage supportive relationships (Potthoff et al., 1995; Salkovskis & Kobori, 2015). Damage to supportive relationships undermines the willingness of others to offer guidance. Reassurance from social supports is beneficial initially but becomes only a mediating variable in the continuation of depressive symptoms (Potthoff et al., 1995). However, in the short term, reassurance seeking buffers the effects of stress and depressive symptoms (Salkovskis & Kobori, 2015). This buffering effect demonstrates the importance that social support plays in the psychological health of individuals.

Supportive guidance exists when there is an individual who provides advice or direction. Teachers or helpful authoritative figures are critical elements of socioemotional guidance. Jacobs and Struyf (2013) found that students performed better when teachers offered socioemotional guidance. Thus, online guidance to maintain long-distance relationships may be an important type of support when it follows a previously

established face-to-face relationship, especially if that relationship is centered around guidance. Groth et al. (2002) reported that in the presence of supportive guidance, people were less prone to externalize anger. The findings provide more evidence that supportive guidance is an important type of social support that leads to better coping and fewer interpersonal disputes.

Reliable alliance in social support refers to the consistency of people under various circumstances. Sanders and Cuneo (2010) stated that reliability is a type of secondary communication. Consistency is important for four reasons. First, it can communicate a sense of mutual importance and reverence. Second, consistency among people creates a sense of cohesion and team process-building. Third, consistency allows for the accurate prediction of future behaviors (Sanders & Cuneo, 2010). Fourth, consistency is important in social support because it fosters security and trust in relationships. Such relationships are the basis for secure attachments and group cohesion.

High group cohesion has its limitations. One study on group alliances indicated that high cohesion resulted in dysfunctional feedback among hockey players. This high cohesion negatively affected their performance (Rovio et al., 2009). In essence, players were too concerned with staying cohesive to challenge each other in ways that promoted improvement. This phenomenon resulted in groupthink. Groupthink is a failure of a group to share genuine opinions because of the need for conformity and cohesion (Rovio et al., 2009). Thus, a downside to group cohesion on social media can be to create a maladaptive form of social support. The more homogenous a group, the more the group tends to think of themselves as superior (Aboud, 2003). However, the sense of superiority

was not found harmful for the individuals that felt superior. Thus, groups high in cohesion still offer a reliable alliance for social support. Strong attachments are most commonly associated with opportunities for nurturance. This aspect of social support is a reciprocal sense of well-being. Two prominent examples are spousal relationships and parent-to-child relationships (Pynnönen et al., 2018). Familial relationships are only one type of example of strong attachment. These examples demonstrate how individuals can feel a strong connection to another's well-being. This model of social support is important because it conceptualizes that social support can occur in numerous ways. It also allows for the measurement and research of social support on social media.

Research has documented that childhood adversity and a lack of nurturance can determine adults' attachment style and social support. Thus, a carryover effect of childhood adversity can be altered social support. Psychologists now understand the buffering role of social support and how it can be seen as a preexisting resilience factor or vulnerability (Coyne & Downey, 1992). Diagnosis of depression corresponds with fewer friends, fewer relatives, and reduced social contact (Coyne & Downey, 1992). In such instances, social media combats feelings of isolation and ostracism. The need for nurturance and strong attachments can be met through social media.

Social Media Usage

Facebook usage refers to the amount of time and the type of interaction that individuals devote to Facebook. Traditionally, Facebook usage has been thought to be bimodal. One use is active in which content is generated, and interaction occurs (Scherr et al., 2018). Another is passive, in which people prefer not to create content but rather to

view content created by other users (Scherr et al., 2018). Previous studies have explored Facebook usage from this bimodal perspective. A factor analysis was used to analyze bimodal usage further and concluded that there are two subtypes of active users. These subtypes are A) those who are active but nonsocial, and B) those who are both active and social (Gerson et al., 2017). A distinguishing characteristic of the active social subtype is engagement in commenting and chatting on social media (Gerson et al., 2017). Active nonsocial users generate content but do not actively engage in social media interactions (Gerson et al., 2017). This distinction between usage types is a gradual expansion in understanding how active usage may differ among individuals. The newly established measure of Passive Active User Measurement (Gerson et al., 2017) is the first validated measurement of Facebook usage. Previous questionnaires consisted of yes/no answers or Likert scales created by the authors of studies (Frison & Eggermont, 2016; Scherr et al., 2018). The creation of a validated scale is beneficial because it allows standardization in testing instruments and studies.

Heavy Versus Problematic Usage Among Active Users

There is a need to differentiate between heavy use and problematic use. Heavy usage refers to the amount of time spent on social media. Heavy use is distinct from problematic usage. Problematic use indicates a high number of adverse outcomes from social media usage. Consequences of problematic usage can include diminished job performance and feelings of guilt over the amount of time spent (Roh et al., 2018). Observation of internet users has led to studies concerning problematic internet usage. Factors that may contribute to problematic usage include elevated impulsive personality,

lower blood glucose, and loneliness (Kim & Davis, 2009). This indicates behavioral and health problems for problematic users. Lower self-esteem also is a significant predictive factor for self-control and self-regulation (Kim & Davis, 2009). Lower self-esteem is another byproduct of problematic usage. By itself, heavy use does not cause the problems associated with problematic use. This indicates that it is not the amount of time spent on social media but the type of usage that leads to problematics or addictive use.

Self-control is strongly connected to problematic usage. Self-control plays a role in the amount of high use of Facebook. Social media users who have more self-control are less likely to develop problems as a result of social media use (Błachnio & Przepiorka, 2016). This may indicate that the problematic use of Facebook develops from low levels of self-regulation in an attempt to satisfy social needs. The interaction between Facebook usage and self-regulation has given rise to the self-control theory.

The self-control theory includes six factors: impulsivity, simple tasks, risk-seeking, physical activities, self-centeredness, and temper (DeLisi & Vaughn, 2008). This theory found predictive power in the amount of voluntary disclosure through social media (Yu, 2014). Principally, the less self-control a person has, the more disclosure of personal information occurs online. Disclosure appears to be related to active social Facebook usage; however, no study has confirmed this. High levels of disclosure on social media may present interpersonal problems. Individuals with low self-control are both more likely to disclose personal information and survey others for information. An example of a self-control problem is cyber monitoring.

Cyber monitoring is an active or passive social media usage in which a person finds information through social media and uses that information to harass or threaten another person. This behavior is linked with intimate partner violence (IPV). IPV is a serious public health problem that affects intimate partners. Intimate partners are ones who share an emotional openness, and the violence may pertain to physical attacks, psychological aggression, or stalking (U.S. Department of Health & Human Services, 2019). Brem et al. (2017) found that cyber monitoring predicted IPV perpetration among undergraduate students. Social media may be facilitating an increase in the IPV rates through convenience to individuals with self-control problems. Additionally, homophily on social media can provide social support for harmful behaviors such as IPV. Thus, homophily may "normalize" digital stalking activities in the mind of the perpetrator.

Active Use of Social Media

The type of usage affects the outcomes of social media. Active social Facebook use has positive effects on the user. The active social aspect of Facebook use appears to be an important feature in preventing depressive symptoms. Frison and Eggermont (2016) determined that adolescents who actively used Facebook experience fewer feelings of isolation. Likewise, active Facebook usage was found to lower levels of depression experienced by adolescents (Frison & Eggermont, 2016). However, the moderating effects of active use for online social support were only significant for adolescent females. Active social use female participants experienced fewer depressed moods due to online social support (Frison & Eggermont, 2016). One theory is that male and female adolescents have different usage patterns. Males in the study were theorized

to use Facebook in an active nonsocial manner. In 2017 a survey was developed and validated to distinguish between active use types (Gerson et al., 2017). To date, few if any of the studies in the literature have used the new survey.

There is a strong positive correlation between active social usage and personal connection with peers. Social support is important because peer affiliation has a preventative influence on risky behaviors such as substance abuse and unprotected sex (Fulginiti et al., 2016). Active social media usage may be a means to reduce these risky behaviors. Fulginiti et al. (2016) found that increased social media use for individuals with elevated suicide risk decreased the risk.

The study by Fulginitti et al. (2016) demonstrated the importance of online peer support among homeless youth. In general, teens with strong online peer support were at significantly less risk for suicide (Fulginiti et al., 2016). This may indicate that active social media use could be implemented as a prevention tool for homeless youth at higher risk for suicide. Many Facebook users post suicide notes on profile updates. For this reason, Jasinsky et al. (2014) promoted the idea of social media as an immerging tool for monitoring unhealthy or dangerous use. Although currently there is no organized surveillance to monitor for suicidal posts, active social use and good peer supports appear to serve a similar purpose.

Online social support is positively correlated with self-disclosure among active social users. Disclosure through Facebook was associated with positive relational outcomes (Jenkins-Guarnieri et al., 2013). Disclosure to online peers may facilitate a sort of online intervention or therapy. In keeping with this perspective, youth who actively

used social media for communication purposes negatively correlated with depression (Lerman et al., 2017). Validation and self-disclosure were high in these groups, indicating active social use facilitated social support. Lerman et al. (2017) predicted that disclosure leads to an increase in socially supportive responses from peers. Thus, promoting more active use among passive social media users may reduce depressive symptomology. However, no studies have compared adults to adolescents to confirm this assumption.

Another potentially important aspect of peer supports is diversity. A study by Kaczkowski et al. (2017) reported that social network diversity might serve as a protective factor. Social media is a mechanism that provides differentiated network diversity because of the ease of meeting new people. Thus, social media offers a powerful tool to transmit healthy pro-social norms. Acquisition of social skills is another potential benefit of social media usage. Certain social skills such as friend-making can be learned through social media. Facebook provides a means by which people may behave in an extraverted manner with little effort and with the experience of social support. People may have opportunities to be extroverted and thereby friend others from different regions of the globe. Social media allows for more diverse peer supports.

Extraversion is an important aspect of active social use. Extroverted (outgoing) individuals have more effective communications with others on social media (Jenkins-Guarnieri et al., 2013). Extroversion is considered a protective factor against depressive symptomology. Individuals who are high in extroversion tend to have more enriching social experiences online, whereas individuals with lower extraversion tend to have fewer enriching experiences. This fits the “rich get richer” hypothesis of social media (Jenkins-

Guarnieri et al., 2013). The most apparent difference between extroverts and introverts is the type of active versus passive social media use. Active use is a form of extraverted communication.

There is a curvilinear relationship between positive versus negative outcomes from heavy active use. The more intense the Facebook usage, the fewer benefits participants experienced (Wang et al., 2018). According to Wang et al. (2018) at some point of intense use, heavy active use becomes associated with an increase in depressive symptomology. Wang et al. (2018) interpreted the data to mean that large amounts of time spent on social media displaces face-to-face social interactions. This study did not differentiate between active social and active nonsocial types of Facebook usage. It is possible that there are differences between active social and nonsocial usage styles. This is an underexplored area. Wang et al. (2018) also determined that a gap exists in understanding how active use and quantity of use may be beneficial or harmful. These behaviors are important because depressive symptomology tends to increase isolation. The experience of depressive symptomology may increase social media usage, thus displacing peer interaction. The relationship between psychological health and active social media usage needs more research.

Passive Use of Social Media

Passive Facebook use refers to users who engage in viewing content created by other viewers but do not create their content. This passive use is referred to as Facebook surveillance in some literature (Scherr et al., 2018). Scherr et al. (2018) reported that depressive symptoms are positively associated and predictive of Facebook surveillance.

However, their findings were not static. After one-year, Scherr et al. found surveillance behavior no longer predicted depressive symptomology or feelings of envy. The results indicated that people change their usage styles in response to depressive symptomology. Only depressive symptoms were predictive of depression at the one-year follow-up (Scherr et al., 2018). The results indicate that depression should be viewed as a predictor rather than an outcome. This has important implications for future Facebook research.

Passive use or surveillance by others may alter the way people present themselves as an online personality and may cause increased depressive symptoms. Frequently, young adults deliberately cultivate specific physical appearance images and emotional states to online social groups (White et al., 2018). Appearance is central to photo-based websites and contributes to an elevated attention to self-image referred to as appearance-related social media consciousness. This leads to elevated body awareness, which has been linked to anxiety and depressive symptoms (Choukas-Bradley et al., 2018). It is not known if perceptions are affected by whether use of social media is active or passive.

Most research on passive Facebook use indicates that it is harmful. Tromholt (2016) found that passive Facebook usage was associated with a deterioration of mood and life satisfaction. A laboratory study concluded that users who ranked high on Facebook intensity also demonstrated positive effects of quitting Facebook (Tromholt, 2016). Results indicated that passive Facebook users benefited the most when compared to controls but that active users also had lessened depressive symptoms from the cessation of social media use. Tromholt asserted that the connectedness offered by social media is of no benefit to people. However, the study may have been too cursory and the

issue too complicated for definitive conclusions. More research on Facebook usage is needed to understand the benefits and potential harm of social media.

Summary

This literature review describes the current status of social media research and explains the need for additional studies. The type of use of social media may differ with the objective of the user. Primarily, social media is used to connect and socialize with other people. However, individuals with depressive symptomology may post on social media as a means to enlist social support (Blease, 2015). Facebook appears to have a beneficial effect on social support (Skopp et al., 2018). However, no research has been conducted to determine if depression symptoms and amount of time spent on Facebook predict usage style and the perception of social support.

Certain types of Facebook use may help alleviate cognitive, somatic, and affective depressive symptoms through social support. Other types of Facebook use may exacerbate envy. Individuals in search of emotional support may engage in certain behaviors such as excessive reassurance seeking that exhausts their social support. The SGHD suggests that greater depressive symptomology predicted a type of Facebook usage that lessens online social support. This study used the SGHD to determine if depression symptoms predict usage style and the perception of social support, as suggested by Scherr et al. (2018).

Chapter 3 integrates the literature into measurable variables and discusses the reliability and validity of the measurements used. The chapter describes the research

design, rationale, methodology, and threats to validity. Instrumentation and statistics are also discussed further. The information in Chapter 3 provides procedures of the study.

Chapter 3: Research Method

The purpose of this study was to determine whether depression symptoms and amount of time spent on Facebook predict Facebook usage style and the perception of social support. This study examined the relationships among depression, Facebook usage, and online social support. The framework for the study was the SGHD (Coyne & Downey, 1991). This chapter provides a rationale for the research design in social media research. The chapter also summarizes the participant sampling and exclusion and inclusion criteria. The rationale for using multivariate regressions as the chosen type of quantitative study is also discussed. Additionally, the chapter includes a scholarly critique of the SPS-10 (Perera, 2016), PHQ-9 (Kroenke et al., 2001), and the PAUM (Gerson et al., 2017). The approach for data analysis is also explained. Lastly, threats to validity and ethical considerations are explained.

Research Design and Rationale

This study used a quantitative, cross-sectional design. Quantitative research utilizes numeric data to support or reject a hypothesis based on a random sample from a population (Creswell, 2014). This deductive process seeks to understand a phenomenon with a small representative group to apply the results to a larger population (Creswell, 2014). Preexisting research supports a quantitative approach for social media research (Scherr et al., 2018). Previous studies include measures that are interval in nature. These interval-based measures produce data in numeric form for statistical analysis (Creswell, 2014).

One independent variable of depressive symptoms was established by the PHQ-9 (Kroenke et al., 2001). The independent variable of time spent on social media was measured in hours and minutes. The dependent variables were the types of Facebook usage as measured by the PAUM (Gerson et al., 2017) and social support as measured by the SPS-10 (Caron, 2013). These psychometrically sound instruments were administered to Facebook users. A cross-sectional research design was used to examine the relationship between depressive symptoms and social media usage. A correlational predictive design and a comparative design described differences in the independent variable among the sociodemographic groups.

Methodology

Population

Facebook is a vast social media networking site. Its current membership is over 360 million people (Statistica, 2019). The United States is presently the most active English-speaking country on Facebook, with over 169 million users (Statistica, 2019). Americans between the age of 21 and 45 are the most active subdemographic within this group (Statistica, 2019). A sample was drawn from this population.

Sampling and Sampling Procedures

The sample for this study consisted of adult Facebook users representing various sociodemographics. All adult Facebook users above the age of 18 had an equal opportunity to participate. The study's inclusion was met through the following criteria: above the age of 18, Facebook user, living in the United States, and fluent in English. Participants were excluded from this study only if they did not meet these criteria. Data

collection was dependent on the respondents' answers and completion of the survey. All panelists who completed the survey questions were included for hypothesis testing; incomplete surveys were not be used in the data analysis.

The study used the Survey Monkey online service. Survey Monkey is an online survey service that provides templates for questionnaire development. It also provides services to assist with survey distribution, follow-up/reminders, recruiting participants, and data collection. Survey Monkey has over 2 million panelists and more than 100,000 weekly panelists worldwide, with a guaranteed the minimum of 110 responses needed for this study, accounting for the fact that web surveys average a 44% response rate (Cobanoglu et al., 2001). Identified research subjects were recruited via email sent by Survey Monkey and given instruction, background, and information on the survey's purpose. Participants were asked to complete four web-based questionnaires that took a total of approximately 20 minutes to complete: a demographic questionnaire, the PHQ-9, the SPS-10, and PAUMS.

Sampling size is based on the power level, alpha level, and the population effect size for a multivariate regression squared multiple correlations (R^2) and the predictor effect size (semipartial-r^2, sr^2). The number of predictor variables also affects the outcome of the power analysis. G*Power (Faul et al., 2009) was utilized to compute the required sample size based on Cohen's (1988) medium effect sizes. The results indicated for a multivariate regression with two predictor variables, a minimum sample size of 106 subjects would be needed to achieve a power of 80% and alpha of 5% (Faul et al., 2009; Green, 1991). These parameters are in keeping with recommendations for quantitative

research by Creswell (2014) and Green (1991). Using a power of 95% gives a sufficient likelihood that a statistically significant result can be detected if there is a difference within the population. A sample of 159 adults 18 and older representing various sociodemographics was included. Survey Monkey filtered the nonrespondents and randomly sampled more people until a sample of 159 was achieved.

Procedures for Recruitment, Participation, and Data Collection

Approval was obtained from Walden University Institutional Review Board (IRB; approval no. 04-03-20-0657444) before any research commenced. An advertisement was placed on Facebook. Adult Facebook users were directed to a secure website where an informed consent form was presented. The informed consent provided the participants with the purpose, procedures, risks, and benefits of the study. The surveys were completely voluntary and anonymous. No names or identifying information were collected. The informed consent also disclosed procedures taken to keep the participants' information anonymous and secure. My contact information was provided should additional questions arise, and participants were informed they could discontinue at any point. Survey Monkey is an online research company that was hired to assist with the secure data collection and exporting of the data into the statistical software program SPSS. Data were password-protected, and only the dissertation committee members and I had access.

Instrumentation and Operationalization of Constructs

The instruments that were used to measure the independent and dependent variables are discussed in the following sections.

Demographic Questionnaire

Demographic information (see Appendix A) was collected using a questionnaire designed by me. It contained four items and took approximately 1 minute to complete. Data collected included (a) age; (b) gender; (c) ethnicity; and (d) amount of time spent on Facebook daily. Participants without a Facebook account were excluded.

PHQ-9

The PHQ-9 is a self-report inventory that can quickly assess physical and emotional symptoms of depression as defined by the DSM 5 (American Psychiatric Association, 2013). The PHQ-9 is a 9-item inventory and takes approximately 2 to 5 minutes to complete (see Appendix B). Each item has four options ranging from *not at all* (0) *to nearly every day* (3). The interpretation of the PHQ-9 is made by summing the items to create a total score that ranges from 0 to 27. The overall score can be transformed into levels of depression. The following are the levels and their corresponding scores: (0-4) none; (5-9) mild depression; (10-14) moderate depression; (15-19) moderately severe depression; and (20-27) severe depression.

The PHQ-9 was initially normed by Kroenke et al. (2001), who collected data through primary patient care with 3,000 participants. These patients' scores were compared to mental health professional validation interviews. Sixty-six percent of the participants were female. The participants had a mean age of 46. Cronbach's alpha with outpatients was .86, and the test-retest coefficient across a week was .84 (Kroenke et al., 2001). The PHQ-9 has been translated and normed into other languages with similar response patterns to English (Merz et al., 2011). Merz et al. (2011) assessed the internal

consistency to be good with a Cronbach's alpha of .84 for English and .85 for the Spanish version. The PHQ-9, which has good reliability and validity, is free for clinical and research use through the American Psychiatric Association website.

The PHQ-9 has been used in other social media studies, such as Jelenchick et al.'s (2013) study. The PHQ-9 had similar validity and reliability for depressive symptom severity as other longer and more complicated measures such as the Beck Depression Inventory (Kung et al., 2013). The advantage of the PHQ-9 is in its ease of administration and the straightforward interpretive guidelines. The limitations of the PHQ-9 are that it lends itself to the deliberate tailoring of self-report, distortion of results, and no validity indicators (Merz et al., 2011).

SPS-10

This study used the SPS-10 (Caron, 2013), which is a shortened version of the SPS developed by Cutrona and Russell (1987; see Appendix C). The SPS assesses the degree to which an individual perceives his or her social relationships to provide various dimensions of social support, including opportunities for the individual to provide support (Cutrona & Russell, 1987). The SPS is a self-report questionnaire that includes 24 items rated on a four-point Likert-type scale with anchors of *strongly disagree* (1) and *strongly agree* (4). The SPS has been assessed as reliable and valid, with internal consistency of the subscales ranging from .53 to .69 and a global scale score of .88. Caron (2013) stated the SPS-10 was normed with 2,433 individuals from the general population in the Southwest region of Montreal.

The shortened version, the SPS-10, consists of 10 items that can be completed in 5 minutes. The SPS-10 measures five subscales: (a) emotional support or attachment; (b) social integration; (c) confirmation of worth; (d) material; and (e) orientation. Each scale consists of two items and ranges from 2 to 8. The global score ranges from 4 to 16. The reliability of the global score has an internal consistency of .81 (Iapichino et al., 2016). The use of the subscales is questionable as the internal consistency ranged from .47 to .63. This could be due to each of the subscales having two items. In addition, a confirmatory factor analysis revealed the existence of the five subscales and the global scale. When Caron assessed the concurrent validity of the SPS-10 with the SPS, the correlations ranged from .81 to .88. Each subscale was calculated by adding the items. The global SPS-10 score was calculated by adding all items.

Passive and Active Facebook Use Measure

PAUM is a 13-item questionnaire measuring how frequently an individual performs passive or active activities when using Facebook. Response options are *never* (0); *rarely* (25%); *sometimes* (50%); *somewhat frequently* (75%); and *very frequently* (100%; see Appendix D). The PAUM takes approximately 10-minutes to complete. The PAUM measures a person's Facebook engagement and classifies that use as active social, active nonsocial, or passive use. Gerson et al. (2017) assessed the reliability of the PAUM. The internal consistency ranged from 0.70 (passive) to 0.80 (active social). The test-retest reliability ranged from 0.65 (passive) to 0.76 (active social). Gerson et al. normed the PAUM among 276 Facebook users recruited from MTurk with an age range of 19 to 71. In addition, confirmatory factor analysis was conducted that confirmed a 3-

factor structure. Discriminant validity was assessed using the Mini International Personality Item Pool, which verified distinct personality traits related to extraversion, agreeableness, conscientiousness, neuroticism and intellect (Gerson et al., 2017).

Data Analysis Plan

This study examined the relationship of depression symptomology and time spent on Facebook daily (independent variables) with Facebook usage and social support (dependent variables). Other variables that evaluated for inclusion as controls in two multivariate linear regressions were the demographic variables. Demographic variables were not included as they did not violate assumptions of the regression as controls. The data were exported as an SPSS file from SurveyMonkey. Using Survey Monkey eliminated data entry errors and ensured the values were valid and complete. In addition, completion of each item of the questionnaire was required. Thus, Survey Monkey only collected and stored valid responses of participants. Initially, the subscales for the SPS-10 and PAUM subscales (active social usage, active nonsocial usage, and passive usage) were calculated.

Preliminary Data Analysis

For a preliminary data analysis, descriptive statistics were calculated for the demographic variables, SPS subscales, SPS-10 total score, Facebook usage scales (passive usage, active social usage, and active nonsocial usage), and depression symptomology. Categorical variables were summarized using frequencies and percentages. Continuous variables were summarized using means and standard deviations. Demographic data were examined for statistical significance and included in

the regression screening analysis. The screening of analysis was used to assess violations of regression assumptions. These five assumptions include linear relationship, multivariate normality, multicollinearity, no autocorrelation, and homoscedasticity (Creswell, 2014). Data with Mahalanobis values greater than the critical Chi square value at alpha = .001 for *df* the same as the number of variables and discontinuous from the distribution were excluded from the analysis. Multicollinearity tolerance was set at variable tolerance less than .20. Examination of a scatterplot with standardized predicted values and residual values were assessed for normality, linearity, and homoscedasticity (Tabachnick & Fidell, 2007). This scatterplot allowed for a visual check for violations of the assumptions of the regression model. This output contained the R, R^2, adjusted R^2, and the standard error of the estimate. An analysis of variance (ANOVA) table shows the mean square, sum of squares, degrees of freedom, F-Ratio, and the significance. A coefficients table demonstrates the variability between dependent and independent variables. According to Williams et al. (2013), the statistical significance of the independent variable (p values less than .05) concluded which coefficients are statistically significant. Thus, no covariates were included in the regression model as a control variable.

Research Question Analysis

To what extent do the variables of depression and the amount of time spent on Facebook daily predict the construct of active social Facebook usage, nonsocial active Facebook usage, and passive Facebook use*?*

Null hypothesis ($H_0$1). There is no predictive relationship between one or both variables of depression and the amount of time spent on Facebook daily and the construct of active social Facebook usage, nonsocial active Facebook usage, and passive Facebook use.

Alternative Hypothesis (H_a1). A significant predictive relationship exists between one or both variables of depression and the amount of time spent on Facebook daily and the construct of active social Facebook usage, nonsocial active Facebook usage, and passive Facebook use.

To what extent do the variables of depression and the amount of time spent on Facebook daily predict emotional support, social integration, confirmation of worth, material support, and orientation support?

Null hypothesis ($H_0$2). There is no predictive relationship between one or both of the variables of depression and the amount of time spent on Facebook daily and the construct of emotional support, social integration, confirmation of worth, material support, and orientation support.

Alternative Hypothesis (H_a2). A significant predictive relationship exists between one or both of the variables of depression and the amount of time spent on Facebook daily and the construct of emotional support, social integration, confirmation of worth, material support, and orientation support.

To address research question 1, a multivariate regression was used. The independent variables were the depression score on the PHQ-9 and the amount of time people spend on social media. Demographic variables age, gender, and ethnicity were not

included as controls as they did not violate assumptions of the regression. The dependent variables were the sub-scores on the PAUM, active social Facebook usage, nonsocial active Facebook usage, and passive Facebook use. Multivariate regressions were used to evaluate the contribution of the independent and explanatory variables. Multivariate regression provided a means to evaluate the contribution of one independent variable across several different dependent variables. The best fit model was determined using Mallow's Cp. The residuals were used to evaluate the assumptions of normality, homoscedasticity, and independence of error.

To address research question 2, a multivariate regression was used. The independent variables were the depression score on the PHQ-9 and the amount of time people spend on social media. The dependent variable was the sub-scores on social support using the SPS-10. A multivariate regression was used to evaluate the contribution of the independent and explanatory variables. A multivariate regression provided an iterative approach to evaluating variables' relationships as the model increases from one variable to another variable (Creswell, 2014). The best fit model was determined using Mallow's Cp (Klienbaum et al., 2014). The residuals were used to evaluate the assumptions of normality, homoscedasticity, and independence of error.

Threats to Validity

Threats to validity are factors that threaten the generalizability of the results. Such threats are divided between threats to internal validity and threats to external validity. Both types of validity have important implications to consider within a research study.

External validity differs from internal validity in that external refers to the extent that the study applied to the world. Internal refers to the extent that a study is free from errors.

Threats to Internal Validity

A possible threat to internal validity could have been selection bias. Selection bias is when a subset of a population is over-represented (Creswell, 2014). The inclusion of a representative sample of social media users was thought to minimize threats to the results' validity and reliability (Roberts, 2010). Random sampling prevents the rejection of the null hypothesis when an alternative hypothesis may be true (Creswell, 2014). A demographic survey was used to help track and make statistical corrections, such as controlling for demographic variables that may have been over-represented.

Two other threats to internal validity were attrition and maturation. Attrition is when participants drop out of a study. Participants are less likely to drop out of a study when it is of short duration (Roberts, 2010). Maturation occurs as participants change over time. This study minimized these threats to validity by using a non-continuous (one-time) measurement design. Changes over time are minimized when surveys are administered only once (Wright, 2005). This design eliminates historical effects or major events that could occur between measurements. The instrumentation may have been a threat to internal validity (Creswell, 2014). Problems of instrumentation occur when instruments have not been validated through research. To minimize instrumentation threats to the study, only tested and reliable instrumentation was selected.

Threats to External Validity

Threats to external validity also are factors that threaten the generalizability of results. External validity is the degree that the study results may be applied to the population the sample is meant to represent. In this study, situational factors may have presented a threat to external validity. Situational factors are specific conditions in which the research was conducted that may limit generalizability. Participants could have been dishonest in their responses or have biased viewpoints. Possibly the participants have a vested interest in the outcome of the study. To minimize situational factors, participants were selected from internet Facebook users with no vested interests in the study's outcome. Another potential threat is the Hawthorne Effect. The Hawthorne Effect is when the presence of the researcher may alter the behavior of the participants (Creswell, 2014). Online self-report administration studies lessen the effect of the researcher because the researcher was not present during completion of the survey (Wright, 2005). This study also maintained anonymity, which may have allowed participants to answer sensitive questions without concern of someone discovering their individual responses.

Experimenter effects occur when the researcher influences the results. In this study, the data management company (Survey Monkey) collected the raw data and exported the data as an Excel file, thus decreasing possible data entry errors (Roberts, 2010). The data were downloaded into professional statistical software such as SPSS. Scrutiny of the results by a dissertation committee minimized the likelihood of errors by the researcher. The research phase examined the response rate of demographic variables that could be considered covariates. No covariates were required as independent variables

as there were no violations of regression assumptions. Details on data screening procedures and the statistical corrections are described in the data analysis section.

Ethical Procedures

This study was contingent on the Walden University IRB approval. The IRB must be involved when human subjects are utilized. Considerations for the care and protection of participants were considered. One such consideration is for protected populations. This study targeted adult users over the age of 18. This consideration is important for the purposes of consent to participate in the study. Participants were informed they could discontinue at any time without penalty. The consent form (See appendix E) also indicated the purpose of the study, confidentiality statements regarding the anonymity of the information participants provide, and the procedures that were followed. Each participant was given an identification number. The data will be stored on a flash drive for five years. These procedures for data storage are required by the Walden IRB ethical guidelines. A copy of the informed consent was offered for electronic download and included contact information of the researcher and research institution (Walden University). A link to the results was included on the consent form of how participants may obtain a copy of the results of the study.

The study was conducted online and not in a specific location. This helps to keep gathered survey data anonymous. One potential ethical consideration was the use of the PHQ-9. This is a measurement of depression that could indicate a severe level of depression. Because the information collected was anonymous, it was hard to provide a referral for individuals who indicated a severe level of depression. For this reason,

national suicide hotlines and links to find therapists were presented in the consent form to all participants. This ensured that all participants were presented information to find help regardless of the level of need despite the anonymity of the data.

Summary

Chapter 3 presents the proposed methodology and rationale for this study. The research design, sample, instrumentation, collection of data, and statistical procedures are also outlined. The special attention given to ethics, participants' rights, and IRB approval is described in Chapter 3. In addition, this chapter explains how multivariate regressions tested each hypothesis. The hypotheses and data analysis were designed to fill the research gap concerning whether depression symptomology and the amount of time spent on social media can predict Facebook usage and social support.

Chapter 4: Results

The purpose of this study was to determine whether depression symptoms and the amount of time spent on Facebook predict Facebook usage style and the perception of social support. The first research question was focused on the extent that depression and the amount of time spent on Facebook daily predict active social Facebook usage, nonsocial active Facebook usage, and passive Facebook usage. The second research question focused on whether these variables predict emotional support, social integration, confirmation of worth, material support, and orientation support. This chapter is divided into three sections: data collection, results, and summary. The data collection section provides a brief description of the participants who answered the survey as well as a brief discussion of possible weaknesses in data collection, baseline descriptive statistics, and a brief explanation of why these factors were not included as covariates in the statistical model. The chapter then presents descriptive statistics of the collected sample and a statistical analysis of the results. The final section provides a brief summary of each research question.

Data Collection

Time Frame and Response Rates

The data collection took one day and had 218 participants. Of these 218 participants, 59 dropped out or did not complete the survey. Of the 159 completed surveys, three were discarded. Two participants were eliminated because they had multiple answers or multiple scores for a survey question. A third participant was eliminated because the time spent on Facebook indicated 889 minutes average daily use

(over 14 hours). This participant was an extreme outlier and flagged as a likely invalid response. The total number of complete survey responses included in the study was 156.

Descriptive Statistics

The sample was primarily older (39.1% were 60 years or older), female (59.7%), and Caucasian (88.1%; Table 1). Proportionately, the sample population's race and age were significantly different from the U.S. population (U.S. Census Bureau, 2010).Caucasians were overrepresented by a 16-percentage point difference, African Americans were underrepresented by approximately 9-percentage points, and Asians were slightly underrepresented with a 2.3-percentage point difference ($\chi^2_{df=3} = 20.15$ $p < 0.001$).

There was also a statistically significant difference in the age distribution ($\chi^2_{df=3} = 13.04$, $p < 0.001$; Table 1). Approximately 39% of the sample was 65 years and older. As the U.S. population has a population mean of 60 years and older of 17.12%, it would be expected that the sample would be comprised of approximately 27 people who were 65 years and older. Using the U.S. population from the Census 2010 as the reference, it would be expected that the sample should consist of approximately two people who were between 18 and 24 years. There were also 55 people between 25 and 44 years of age and 55 people who were between 45 and 64 years of age.

Table 1

Sample to U.S. Population Comparison

Demographic Characteristics	Sample	U.S. Population	
	n (%)	%	(χ^2, p-value)
Female	95 (59.7)	50.80	
Male	64 (40.3)	49.20	
Race			
Asian/Pacific Islander	4 (2.5)	4.80%	(20.15, p<0.001)
Black or African American	6 (3.8)	12.60%	
Caucasian	140 (88.1)	72.40%	
Hispanic	4 (2.5)	16.30%	
Other	9 (5.6)	10.20%	
Age			
18-24	9 (5.8)	13.04	
25-44	41 (26.3)	35.05	(63.93, p<0.001)
45-64	45 (28.8)	34.78	
65+	61 (39.1)	17.13	

The average daily use of Facebook was skewed (Table 2). Overall, the average daily use was 52.49 minutes (*SD* = 82.08). The average use of Facebook increased with age, with the exception of 65+ years old. The variability also increased with age. There were no statistically significant differences in Facebook usage by age or gender.

Table 2

Summary of Facebook Use (In Minutes)

	Mean (sd)	95% CI
Overall	52.49 (82.08)	(39.51- 65.46)
Age		
18-24	32.56 (36.37)	(4.60 - 60.51)
25-44	44.34 (52.77)	(27.69 - 61)
45-64	63.78 (99.25)	(33.96 - 93.6)
65+	52.57 (89.07)	(29.76 - 75.39)
Gender		
Female	57.67 (82.38)	(40.61 - 74.74)
Male	45.03 (81.63)	(24.64 - 65.42)

The average depression score was skewed (Table 3). Overall, the average depression score was 14.35 (*SD* = 5.36). On average, the severity of depression

symptoms differed by age group (χ^2 (9) = 17.05, p = 0.05). People 45 years and older exhibited fewer depressive symptoms than people 44 years and younger.

Table 3

Summary of Depression

	Mean (sd)	95% CI
Overall	14.35 (5.36)	(13.50 - 15.19)
Age		
18-24	16.44 (5.94)	(11.88 - 21.01)
25-44	17 (5.74)	(15.19 - 18.81)
45-64	13.27 (4.63)	(11.88 - 14.66)
65+	13.05 (4.87)	(11.80 - 14.30)
Gender		
Female	14.95 (5.38)	(13.83 - 16.06)
Male	13.48 (5.24)	(12.18 - 14.79)

Table 4

Distribution of Depression by Age and Gender

Age (yrs)	Mild *n* (%)	Moderate *n* (%)	Moderately Severe *n* (%)	Severe *n* (%)
18-24	1 (11%)	3 (33)	2 (22)	3 (33)
25-44	2 (5)	14 (36)	11 (28)	12 (31)
45-64	11 (24)	21 (47)	7 (16)	6 (13)
65+	18 (30)	25 (42)	10 (17)	7 (12)
Male	18 (29)	25 (40)	12 (19)	8 (13)
Female	14 (16)	38 (42)	18 (20)	20 (22)

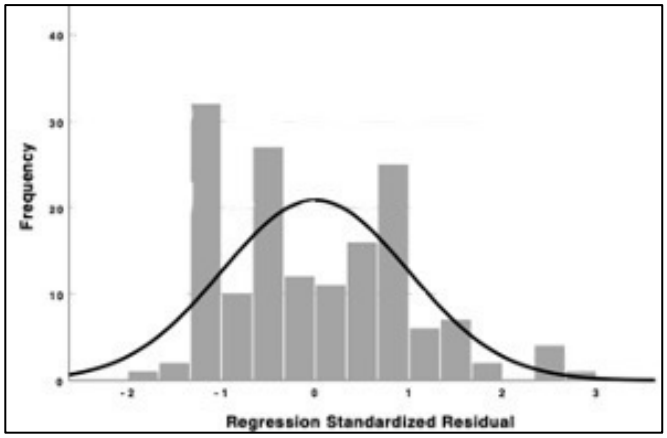
Results

This section contains a tabulated summary of the collected data. Data on depression and Facebook time were transformed because of their non-normal distribution. Histograms and probability plots were used to assess data for violations of the regression assumption (see Figures 1–4). Violations of the regression were found. Thus, a square root transformation was conducted, allowing for skewed data to become normally distributed. Multicollinearity was assessed through correlations and variance

inflation factors among the independent variables. The correlation between PHQ-10 and Facebook time is 0.25 (p = 0.002). Because the correlation is less than 0.8 and the variance inflation factor is 1.07, no multicollinearity is thought to exist.

Figure 1

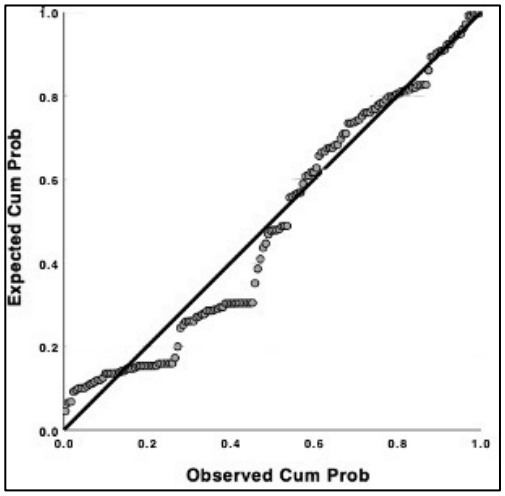
Active Nonsocial Use Response Histogram



Note. This figure shows violations of the regression assumption in responses from the active nonsocial use responses.

Figure 2

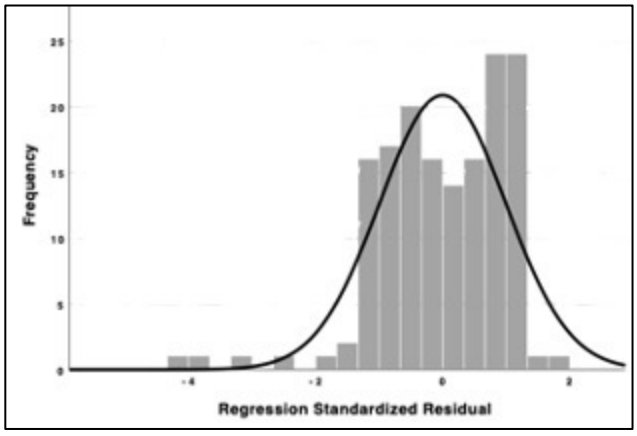
Active Nonsocial Use Probability Plot



Note. This figure shows violations of the regression assumption in responses from the active nonsocial use responses.

Figure 3

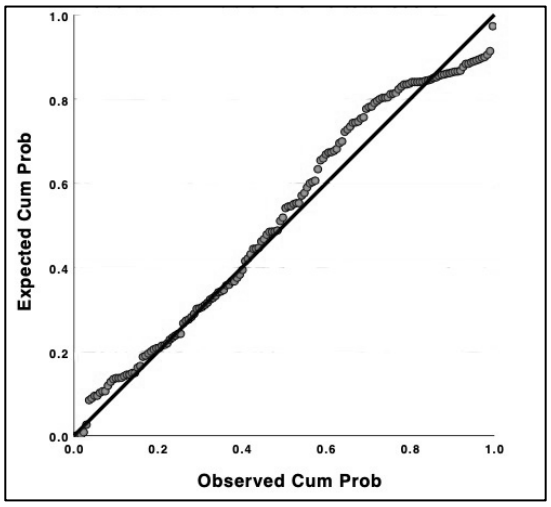
Social Provisions Scale-10 Total Score Histogram



Note. This figure shows violations of the regression assumption in responses from the Social Provisions Scale-10 total responses.

Figure 4

Social Provisions Scale-10 Total Score Probability Plot



Note. This figure shows violations of the regression assumption in responses from the Social Provisions Scale-10 total responses.

Prior to conducting the regression analyses, the PAUM and its subscales and SPS 10 total score and subscales were examined for their reliability and validity. To assess reliability, Cronbach's alpha was calculated to assess internal consistency. The result of the reliability analysis is provided in Table 5.

Table 5

Summary of Cronbach's Alpha

	Cronbach's alpha	Number of Items	Point Range
SPS-10			
Total Score	0.94	10	10 – 40
Attachment	0.85	2	2 -- 8
Social Integration	0.76	2	2 -- 8
Orientation	0.89	2	2 -- 8
Confirmation of Worth	0.94	2	2 – 8
Material	0.95	2	2 – 8
PHQ	0.88	9	9 -- 36
PAUM			
Total Score	0.85	13	13 -- 75
Active Social	0.78	5	5 -- 25
Active Nonsocial	0.69	4	4 -- 20
Passive	0.77	4	4 -- 20

The SPS scale and subscale internal consistency ranged from 0.76 for Social Integration to 0.95 for Material. The total SPS scale had an internal consistency of 0.94. All Cronbach's alpha values were greater than 0.70, indicating a high internal consistency. The high internal consistency values were consistent with previous research by Caron (2013) and Iapichino et al. (2016). The PAUM's scale and subscales were also in the acceptable range for internal consistency. Cronbach's alpha ranged from 0.69 for Active Nonsocial to 0.78 for Active Social. The total score for PAUM was 0.85.

In this study, there were two research questions. The first question had three dependent variables that were measured for prediction by two independent variables. The second question had five dependent variables that were measured for prediction by the same two independent variables. The data analyses were conducted to test each hypothesis. The results of the analyses relative to each research question are listed in the following sections.

Research Question 1

Research Question 1: To what extent do the variables of depression and the amount of daily time spent on Facebook predict the construct of active social, nonsocial active, and passive Facebook use?

$H_0$1: There is no predictive association between time spent on Facebook daily and depression on the construct of active social, nonsocial active, and passive Facebook use.

H_a1: There is a predictive association between depression and time spent on Facebook daily on the construct of active social, nonsocial active, and passive Facebook use.

The multivariate regression model analyzed the ability to predict the Facebook usage style from the depression score and the amount of daily Facebook usage. The dependent variables were active social, active non-social, and passive scales of the PAUM. Table 6 summarizes the regression analysis predicting the active social, active nonsocial, and passive scores of the PAUM. The multivariate regression model containing all forms of Facebook usage failed to fully reject the null hypothesis.

Active and passive usage were predicted by depression and the amount of time spent on Facebook. Active non-social media usage was not predicted by depression and the amount of time spent on Facebook. The following three models tested the relationship of the two independent variables to each of the three dependent variables for each construct:

Table 6

Regression Summary for Passive and Active Use Measure Scales

Model	ß	F(2,153); p-value	R^2 (%)
Active Social		17.84; .001	19
Depression	.79 (p = .08)		
Facebook Time	.35 (p < .001)		
Active non-Social		2.63; .08	3
Depression	.38 (p = .14)		
Facebook time	.05 (p = .19)		
Passive		4.42; .01	6
Depression	.39 (p = .31)		
Facebook time	.15 (p = .02)		

Model 1: Active Social = Depression + Facebook Time

There was a significant predictive association ($F(2,153) = 17.84$; $p < .001$) of active social use by time spent on Facebook and depression. The model accounted for approximately 19% of the variance.

$$Active\ nonsocial = 6.32 + 0.79 * \left(Depression^{\frac{1}{2}}\right) + 0.35 * \left(Time^{\frac{1}{2}}\right) \qquad (2)$$

Model 2: Active Non-Social = Depression +Facebook time

$$Active\ nonsocial = 4.60 + 0.38 * \left(Depression^{\frac{1}{2}}\right) + 0.05 * \left(Time^{\frac{1}{2}}\right) \qquad (2)$$

There was not a significant predictive association ($F(2,153) = 2.63$; $p = .08$) of active non-social use by time spent on Facebook and depression. The model accounted

for approximately three percent of the variance (Table 4.7). This suggests that depression and the amount of time spent on Facebook are not predictive of active non-social use.

Model 3: Passive = Depression +Facebook time

$$Passive = 8.2 + 0.39 * \left(Depression^{\frac{1}{2}}\right) + 0.15 * \left(Time^{\frac{1}{2}}\right) \quad (3)$$

There was a significant predictive association ($F(2,153) = 4.42$; $p = .01$) of passive social use by time spent on Facebook and depression. The model accounted for approximately six percent of the variance (Table 4.7). This suggests that depression and the amount of time spent on Facebook are weak predictors of passive use.

Research Question 2

Research Question 2: To what extent do the variables of depression and the amount of time spent on Facebook daily predict attachment, social integration, orientation, confirmation of worth, and material support?

$H_0$2: There is no predictive association between depression and time spent on Facebook daily for attachment, social integration, orientation, confirmation of worth, and material support.

H_a2: There is a predictive association between depression and time spent on Facebook daily for attachment, social integration, orientation, confirmation of worth, and material support.

To address Research Question 2, a regression was performed to assess the ability of depression and time spent on Facebook to predict the total SPS-10 score. One regression model examined the relationship between the SPS-10 total score and independent variables. The five regression models were also analyzed to determine if

depression and time spent on Facebook would predict attachment, social integration, orientation, confirmation of worth, and material support, individually. The dependent variables were attachment, integration, orientation, confirmation, and material support scales of the SPS. Table 7 provides a summary of the regression analysis predicting the types of social support of the SPS-10. Overall, the null hypothesis was not rejected as depression, and the amount of time spent on Facebook did not predict the total score of the SPS-10 ($F(2,153) = 2.336$; $p = .10$). Social support is a multifaceted construct. The research question evaluated all scores together and not separately. Despite the lack of significance based on the total SPS-10 score, it is important to evaluate each construct's relationship to the independent variables. The following five models tested the two independent variables' relationship to each of the five dependent variables for each construct:

Table 7

Summary of Regression Analysis: Social Provisions Scale

Model	ß	F (2,153) ; p-value	R^2(%)
SPS-10 total Score		2.336; 0.10	3
Depression	-0.196		
Time	0.003		
Attachment		3.22; 0.04	4
Depression	-.033 (p = .05)		
Facebook time	.05 (p = .05)		
Integration		3.23; 0.04	4
Depression	-.38 (p = .06)		
Facebook time	.04 (p = .61)		
Orientation		1.80; 0.17	2
Depression	-.32 (p = .14)		
Facebook time	.01 (p = .19)		
Confirmation of Worth		2.39; 0.10	3
Depression	-.38 (p = .03)		
Facebook time	.01 (p = .74)		

Material		1.16; 0.32	2
Depression	-.26 (p = .15)		
Facebook time	-.004 (p = .90)		

Model 1: Attachment = Depression + Facebook time

$$Attachment = 7.57 - 0.33 * \left(Depression^{\frac{1}{2}}\right) + 0.05 * \left(Time^{\frac{1}{2}}\right) \quad (4)$$

There was a significant predictive association ($F(2,153) = 3.22$; $p = .04$) of attachment support by time spent on Facebook and depression. The model accounted for approximately four percent of the variance (Table 4.8). This suggests that depression and the amount of time spent on Facebook was a weak predictor of attachment support.

Model 2: Integration = Depression + Facebook Time

$$Integration = 7.62 - 0.38 * \left(Depression^{\frac{1}{2}}\right) + 0.04 * \left(Time^{\frac{1}{2}}\right) \quad (5)$$

There was a significant predictive association ($F(2,153) = 3.23$; $p = .04$) of integration support by time spent on Facebook and depression. The model accounted for approximately four percent of the variance (Table 7). This suggests that depression and the amount of time spent on Facebook was not a strong predictor of integration support.

Model 3: Orientation = Depression + Facebook time

$$Orientation = 7.87 - 0.32 * \left(Depression^{\frac{1}{2}}\right) + 0.01 * \left(Time^{\frac{1}{2}}\right) \quad (6)$$

There was not a predictive association of orientation support ($F(2,153) = 1.80$; $p = .17$) by time spent on Facebook and by depression (Table 4.8).

Model 4: Confirmation of Worth = Depression + Facebook time

$$Confirmation\ of\ Worth = 7.79 - 0.38 * \left(Depression^{\frac{1}{2}}\right) + 0.01 * \left(Time^{\frac{1}{2}}\right) \quad (7)$$

There was not a predictive association of confirmation of worth ($F(2,153) = 2.39$; $p = .10$) by time spent on Facebook and by depression (Table 4.8).

Model 5: Material = Depression + Facebook time

$$Material = 7.79 - 0.26 * \left(Depression^{\frac{1}{2}}\right) + 0.004 * \left(Time^{\frac{1}{2}}\right) \quad (8)$$

There was not a predictive association of material support $F(2,153) = 1.16$; $p = .32$) by time spent on Facebook and by depression (Table 7).

Summary

The first hypothesis evaluated to what extent the variables of depression and amount of time spent on Facebook daily predicted the constructs of active social, nonsocial active, and passive Facebook use. The overall model failed to reject the null hypothesis. However, there were three basic findings based on the dependent variables. First, depression as a sole independent variable was not predictive of any Facebook usage style among adults. In contrast, the amount of time spent on Facebook was predictive of active and passive use. However, the R^2 value indicated that the amount of time on Facebook accounted for only four percent of the effect size. Neither independent variable, time spent on Facebook, nor depression level, predicted active nonsocial usage style.

The second research question evaluated to what extent the variables of depression and amount of time spent on Facebook daily predicted emotional support, social integration, confirmation of worth, material support, and orientation support. Depression and the amount of time spent on Facebook failed to predict the total SPS-10 score. However, the results indicated that depression and the amount of time spent on Facebook were both significant predictors of specific categories of social support. Depression had a

negative relationship with attachment support. In contrast, the amount of time spent using Facebook had a positive relationship with attachment support.

The amount of time spent on Facebook was not a significant predictor of integration support. However, depression had a negative relationship with integration support. While depression and integration were correlated, the significant result had a small effect size. The regression model combining both depression and the amount of time as predictor variables was significant in predicting integration support. Because only a small amount of the variance in the data was accounted for by the model, it was not a strong predictor of integration support. Confirmation of worth was found to have a negative relationship to depression but no relationship with time spent on Facebook. Neither orientation support nor material support had significant relationships with either depression or the amount of time spent on Facebook.

Chapter 5: Discussion, Conclusions, and Recommendations

This study tested the SGHD to determine whether depression and time spent using Facebook predicted usage style and the perception of social support. This study sought to determine whether people tend to use Facebook in maladaptive ways when experiencing increased levels of depression. Participants in the study were Facebook users, over 18 years of age, and fluent in English. The interpretation of the results indicated that participants' active social usage, passive usage, perceptions of integration support, and attachment support were predicted by their level of depressive symptoms and amount of time spent on Facebook. This means that how people felt and the length of time on social media related to how they used social media and the amount of social support they perceived.

Interpretation of the Findings

As described in Chapter 2, a considerable amount of research has examined depression and time spent on Facebook. However, no studies have explored the two variables of depression and time as predictor variables for how people use social media and experience social support. This gap in the literature justified the present study. The results of this study suggested that Facebook time was associated with lower depressive symptoms among adults.

Facebook Use

A multivariate regression evaluated whether depression and time spent on Facebook as independent variables could predict Facebook usage. The results were that a combination of time and depression as independent variables significantly predicted both

active and passive social use. These findings are consistent with previous literature by Scherr et al. (2018), Frison and Eggermont (2016), and Tromholt (2016), which also associated the amount of time or mood states with how people use social media. For example, passive use can be harmful to mental health and lead to a deterioration of mood and life satisfaction (Roh et al., 2018; Tromholt, 2016), meaning it can predict harmful use as measured by depressive symptoms (Frison & Eggermont, 2016). But the data from the current study indicated that adults in the study sample engaged in both active and passive Facebook use, as people were reading or viewing images from online acquaintances but only interacted online with close friends.

Further, people experiencing depression may shift from passive to active usage types after several months (Scherr et al., 2018). This could mean that while people are initially experiencing depression, they engage in a behavior (passive usage) that may be potentially harmful. Still, over time, they may shift to more positive active usage. It may also be that as time spent on social media increases, people use social media both passively and actively more because they begin to experience some benefits of supportive online interactions (Tromholt, 2016). Additionally, the switch from passive to active Facebook usage may be a normal progression that occurs with greater confidence.

This study added to the empirical exploration that time spent on Facebook and levels of depression are important predictors of active and passive Facebook use. Active nonsocial use appears to be a type of use that is not predicted by either amount of time spent on Facebook or depression. This may be because active-nonsocial users generally pass along content but do not create new content. Therefore, active-nonsocial users may

have less emotional or personal investment in their Facebook experience. Active and passive social use seem to indicate an emotional investment in the sense that elevated depression scores are a predictor.

One key difference between active nonsocial and either passive or active use is that active nonsocial use does not seem to equate with connecting to specific others but rather a larger audience. Messages shared with this type of Facebook use are often posted to an imagined large audience rather than messages sent to a specific audience (see Marwick & Boyd, 2011). One interpretation of this is that individuals engaging in active nonsocial use have fewer emotional needs while participating on Facebook. Facebook may serve as a type of mass communication for these individuals rather than a personal means of communication.

Social Support

The regression using both depression and the amount of time spent on Facebook failed to find significance with the total score from the SPS-10 (Caron, 2013). The SPS-10 was built to explore five types of social support: attachment, integration, orientation, confirmation of worth, and material support. For this reason, each of the SPS-10 subscales of social support were also evaluated using the same independent variables. Of these subscales, two multivariate regressions found that depression and time spent on Facebook predicted attachment support and integration support. This indicated that adults with fewer symptoms of depression who spent more time daily on Facebook experienced a higher level of social support. As discussed in Chapter 2, a diagnosis of depression corresponds with fewer friends, fewer relatives, and reduced social contact (Coyne &

Downey, 1992). In such instances, social media has the potential to meet the need for attachments and alleviate feelings of isolation. Attachment represents a need for security, safety, and emotional support (Pynnönen et al., 2018). This need may be met through relationships with close friends or spouses. However, based on the study's findings, the more symptoms of depression that participants experienced, the less attachment support they felt from social media. Conversely, as people spent more time and had fewer depressive symptoms, they experienced more attachment support. This finding suggests that adults experienced benefits from social media use when they were not experiencing depressive symptoms.

Depression and the amount of time spent on Facebook also predicted social integration. Social integration refers to a sense of belonging and the idea that others share similar concerns and appreciate similar things (Ng, 2019). These results indicate that individuals experiencing fewer depressive symptoms and spending more time on Facebook are involved with groups that share similar ideologies or activities. The enhancement and sharing of knowledge and information maintain and serve decision-making and group interests (Ng, 2019). This supports the results from Baggio et al. (2017) that people have a tendency to group together based on similarities in a phenomenon known as homophily. This tendency appears to be predicted by lower depression and more time spent on Facebook in this study.

Additionally, the data from this study partially supported the application of the SGHD to social media, which is predicated on the idea that depressed people experience more stress than nondepressed individuals (Hammen, 1992). The SGHD theorizes that

people experiencing depression behave in ways that increase interpersonal stress and thus exacerbate depression. The SGHD applied to social media indicates that individuals with depressive symptoms would likely exhibit passive Facebook usage (Scherr et al. 2018; Tromholt, 2016). In other words, depression leads to passive Facebook use, which increases interpersonal stress that fosters depressive symptomology. The current research partially supported this indication, but the findings showed that the same variables also predicted active usage. Active usage is associated with positive outcomes for depression (Eggermont & Frison, 2016; Jenkins-Guarnieri et al., 2013). The study results demonstrate the complexity of depression, time spent on Facebook, and social media usage. Participants also seem to be experiencing attachment and integration support.

The conclusion is that depression and time spent on Facebook appear to be predictors of some types of social support for Facebook users. That people experienced more social support in the form of attachment was predicted by more time spent on Facebook and fewer symptoms of depression. Similarly, integration support was also predicted by lower depressive symptoms and more time spent on Facebook. In general, adults who participated in this study appear to use social media in ways that indicated a higher score on their perceived social support. This was demonstrated by a larger effect size for the prediction of active use over passive use.

The amount of time spent on social media and levels of depressive symptoms can alter the way people use Facebook and experience social support. This research could provide counselors with knowledge about how adults use social media in adaptive and maladaptive ways. Discussions about healthy types of Facebook use can help clients and

clinicians to become more aware of how social media can be used beneficially. It is possible that Facebook could be used in adult care facilities as a means to increase social support among the elderly. It may be that social media use helps combat depression and lack of certain types of social support.

Limitations of the Study

Limitations of External Validity

Several factors may limit the generalizability of this study. Most prominent is the 2019 novel coronavirus. This virus outbreak created a national social distancing campaign that resulted in the majority of Americans isolating themselves to prevent further spread of the disease. The virus outbreak and subsequent isolation may have affected this study in two ways. First, Americans may have used more social media during the data collection phase of this study. Second, there may have been some elevated depressive effects due to the social isolation and fear associated with a global outbreak of the COVID-19.

These factors may have artificially inflated either the type or amount of Facebook usage as well as potentially led to increased scores in depressive symptoms. Had this research been conducted prior to the national social distancing campaign and nationwide lockdown, the amount of usage and the depressive symptoms may have been less, but this speculative. Whether or not the social isolation and anxiety of the covid-19 pandemic affected the validity of the study cannot be established beyond conjecture. It would seem as though social connection via Facebook may have helped to reduce depression

symptomology during the imposed physical isolation. However, any possible effects on external validity are impossible to establish.

Limitations of Internal Validity

Other limitations must also be noted. First, this study relied upon self-reported data. Mainly, the assumption was that people would accurately self-report the amount of time spent on social media. Given the novelty of the questionnaire and the ease that people could quickly access and respond, a self-report was determined to be the most efficient means to obtain the needed data. This study was cross-sectional and correlational in design, which limits the ability to infer causal relationships. To address the self-report and correlational design limitations, future studies could utilize an experimental design with observer reports.

Recommendations

There are several ways to extend the findings of this research. The current study only examined how depression and time spent on social media predict social support and Facebook usage. A longitudinal study of how social support changes over time would be a valuable next step in understanding social media use. Active engagement through social media may benefit individuals experiencing depression. Frison and Eggermont (2016) and Scherr et al. (2018) described the value of active social media use for those experiencing symptoms of depression. Scherr et al., in particular, found support for active social mediating the experience of increased social support. Frison and Eggermont also found that active Facebook users experienced lower levels of depression. Adults who

spend more time using Facebook, either actively or passively, have more social and attachment support.

This data set also included racial identity, age, and gender. These potential covariates were checked for the skewedness of distribution to better understand the generalizability of the participants. Race indicated that the sample comprised mostly people that identified as Caucasian. Age indicated a skewedness in distribution because the largest group of people that took the survey were over the age of 65. Age indicated a mild inverse relationship with depression. Thus among Facebook users, older participants rated themselves as having fewer depressive symptoms than did younger participants. This study had a largely older population of participants. Therefore, the findings may not necessarily apply to a normally distributed population. While age was not a focus of the present study, future studies on social media should consider age in further analyses.

The COVID-19 pandemic began during data collection for this study. Although it may have been a factor confounding the results, it also presented a unique research opportunity. The current research may be one of few nationwide studies of depression among people under quarantine. Most of the participants were at higher risk as older adults. Age and depression were two variables that may have put people at increased risk during quarantine.

Social media has emerged as an important, if not vital, means for socialization among people during quarantine due to the COVID-19 pandemic. The role of Facebook usage in reducing or increasing depression symptoms, anxiety, or feelings of loneliness

during quarantine is undocumented. The topic of social quarantine and online social media use is an important subject for further study.

Implications

The results of the present study provide valuable insights into the predictive relationship of depression and time with Facebook usage because depression predicted increased active social use and passive social use. Previous literature indicated that passive use was generally considered unhealthy. Scherr et al. (2018) indicated that as passive use of Facebook increased, so did envy. One interpretation of these results is that as a person's symptoms of depression and time spent on Facebook increase, use of Facebook can be either healthy (if active) or unhealthy (if passive). To help determine if this was accurate, social support was also measured in the current study. The findings were that as people experienced more depression and spent more time on Facebook, they experienced greater attachment and integration forms of social support. This implies that simply assuming either active or passive Facebook usage is healthy or unhealthy is an oversimplification.

The finding that time spent on Facebook has a predictive relationship to the experience of some types of social support is a positive outcome. People who spend more time on Facebook were found to experience more attachment and integration support. Attachment and integration forms of social support increase the experience of closeness in relationships and increase contact with people of common interests (Weiss, 1974). Social support is a major resiliency factor in people and animals (Knowles et al., 2015;

Lehman & Herkenham, 2011; Shen et al., 2019). This is a major finding supporting the use of social media.

The nature of the relationship between the type of Facebook usage (active or passive) and each of the 10 types of social support was beyond the scope of the present study. While depression and time spent on Facebook were predictive of specific types of Facebook usage and social support, the exact relationship between usage and social support is not known. Active Facebook usage and attachment support are operationally defined similarly. Despite this, it is unknown if passive or active Facebook usage creates specific attachment or integration support conditions. Identification of the relationship between these variables would have the social change implication of offering recommendations for specific types of Facebook use.

The potential impact of these findings applies to the individual and family level and perhaps to the organizational and societal level. Individuals knowledgeable about the results of this study may choose to specifically alter their social media behavior to maximize the potential benefits of social support on Facebook. This is particularly important to individuals for whom physical or geographical barriers present obstacles to social support. Families may increase attachment among members and encourage integration with groups that support individual family members. Organizations may also help disseminate information to clients of potential benefits available from online support of coworkers. At a societal level, an important discovery is that social media can have positive impacts on social support, specifically to increase attachment and integration for at-risk populations.

Conclusion

The debate over the role of social media in society is far from over. The same set of independent variables, depression and time spent on social media, were used to conduct two separate multivariate regressions. First, the purpose was to answer to what extent do the variables of depression and the amount of time spent on Facebook each day predict the constructs of active social, nonsocial active, and passive Facebook use. Second, to what extent do the variables of depression and the amount of time spent on Facebook daily predict social support. The data from this study indicated that depression and the amount of time spent on social media predicted both active and passive Facebook usage. This adds a more nuanced understanding of outcomes from active and passive use of social media. This is because among the participants in this study, people generally experienced a sense of connection and inclusion through the use of Facebook regardless of being used actively or passively.

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Appendix A: Demographic information

Please complete this demographic section of the survey. It is important that you answer each question carefully and accurately. No personal information will be revealed in the study results.

1. Your Age ___
2. Your Gender
   ___Male
   ___Female
   ___Other

3. Your Ethnicity Ethnic origin, please specify your ethnicity

   __White
   __Hispanic or Latino
   __Black or African American
   __Native American or American Indian
   __Asian / Pacific Islander
   Other _____

4. Your average time spent using Facebook in a day (in hours and minutes):_____

To view your Facebook usage, open the mobile app and select the More tab (three-lined icon) > Settings & Privacy > Your Time on Facebook. A chart with daily usage graphs will appear, showing how much time you've spent using the Facebook app.

Appendix B: Patient Health Questionnaire-9 (PHQ-9)

		Not at all (0)	Several days (1)	More than half the days (2)	Nearly Every Day (3)	Item score
1	Little interest or pleasure in doing things					
2	Feeling down, depressed or hopeless					
3	Trouble falling or staying asleep or sleeping too much					
4	Feeling tired or having little energy					
5	Poor appetitute or overeating					
6	Feel bad about yourself-or that you are a failure or have let yourself down or let your family down					
7	Trouble concentrating on things, such as reading the newspaper or watching television					
8	Moving or speaking so slowly that other people could have noticed? Or the opposite—being so fidgety or restless that you have been moving around a lot more than usual					
9	Thoughts that you would be better of dead or hurting yourself in some way					

Total raw score:

Appendix C: Social Provisions Scale (SPS-10)

	Strongly Disagree (1)	Disagree (2)	Agree (3)	Strongly Agree (4)
1. I have close relationships that provide me with a sense of emotional security.				
2. I feel a strong emotional bond with at least one other person.				
3. There are people who enjoy the same social activities I do.				
4. I feel part of a group of people who share my attitudes and beliefs.				
5. There is someone I could talk to about important decisions in my life.				
6. There is a trustworthy person I could turn to for advice if I were having problems.				
7. I have relationships where my competence and skills are recognized.				
8. There are people who admire my talents and abilities.				
9. There are people I can count on in an emergency.				
10. There are people I can depend on to help me if I really need it.				

Attachment: 1, 2
Social integration: 3,4
Orientation: 5, 6
Confirmation of worth: 7, 8
Material: 9, 10

Appendix D: Passive and Active Facebook Use Measure (PAUM)

How frequently do you perform the following activities when you are on Facebook? (Note: Choosing "Very Frequently" means that about 100% of the time that you log on to Facebook, you perform that activity).

	Never (0% of the time)	Rarely (25% of the time)	Sometimes (50% of the time)	Somewhat frequently (75% of the time)	Very frequently (100% of the time)
1. Posting status updates	1	2	3	4	5
2. Commenting (on statuses, wall posts, pictures, etc)	1	2	3	4	5
3. Chatting on FB chat	1	2	3	4	5
4. Checking to see what someone is up to	1	2	3	4	5
5. Creating or RSVPing to events	1	2	3	4	5
6. Posting photos	1	2	3	4	5
7. Tagging photos	1	2	3	4	5
8. Viewing photos	1	2	3	4	5
9. Posting videos	1	2	3	4	5
10. Tagging videos	1	2	3	4	5
11. Browsing the newsfeed passively (without liking or commenting on anything)	1	2	3	4	5
12. Browsing the newsfeed actively (liking and commenting on posts, pictures and updates)	1	2	3	4	5
13. Looking through my friends' profiles	1	2	3	4	5

Items should be presented to respondents in randomized order. Scoring: Items are summed.
Active social: 1, 2, 3, 6, 12.
Active nonsocial: 5, 7, 9, 10.
Passive: 4, 8, 11, 13.