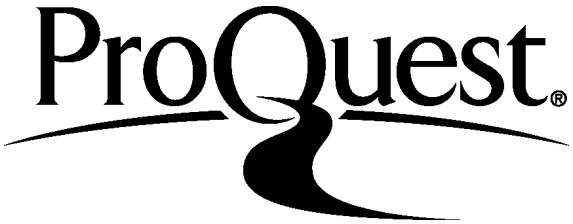
SOCIAL MEDIA USE AND DEPRESSION IN EMERGING ADULTS: THE MODERATING EFFECT OF PARENTAL SUPPORT

by

Jessica L. Schulz

A dissertation submitted to the Faculty of the University of Delaware in partial fulfillment of the requirements for the degree of Doctor of Philosophy in Human Development and Family Studies

Summer 2015



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ACKNOWLEDGMENTS

This dissertation would have not been possible if it were not for a variety of people. First, I would like to express my deepest appreciation to Dr. Christine Ohannessian, who has supported me from day one in the completion of this degree, and allowed me to use her data for this project. I cannot express the enormous amount of gratitude I have for you being my advisor for the last five years. The skills I have learned from you and the experiences I have had with you have undoubtedly left a remarkable impression on my life.

In addition, I would like to thank Dr. Mellissa Gordon, Dr. Ruth Fleury-Steiner, Dr. Stacey Perlman, and Dr. Charlotte Markey. To Mellissa and Staci, thank you for helping me when I needed it the most. To Ruth, thank you for being a part of my committee since the beginning and always providing a thoughtful perspective. To Char, thanks for being the beginning inspiration in this PhD journey. I could not have asked for a better committee!

I would also like to thank other individuals from other areas of my life: from my NDEHS family to my crossfit family to my Tumblr grad student family. I have been so blessed to have such wonderful, motivating people in my life that always pushed me to write and finish when I felt like I had nothing left.

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ABSTRACT

The present study examined the relationship between social media use and depression and whether parental support moderated this relationship. The sample included 888 emerging adults (18-23 year olds) from across the United States. Linear regression models were conducted to assess if social media use predicted depression or if depression predicted social media use. Results indicated a bidirectional relationship between social media use and depression. Parental support was not a significant moderator in the relationship between social media use and depression. These findings have implications for future research and interventions when it comes to understanding how social media use may affect mental health.

Chapter 1

INTRODUCTION

In the last decade, the ubiquity of social media has expanded rapidly across the life span. Recent marketing data found that, in the United Kingdom, one in four 18-34 year-olds check social media as soon as they wake up (Bennett, 2014b). Compared to 2005, when only 8% of all Internet users used social networking sites, the latest data from the Pew Internet and American Life Project indicate that 73% of online adults use social networking sites (Duggan & Smith, 2013). When examining specific social media platforms, 71% of adults who are online use Facebook, 23% use Twitter, and 26% use Instagram (Duggan, Ellison, Lampe, Lenhart, & Madden, 2015). Although the age range for young adults tends to vary widely, when examining data for just individuals between the ages of 18-29 (also called emerging adults), social media usage is even higher. Eighty-nine percent of 18-29 year old online users use social networking sites (Pew Research Center, 2013). Of this same demographic, 87% use Facebook, 37% use Twitter, and 53% use Instagram (Duggan et al., 2015). Another social media platform, Snapchat, is quickly rising in popularity when compared to older social media sites. Marketing data suggests that about half of 18-24 year old smartphone users are using Snapchat, a significant increase from 33% a year earlier

(Lipsman, 2014). Because of social media's significant penetration into individuals' daily lives, it is important to understand how this new context might affect individuals.

The phenomenon of social media has recently intrigued academic researchers. Many journals are devoted specifically to this area, such as *CyberPsychology, Networking, and Behavior* and *New Media*. Contemporary scholars are attempting to understand how social media use may affect individuals' relationships, academic performance, substance use, and psychological well-being. For example, a recent study examined the addictive nature of social media and found that those who presented more symptoms of social media addiction were more likely to engage in substance use (Hormes, Kearns, & Timko, 2014). Depression has been used as an outcome for social media use in many studies. However, the literature remains inconsistent in determining if a positive, direct association exists between social media use and depression. A majority of studies indicate there is a relationship (e.g. Hur & Gupta, 2013), whereas some studies show no link between social media use and depression (e.g. Jelenchick, Eickhoff, & Moreno, 2013). It should be noted that all of these studies have only focused on one social media platform, Facebook. This could be considered a limitation of the pre-existing literature, considering American youth between the ages of 13 and 17 are quickly leaving Facebook for other platforms. In fact in 2014, the percentage of American youth who had Facebook accounts dropped from 94% to 88% (Begley, 2014). Even though Facebook continues to be the number one social media site in terms of number of users, recent data indicate that youth of this same demographic are leaving Facebook at an alarming rate for other messaging

applications and other social media sites, like Twitter. Part of this attraction to other messaging applications, like Snapchat and Twitter for youth is the lack of penetration of adults and parents in these social media sites (Begley, 2014). Furthermore, the inconsistencies in the literature could be due to a limitation in how the relationship between social media use and depression is measured. For example, all the studies that found a significant relationship between social media use and depression used the same measure of depression, the CES-D. Conversely, studies that measured depression differently did not find a statistically significant relationship between social media use and depression. This study aims to examine multiple social media platforms, specifically Facebook, Twitter, Instagram, and Snapchat, given the increased use during emerging adulthood (Duggan et al., 2015). In other words, all four of these platforms will be compared to examine whether they differentially relate to depression. In addition, the prospective study intends to dichotomize social media use into two categories—content-based social media use (Facebook and Twitter) and image-based social media use (Instagram and Snapchat)—for better explanation and understanding for future research.

Although the majority of research conducted on the relationship between social media use and depression suggests a relationship exists, there are a few studies that were unable to replicate this finding. However, this lack of significant results could be due to a measurement issue. Because social media use is found to have a negative impact on internalizing behaviors, like depression, researchers are moving forward and are trying to distinguish factors that could lessen the negative consequences of

social media use. One particular variable of interest is parenting. Prior research suggests that having a positive, warm relationship with parents may play a role in individuals' well-being. For example, having supportive parents may reduce the chances of individuals developing depression (e.g. Yap, Pilkington, Ryan, & Jorm, 2014). Perhaps then, parental support could play a similar role in the relationship between social media use and depression. As such, emerging adults who may more frequently use social media, but have a supportive relationship with at least one parent, may be less likely to develop depressive symptoms than emerging adults who lack that level of support. Therefore, the goals of this study are to determine whether a significant relationship between social media use and depression exists and if parenting plays a role in moderating this relationship.

Through the lenses of a variety of theories, the present study seeks to extend the literature on social media use and its relationship with depression by examining multiple social media platforms. This study also seeks to clarify the inconsistent findings when it comes to the relationship between social media use and depression. By understanding the role that parental support may play in moderating the relationship between social media use and depression in emerging adults, results from this study may clarify protective factors for emerging adults' mental health as they engage with social media.

Chapter 2

LITERATURE REVIEW

Developmental Contextualism

A central idea of the theory of developmental contextualism (Lerner, 2002; Lerner & Callina, 2013; Levesque, 2011) is that human beings are active, rather than passive, agents in their own individual development. Moreover, human development is unable to be understood without examining the reciprocal relationship between individuals and the places that comprise an individual's life space (i.e. contexts = family, peers, school, and community) (Lerner, 2002; Levesque, 2011). Because of the reciprocal relationship between individuals and contexts, not only do the contexts and the individuals comprising them influence development, but the individuals themselves shape their contexts (Levesque, 2011).

Individuals are considered to be active agents of their own development, primarily through the contexts that are listed above. A developmental contextual perspective suggests that human development is composed of these changing, reciprocal relations between individuals and their multiple contexts within which they live (Levesque, 2011). One of the most important contexts individuals engage in regularly is with their family environment, namely their relationships with their parents. Individuals incite different reactions from others, and these reactions provide feedback to individuals and influence their respective character. This phenomenon is often referred to as the bidirectional relations between individuals and their parents (Lerner, 2002). Parents who are stimulated differently by their children may

differentially react to, or *process*, the stimulation provided by that individual. For example, one child might incite frustration and exasperation with his or her behavior, but another child behaving similarly might evoke a different reaction. This process has also been referred to as *circular function* (Lerner, 2002) in individual development. It is the idea that individuals evoke varying reactions from their parents, and these actions provide the basis of feedback to the individuals, which, in turn, further influences their individual development.

A developmental contextualism perspective can help guide this study because it suggests that there is a bidirectional relationship between the individual and context. For the purpose of this study, the individuals are emerging adults, both male and female. The context is the family environment and relationships within which individuals interact with their parents while simultaneously engaging with social media. The idea of *circular function* in individual development proposes that individuals and the members of his or her life contexts mutually influence and respond to the behavior of one another in a circular fashion (Lerner, 2002; Levesque, 2011). In turn, this exchange of influence contributes to further change in each individual. In addition to the circular function of individual development, an individual's behavior might evoke different reactions from parents. For example, in this study, perhaps emerging adult social media use, depending on gender, may stimulate a different reaction from mothers and/or fathers. Developmental contextualism will help situate the findings of this study in terms of understanding behaviors across different stages of development. In other words, researchers will be able to understand the effect social media use has on other behaviors, like emerging adult depression, and within other contexts, like emerging adults' relationships with their parents.

Emotion Contagion Theory

Another theory that could be helpful in explaining the findings from the present study is emotion contagion theory. Developed by Schoenwolf (1990), emotion contagion theory posits that individuals have the abilities to emit both positive and negative emotions and moods to other individuals. When individuals are physically present with other individuals, one can perceive someone else's emotions and possibly allow that person's emotions to transfer to them. However, some research (e.g. Kramer, Guillory, & Hancock, 2014) suggests that individuals do not need to be physically together in order to transfer emotions. Therefore, individuals may become depressed simply from being on social media so much, depending on what they are seeing online.

Social Comparison Theory

In addition, Festinger (1954) created social comparison theory. This theory suggests that individuals have the tendency to compare themselves to objective standards to ensure their opinions about their abilities are accurate. However, when these objective standards are unavailable, individuals will compare themselves to similar counterparts. And thus, this may be an unfair comparison and may lead to individuals feeling poorly about themselves. Therefore, individuals who spend more time on social media may engage in social comparison more frequently which could in turn make them feel depressed if they feel their lives pale in comparison.

Withdrawal Hypothesis

Finally, the withdrawal hypothesis could provide another explanation for the relationship between social media use and depression. When individuals are depressed, they tend to withdraw from physical and social situations. Perhaps

individuals who are already depressed, and who may withdraw from physical interactions, may use social media more frequently as a replacement or as a means of coping. Some research supports this hypothesis, where depressed individuals withdraw from social and physical activities but increase their media use (e.g. Romer, Bagdasarov, & More, 2013).

Emerging Adulthood

Coined by Jeffrey Arnett (2000), emerging adulthood is a separate developmental period between adolescence and adulthood. Emerging adulthood is not merely an "extended adolescence" because emerging adults are more independent and freer from parental control than adolescents (Arnett, 2015). In addition, emerging adulthood is not "young adulthood" because this label suggests that a form of adulthood already has been reached, even though emerging adults do not feel like adults themselves (Arnett, 2015). Specifically focusing on the ages from eighteen through twenty-nine, emerging adulthood is described by five characteristics: identity exploration, instability, self-focus, feeling in-between, and the idea of possibilities/optimism (Arnett, 2000; 2015). Although so many changes occur and so much uncertainty is brewing during this short developmental period, relatively little research has specifically focused on emerging adulthood. Only recently has an academic journal been solely devoted to the study of emerging adulthood, called *Emerging Adulthood*. The present study intends to add to the growing literature of social media use, depression, and parental support while focusing on emerging adults.

Social Media

Social media, defined as "any web site that allows social interaction" (O'Keeffe, Clarke-Pearson, & Council on Communications and Media, 2011), is a recent phenomenon that has pervaded individuals' lives. The term social media includes multiple sites and applications, such as Facebook, Twitter, Instagram, and Snapchat. Although relatively recently developed, all of these sites have amassed a large database of users. According to the Pew Research Center (Duggan & Smith, 2013), 73% of adults who are online use social networking sites. Of these adults, emerging adults, between the ages of eighteen and twenty-nine, dominate social networking use, with 89% of emerging adults using social networking sites (Pew Research Center, 2013). When social media use is examined even further by type of social networking site, more intricate differences are found.

Facebook

Developed in 2004, Facebook was originally a social media site intended for only Harvard students. Later during the year of 2004, Mark Zuckerberg opened Facebook to other colleges in the Boston area, the Ivy Leagues, and other universities in Canada and United States. Soon after, in 2007, Mark Zuckerberg allowed users who had a high school email address or who were thirteen years or older to create an account. Not surprisingly, Facebook's user base grew exponentially. Users are able to post statuses, upload photographs and videos, share their locations, and share links, among other actions. As of December 2014, Facebook has amassed, on average, 890 million daily active users (Facebook Information, 2014). The Pew Research Center reports that 87% of online emerging adults use Facebook (Duggan et al., 2015). Latest marking data suggests that half of 18-24 year olds go on Facebook as soon as they

wake up (Noyes, 2015). Moreover, every one minute on Facebook, 510 comments are posted, 293,000 statuses are updated, and 136,000 pictures are uploaded (Noyes, 2015). Despite the creation of many other different types of social media sites, Facebook remains at the top of the list with the largest number of users.

Twitter

Created in March of 2006 by Jack Dorsey, Evan Williams, Biz Stone, and Noah Glass, Twitter currently has 288 million monthly active users and 500 million tweets are sent per day (Twitter, 2015). A tweet is similar to a status update on Facebook but is limited to 140 characters. Users are able to engage in similar activities to Facebook users, through tweeting status updates, links to news stories, pictures, and videos. However, like Facebook, Twitter is still primarily a text-based or content-based site. Both Facebook and Twitter allow for the publication of different types of content and do not just focus on one type of content. According to the Pew Research Center, 37% of online adults between the ages of eighteen and twenty-nine use Twitter (Duggan et al., 2015).

Instagram

Created in October of 2010, Instagram currently has 300 million monthly active users, with seventy million photographs posted each day, substantially exceeding Twitter's user database (Dredge, 2014; Instagram Information, 2014). Instagram is a vastly different social media application from Facebook and Twitter. Unlike Facebook and Twitter that allow their users to post a variety of content daily, Instagram users are only allowed to post pictures or videos with accompanying captions and is therefore purely an image-based social media site. When users open

the Instagram application, users are greeted with images and/or videos of the people they follow. Currently, 53% of online emerging adults use Instagram (Duggan et al., 2015). Further, marketing research indicates that 68% of Instagram's users are women (Smith, 2013).

Snapchat

Snapchat is one of the newer social media applications individuals use today. Launched in 2011, Snapchat has 30 million monthly active users, with 400 million Snapchat snaps (pictures or videos) sent per day (Bennett, 2014a). Snapchat clearly has quickly become another choice of social media for individuals. Similar to Instagram, Snapchat is purely an image-based social media site, where users are able to send "snaps" of photographs or videos to recipients. However, unlike Instagram, when a user sends a snap to another user, the photograph or video eventually disappears after a few seconds. However, users are able to know if another user has saved the snap. This idea of lack of permanency may be attractive to emerging adults considering they may be concerned with what they share with individuals in an online format. Knowing that their snaps eventually "disappear" or "delete themselves" may lessen the anxiety emerging adults feel when it comes to their social media use and privacy. According to the latest market research data, Snapchat quickly has become popular for emerging adults as well, with about half of 18-24 year old smartphone users using Snapchat, an increase from one third of users a year earlier (Bennett, 2014b).

Content-Based Social Media Use versus Image-Based Social Media Use

To better understand social media use, I will dichotomize the four sites into two categories: content-based social media and image-based social media. At a glance, the user usually becomes aware that each site (i.e., Facebook, Twitter, Instagram, and Snapchat) has different capabilities and is mainly used for a singular feature (i.e., to post pictures) even though they may share similar features. Facebook and Twitter will be categorized as content-based social media because while users are able to do a variety of activities on these two websites, they primarily use them to post content (e.g. text posts and links). Conversely, Instagram and Snapchat will be categorized as image-based social media because users are only able to upload photographs or videos to these two platforms. Unlike content-based social media, image-based social media users are unable to post daily statuses or tweets. Instead image-based social media users post pictures and/or videos. Previous research (e.g. Bair et al., 2012) has attempted to focus purely on image-based media. Instead of examining each website singularly, dichotomizing social media use into two separate, different categories could help direct future research when studying social media use.

Moreover, image-based media use may be more significant for emerging adults developing maladaptive behaviors or psychological maladjustment than content-based social media use. Recent research has shown a relationship between adolescent boys' reading of certain types of men's magazines and eating disorders, particularly a drive for thinness and muscularity (Slater & Tiggeman, 2014). Cramblitt and Pritchard (2013) also found reading men's health magazines and the men's drive for muscularity are related.. In addition, for women, these researchers' results indicated that total hours viewing sports-related, image-focused, and entertainment television is related to an increased drive for muscularity (Cramblitt & Pritchard, 2013). To apply previous

findings in other aspects of the literature, it could be hypothesized that using and viewing image-based social media sites, akin to viewing other types of image-based media, might also have a negative impact on psychological adjustment (i.e. depression). Therefore, perhaps using and viewing image-based social media sites, like Instagram and Snapchat, may also have a negative impact on psychological adjustment (i.e. depression).

General Social Media Use and Outcomes

Social media has proliferated over the last decade. Compared to television and radio, the Internet has grown exponentially (Bargh & McKenna, 2004). Because of this incredible increase in social media use, researchers have studied how this use may play a role in a variety of emerging adult outcomes. For example, social media use has been correlated with academic achievement (Junco, 2012, 2013; Rosen, Carrier, & Cheever, 2013), conflict with parents (Mesch, 2006), certain personality characteristics (Mehdizadeh, 2010), romantic relationships (Fox & Warber, 2013), body image (Meier & Gray, 2014), and psychological well-being (Hur & Gupta, 2013).

Academic Achievement

The literature reports a negative relationship between social media use and academic achievement. For example, Facebook use has negatively predicted overall college GPA (Junco, 2012). In a sample of college students, Junco (2011) found spending time on Facebook and posting status updates negatively predicted overall college GPA. Moreover, in a sample of middle school, high school, and university students, Rosen, Carrier, and Cheever (2013) reported that, college participants in

particular, averaged less than six minutes on task prior to switching to technological distractions, such as social media and text messaging. Those who used Facebook as their distraction had lower GPAs than those who avoided the social media site (Rosen et al., 2013a).

Family Relations

Social media use has also been a source of concern for families and may incite intergenerational conflict. For example, when adolescents and young adults are more knowledgeable than their parents about technology and social media use, families are more likely to experience conflict (Mesch, 2006). This increase in conflict could be due to a role reversal between youth and their parents, such that parents are not the individuals who are knowledgeable and are therefore unable to exert control over their children because of their deficiency (e.g. Hur & Gupta, 2013). Yardi and Bruckman (2011) discussed this notion by coining the term "technoparenting", or parenting youths' technology use. Parents reported they wanted more transparency in their adolescents' cell phone use and the Internet and that they still struggled with their own lack of knowledge about such technologies (Yardi & Bruckman, 2011). In addition, Internet use has been associated with a decrease in time spent with and communicating with family members (Lee & Gae, 2007).

In contrast, some literature does not paint a negative picture in the relationship between technology use and family relations. In fact, some research has found benefits to social media and technology use in the family. For example, when parents used the Internet at work to communicate with their youth, this had the potential to strengthen family bonds (Williams & Merten, 2011).

Personality Characteristics

An area that has received much attention from researchers is the relationship between personality characteristics and social media use. Those who prefer to use Facebook view themselves as higher in sociability, extraversion, and neuroticism and less in need of cognition (Hughes, Rowe, Batey, & Lee, 2012). Ryan and Xenos (2011) found similar results in an Australian sample, where Facebook users were more extraverted and narcissistic, and less conscientious and socially lonely than nonusers. In addition, individuals who are more extroverted and less conscientious used MySpace and Facebook more frequently and had addictive behaviors (Wilson, Fornaiser, & White, 2010). Also, Mehdizadeh's (2010) results suggests that individuals who are more narcissistic and have lower self-esteem were more likely to frequently use Facebook and provide self-promotional content.

Romantic Relationships

Another important aspect of emerging adults' lives is their romantic relationships. Social media has become a tool for emerging adults to express themselves and present their romantic relationships to other individuals, yet this area is relatively understudied. A recent study by Fox and Warber (2013) explored the term "Facebook Official". According to these researchers "Facebook Official" is commonly used as a joke among young adults and adolescents when describing their romantic relationships: in jest, individuals will say that a romantic relationship is not official unless it is on Facebook. These researchers found that this term may incite conflict in emerging adults' romantic relationships. More specifically, men were less likely than women to believe that "Facebook Official" implied exclusivity in the relationship and

were more likely to believe that a person might still be seeing other partners outside of the posted relationship (Fox & Warber, 2013).

Other researchers have studied the relationship between Facebook use and negative emotions. Muscanell, Guadagno, Rice, and Murphy (2013) conducted an experiment by asking participants to hypothetically imagine their romantic partner's Facebook page. Participants were told to imagine seeing their partner's Facebook page and either told their partner's privacy settings were set to private, viewable to Facebook friends, or viewable to all Facebook users. In addition, participants were told to imagine that their romantic partner's Facebook page had zero, few, or many pictures of themselves as a couple. Overall, the imagined privacy settings (e.g. participants told privacy settings were set to private) and the presence of couple photos (zero pictures) resulted in emerging adult women feeling more negative emotions (jealousy, anger, disgust, and hurt) than emerging adult men (Muscanell et al., 2013). Social media use, in the context of romantic relationships, may have just as negative an impact as it does on other types of relationships (e.g. peer or family).

Body Image

Social media use has also been associated with body image. For example, Tiggeman and Slater (2013) found that time spent online was significantly related to internalization of the thin ideal, body surveillance, reduced body esteem, and increasing dieting for early adolescent females. Moreover, time spent on social networking sites (i.e., MySpace and Facebook) was strongly correlated with body image concern than overall Internet exposure (Tiggeman & Slater, 2013). Other research has examined Facebook use in terms of what types of activities a user engages in on the social networking site. Facebook time spent on photo activity, not

total time spent on Facebook, has been related to an increase in thin idealization, self-objectification, weight dissatisfaction, and drive for thinness (Meier & Gray, 2014).

Psychological Well-Being

Perhaps the most studied relationship among social networking users is the relationship between social media use and psychological well-being. Before social media was created, the majority of researchers believed technology use would be negatively related to psychological well-being. In a seminal study during the late nineties, Internet use was depicted as having a negative effect on individuals' lives (Kraut, Patterson, Lundmark, Kiesler, Mukopadhyay, & Scherlis, 1998). Using a longitudinal design and following 169 people in 73 households for their first two years online in Pittsburgh, researchers discovered that increased use of the Internet was associated with a decrease in participants' communication with family members in the household, reduced social circle, and increases in the participants' depression and loneliness (Kraut et al., 1998). This seminal study began the discussion on how Internet and technology may negatively impact individuals. For example, in a longitudinal study examining 12-15 year olds, instant messaging and chatting in on-line chat rooms were positively associated with compulsive Internet use and depression six months later (van den Eijnden, Meerkerk, Vermulst, Spijkerman, & Engels, 2008). In addition, a study of a nationally representative sample of 14-24 year old participants, found that playing video games and using the Internet were related to an increase in reports of depression (Romer, Bagdasarov, & More, 2013). Recent studies have furthered this research by examining other different types of media use and individuals' psychological well-being.

Depression

In terms of psychological well-being, depression continues to be studied frequently because of its prevalence and concern on how depression may impact other areas of individuals' lives. In a large and reputable study conducted in 2003, Kessler and colleagues (2003) found depression has a lifetime prevalence of 16.2%, suggesting depression will affect around 34 million US adults. This prevalence also increases the chance of developing depression early in life with later chronic episodes (Richards, 2011). In addition, the World Health Organization predicts depression will be the leading cause of disease burden worldwide (Richards, 2011). Due in part to these factors, depression during emerging adulthood has been a cause for concern in recent years. The most recent data from Anxiety and Depression Association of America (no date) reports that major depressive disorder (MDD) affects approximately 14.8 million American adults, with MDD being more prevalent in women than men. According to the latest American College Health Association (2013) data, 31.3% of college students "felt so depressed that it was difficult to function" at some point and 45% of college students "felt things were hopeless" and 59.6% "felt very sad" at some point.

Berry (2004) suggests that depression may vary across the lifespan in ways that are related to development. Because emerging adulthood is unique and separate from adolescence, it is necessary to understand how symptoms of depression may be expressed differently during this developmental period. Frye and Liem (2011) extend this discussion further with their work. In a racially diverse, community sample of over 1,000 18-22 year old emerging adults, Frye and Liem (2011) examined depressive symptoms over a four year period. They contend that emerging adulthood is accompanied by such extensive growth and change, more than adolescence (Arnett,

2007), that researchers are unable to realistically predict trajectories from adolescence into emerging adulthood. For example, some research indicates that although the rate and severity of depression may increase during adolescence, depressive symptoms may stabilize in emerging adulthood (Galambos & Krahn, 2008). Frye and Liem (2011) found four different groups in their sample: one large group with low, stable rates of depression; a smaller group who began with higher levels of depression that then decreased sharply; one group with moderate levels of depression that increased dramatically; and a small group with high, stable rates of depressive symptoms. These results replicated similar findings, where the majority of the sample was in the group with low, stable rates of depression, suggesting that emerging adulthood may be a period of positive adjustment (Galambos, Barker, & Krahn, 2006). Despite the upheaval that emerging adults may face in this developmental period, perhaps this is the time when emerging adults come to terms with themselves, mature psychosocially, and are more readily able to handle what may happen in their lives. In addition, gender was found to predict membership to the decreasing symptom group and the high, stable rates of depressive symptoms group. Although emerging adult women had more decreasing depressive symptoms than men, there was a subset of women who belonged to the high, stable depressive symptom group (Frye & Liem, 2011).

Other research has replicated these findings. Using longitudinal data from the Oregon Adolescent Depression Project (ODAP), Rodhe, Lewinsohn, Klein, Seeley, and Gau (2013) summarized characteristics of major depressive disorder from four developmental periods (childhood: 5-12 years old; adolescence: 13-17 years old; emerging adulthood: 18-23.9 years old; and adulthood: 24-30 years old). They found that rates for first incidence of major depressive disorder were significantly lower in

childhood (5%) but higher in later developmental periods, such as emerging adulthood (24%). Furthermore, being female was associated with rate of first incidence of MDD in all four developmental periods (Rodhe et al., 2013).

In addition to gender, other factors have been associated with depression in emerging adulthood. For example, emerging adults who have higher depressive symptoms at the age of eighteen were more likely to have lower life satisfaction in their thirties (Howard, Galambos, & Krahn, 2010). This was true for both men and women. Further, parental depression may impact depression during emerging adulthood. Compared to at-risk males, emerging adult females who have higher depression symptoms and who have depressed parents are more likely to remain at high levels of depression during the transition to emerging adulthood (Morris, McGrath, Goldman, & Rottenberg, 2014). Moreover, Salmela-Aro, Aunola, and Nurmi (2008) longitudinally examined trajectories, antecedents, and consequences of depressive symptoms among youth entering emerging adulthood. Results indicated that the majority of the sample (61%) showed moderate levels of depressive symptoms, whereas 23% showed low levels and 16% expressed high and increasing levels of depressive symptoms (Salmela-Aro et al., 2008). Emerging adults in the high level depressive symptoms group had poorer relationship quality and experienced more burnout, earned less, and used more dysfunctional coping strategies later in life (Salmela-Aro et al., 2008).

Social Media Use and Depression

Although social media may afford many benefits for individuals, such as staying connected with family and friends or connecting with new friends, there are some risks (O'Keeffe et al., 2011). In addition to the previously mentioned factors that

may play a role in developing depression, social media use may be another salient predictor. The research on social media use and depression is nuanced and mixed. Some studies suggest there is a direct association between social media use and depression (e.g. Davila, Hershenberg, Feinstein, Gorman, Bhatia, & Starr, 2012; Hur & Gupta, 2013; Kross, Verduyn, Demiralp, Park, Lee, Shablack, Jonideas, & Ybarra, 2013). Other studies indicate a relationship between social media use and depression does not exist (e.g. Jelenchick et al., 2013; Simoncic, Kuhlman, Vargas, Houchins, & Lopez-Duran, 2014). However, it is important to note that the majority of these studies have only studied one social networking site, Facebook, or general Internet use. In addition, those studies that did not find a significant relationship measured depression differently from those studies that did find a significant relationship.

Old Media, New Media, and Facebook

In a study examining 364 college students, researchers explored the associations between social networking sites and depressive symptoms (Davila et al., 2012). Davila and colleagues (2012) found that individuals who engaged in fewer positive interactions on Facebook had more negative interactions and greater depressed mood following these interactions. In addition, participants who had higher levels of depressive rumination and more negative interactions had greater depressive symptoms (Davila et al., 2012). This study's results suggest that the quality of the interactions that take place on social networking sites seem to be of more importance than time spent on these sites. Conversely, a study examining the relationship between Facebook social connectedness and anxiety, depression, and subjective well-being found that Facebook social connectedness was negatively related to depression and anxiety (Grieve, Indian, Witteveen, Tolan, & Marrington, 2013).

It would be remiss to not mention a recent controversial study conducted by Facebook data scientists themselves. Kramer, Guillory, and Hancock (2014) wanted to determine if emotion contagion could occur via social networking sites without the presence of physical cues. The researchers conducted an experiment by manipulating the types of posts that appear on a select group of individuals' News Feeds (i.e., the main user page where individuals view posts and comments left by other users). Results indicated that when individuals saw a decrease in positive expression on their News Feeds, users produced fewer positive posts and more negative posts. Conversely, when individuals saw a decrease in negative expression in their News Feeds, users posted more positive expression and fewer negative posts (Kramer et al., 2014). This is an important study that illustrates how studying Facebook use has become more refined over time, from merely studying frequency or time spent on the website to manipulating the types of posts users may view.

Other research has examined different aspects of the Internet and device use and their roles in mental health. For example, a recent study assessed the relationship between smart-device use, smart-device involvement, and mental health (Harwood, Dooley, Scott, & Joiner, 2014). Smart-device use refers to frequencies of use, whereas smart-device involvement is comprised of behavioral and cognitive components. For example, the cognitive part refers to individuals thinking about checking their devices or how they would feel if they lost their phone. The behavioral component refers to the incessant checking of the phone and the need for having the phone nearby (Harwood et al., 2014). Results indicated that increased smart-device involvement was associated with an increase in levels of depression, anxiety, and stress. In other words, the relationship an individual has with his or her smart-device, not use, and negative

psychological functioning are associated (Harwood et al., 2014). In addition, excessive Internet use, or Internet addiction, has been linked to mental health. Although in one study researchers found less than two percent of their sample fell into the Internet addiction category, those who were categorized with an Internet addiction were more depressed (Morrison & Gore, 2010). Compared to non-Internet-addicted users who were not depressed, Internet addicted users were moderately-to-severely depressed.

Comparatively, Rosen, Whaling, Carrier, and Cheever (2013) examined if specific technologies and media, technology-related anxieties, and technology-related attitudes predicted personality disorders and mood disorders. The authors coined the term "iDisorder" to describe the negative relationship between technology use and psychological health. Results indicated that individuals who spent more time online and those who conducted more Facebook impression management (how individuals strategize to present themselves online) showed increased clinical symptoms of major depression. However, having more Facebook friends was related to fewer clinical symptoms of depression, dysthymia, and schizoid personality disorder (Rosen et al., 2013). Similarly, using a nationally representative sample and a longitudinal design, Romer and colleagues (2013) studied the effects of both older and newer media on academic, social, and mental health outcomes in adolescents and young adults. Findings from this study showed that Internet and video game use were related to an increase in reports of depression (Romer et al., 2013). To examine these associations even further, Bélanger, Akre, Berchtold, and Michaud (2011) assessed level of media use in a nationally representative sample. Level of use was categorized as heavy (greater than two hours per day), regular (several days per week and less than or equal to two hours per day), and occasional (less than or equal to 1 hour per week). Results

indicated a curvilinear relationship between Internet use and poorer adolescent mental health. Those Internet users in the heavy category had the most increased risk for somatic health problems, compared to those in the occasional and regular groups (Bélanger et al., 2011).

Despite researchers finding a link between social media use and depression or even media use and depression, some researchers were unable to find such an association and refute the idea of "Facebook Depression" or "iDisorder." For example, Jelenchick, Eickhoff, and Moreno (2013) studied the relationship between social networking sites and depression during emerging adulthood using experience sampling method (ESM). Using similar categorizations from previous studies (e.g. Bélanger et al., 2011; Romer et al., 2013), Jelenchick and colleagues (2013) were unable to replicate previous findings and found no association between social media use and depression. Similar to Jelenchick and colleagues' (2013) findings, Simoncic, Kuhlman, Vargas, Houchins, and Lopez-Duran (2014) were unable to detect a direct association between Facebook use and symptoms of depression. However, the researchers did find that females who scored high on neuroticism and used Facebook more frequently had lower depressive symptoms. Higher levels of neuroticism have been shown to impair individuals' social functioning which could possibly lead to more conflictual relationships. Perhaps females who are more neurotic are using Facebook because they can maintain their relationships and control their images more easily by broadcasting their more positive qualities.

Twitter

Compared to Facebook, research on Twitter is sparse at best when it comes to its relationship to psychological well-being, namely depression. The majority of the

research that is being published on Twitter centers on political ideologies (e.g. Vaccari, Valeriani, Barberá, Bonneau, Jost, Nagler, & Tucker, 2015) health issues (e.g. Gabarron, Serrano, Wynn, & Lau, 2014), and best market practices (e.g. Dhar & Jha, 2014). There are some studies that examine Twitter and its relation to psychological health. For example, using a daily diary method and randomly assigning participants to report positive or negative events, Choi and Toma (2014) assessed patterns of media use for social sharing and the effects on mediated social sharing on sharer's emotions. Results indicated that social sharing occurred most frequently face-to-face, followed by texting, phone calling, Facebook, e-mailing, IMing, and Twitter. Positive events were more likely to be shared via Twitter than less positive events. In other words, individuals would rather use less intrusive computer-mediated communication, like Twitter, to share positive events (Choi & Toma, 2014). Another study asked over 500 participants (younger than 25 years old) to compare different forms of technology and rate them for their ease of communication, ability to communicate certain types of information, and emotional consequences (Farber, Shafron, Hamadani, Wald, & Nitzburg, 2012). Farber and colleagues (2012) included talking on the phone, text messaging, e-mailing, IMing, using Twitter, and using Facebook. Results suggested that participants found text messaging and face-to-face communication to be the most convenient forms of communication. Participants rated face-to-face conversations and phone conversations as the best form of technology to feel "understood" and "intimate"; using the same description, Twitter was rated the lowest form of technology. Therefore, additional research that focuses on how Twitter impacts psychological health is needed.

Instagram and Snapchat

Despite the exponential growth that Instagram and Snapchat have experienced, little to no research has been conducted on these social media applications, to date. The only two academic published papers on Instagram are from Mainiero and Jones (2013) and Richardson, Ganz, and Vallone (2013), and there was one article published recently on Snapchat (Utz, Muscanell, & Khalid, 2015). The former does not intentionally assess Instagram; instead, the researchers discuss how workplace harassment and workplace romances may have a spillover effect into social media and names Instagram as one of these venues (Mainiero & Jones, 2013). The latter publication is a commentary on how the rapper, Snoop Dogg, used Instagram to attract his followers to a new cigar brand (Richardson et al., 2013). The authors argue that examining celebrity-based pro-tobacco promotions on social media sites may be harmful for the fan base that "follows" them. In terms of Snapchat, Utz and colleagues (2015) aimed to compare Snapchat and Facebook use and the psychological effects on romantic jealousy, considering the relationship between Facebook use and romantic jealousy has begun to be studied more often. Their findings suggested that Snapchat was used more for flirting and finding new love interests and Facebook was used as a way to keep in contact with friends. In addition, when participants were presented with a variety of potentially jealousy provoking situations, Snapchat users had higher levels of jealousy than Facebook users (Utz et al., 2015).

There is no research on how Instagram and Snapchat may be related to depression during emerging adulthood. Even though studies of these two social media applications do not exist, I will draw from other literature that has examined similar phenomena. For example, Tiggeman and Miller (2010) found that Internet appearance exposure and magazine reading were associated with increased weight dissatisfaction,

drive for thinness, and greater internalization of thin ideals. Further, Bair, Kelly, Serdar, and Mazzeo (2012) examined the relationships among image-focused media exposure, body dissatisfaction, eating pathology, and internalization of the thin ideal in female undergraduates. Results indicated that appearance-oriented Internet and television use were related to eating pathology. In addition, internalization of the thin ideal mediated the relationship between image-focused Internet use and body dissatisfaction (Bair et al., 2012). Instagram and Snapchat are primarily image-based social media applications. Drawing from the literature that examines photo activities online can help situate how Instagram and Snapchat may be related to depression. For example, Meier and Gray (2014) evaluated the association between body image and adolescent females' activities on a social media site. Results indicated that increased appearance exposure, not social media use, was significantly related to weight dissatisfaction, drive for thinness, thin ideal internalization, and self-objectification. In other words, the amount of time spent allocated to photo activities on social media was related to negative physical outcomes (Meier & Gray, 2014). Given that time spent involved with photo activities online was related to negative physical outcomes, these same activities on Instagram and Snapchat might be linked to other negative outcomes as well, such as depression.

In sum, from the perspective of developmental contextualism, what individuals do inevitably influences what individuals become. This speaks to the bidirectional relationship between individual and context, such that emerging adult behaviors shape their own individual development. More frequent social media use may result in developing depression, compared to less frequent social media use.

Parental Support as a Moderator

Despite emerging adulthood being a developmental period where individuals are becoming more independent, parents may still play a vital role in their children's development. Because emerging adulthood is a period of uncertainty and multiple changes (Arnett, 2000, 2015), parents may need to continue to help their children navigate this transition from adolescence to adulthood. Research has shown how parenting can have a positive impact on adolescents' psychological well-being (Steinberg, 2001). In addition, there is strong evidence to suggest that parental factors may affect depression throughout their children's development (Holahan, Valentiner, & Moos, 1995; Shaw, Krause, Chatters, Connell, & Ingersoll-Dayton, 2004; Sijtsema, Oldehinkel, Veenstra, Verhulst, & Ormel, 2014; Stice, Ragan, & Randall, 2004; Yap, Pilkington, Ryan, & Jorm, 2014). Individuals who have supportive relationships with their parents are likely to have a reduction in depressive symptoms and increases in well-being (Aseltine, Gore, & Colten, 1998; Galambos, Barker, & Krahn, 2006; Hair, Moore, Garrett, Ling, & Cleveland, 2008; Needham, 2008). For example, using a community sample of 900 adolescents, adolescents who perceived having high-quality relationships with their parents had lower levels of depression (Aseltine, Gore, & Colten, 1998). Moreover, adolescents who had high parental support were better psychologically adjusted and less distressed than adolescents who had low parental support (Holahan, Valentiner, & Moos, 1995). Conversely, individuals who lack parental support or parental warmth had an increase in depressive symptoms (McLeod, Weisz, & Wood, 2007; Nelson, Padilla-Walker, Christensen, Evans, & Carroll, 2011).

Besides the direct relationship between parenting and depression, some research has found parenting to moderate the relationship between other predictors and

depression. For example, Hazel, Oppenheimer, Technow, and Young (2014) examined whether positive relationship quality with parents would moderate the relationship between stressful life events and the transition to adolescence. Findings indicated that the quality of the relationship with both mothers and fathers did in fact moderate the direct relationship, such that there was a stronger relationship between stressful life events and an increase in depressive symptoms when youth had lower relationship quality with parents (Hazel et al., 2014). Another study investigated the role of attributional style and perceived parental support and their relationship with depressive symptoms during mid-adolescence (Rueger & Malecki, 2011). Results suggested that parental support moderated the relationship between attributional style and depressive symptoms for both boys and girls. Both boys and girls who had a pessimistic attributional style and low or moderate levels of parental support had higher levels of depressive symptoms.

Despite the wealth of literature on how parents may impact adolescents, there is still a dearth of literature on how parents may play a role in emerging adult depression. Leaving the home is a commonly discussed theme particular to the developmental period of emerging adulthood, whether it is through living away at college or moving out and starting a career. However, given the recent economic shift and the lack of job creation, a great proportion of emerging adults in the United States still are living in the same residences as their parents (Settersten & Ray, 2010). Despite this transition of some emerging adults moving away from home, relationships with parents are still an important part of emerging adults' lives. In fact, research shows emerging adults become closer to their parents and report increases in open communication after adolescence (Lefkowitz, 2005). Therefore, it is possible that

emerging adults may still be dependent on their parents, both financially and emotionally.

Further, as discussed above, other factors may contribute to depression in emerging adulthood, such as social media use. Because research has shown a relationship between social media use and depression, and parenting was found to moderate the relationship between other factors, such as stressful life events, and depression (e.g. Hazel et al., 2014), it is important to examine how parental support may moderate the relationship between social media use and depression. One study found that youth who reported lower relationship satisfaction with their mothers were more likely to be high, frequent communication users online (Rudi & Dworkin, 2014). From a developmental contextual perspective, it could be hypothesized that social media use would incite or evoke varying reactions or behaviors from parents which would then potentially act as a protective factor in the development of depression. These differential reactions from parents could be gender-based as well. For example, emerging adult females who use image-based social media more frequently and who have a more supportive relationship with their parents may have lower levels of depression. Conversely, emerging adult females who use image-based social media more frequently and who have a less supportive relationship with their parents may have higher levels of depression.

Gender Differences

There are a variety of gender differences in terms of social media use during emerging adulthood. According to the latest Pew Research Center data, 76% of women, compared to 72% of men, use social media. Further, females who scored higher on neuroticism and used Facebook more frequently had fewer depressive

symptoms (Simoncic et al., 2014). Females went online for social networking sites more than males; males went online for entertainment and participation more frequently than females (Rudi & Dworkin, 2014). Some data suggest that females (77%) are more likely to use Facebook than men (66%), whereas men (24%) might be more likely to use Twitter than women (21%) (Duggan et al., 2015).

For depression, gender differences begin to emerge in adolescence and continue through emerging adulthood. There are gender differences in mental health that suggest girls may develop internalizing disorders and boys develop externalizing disorders (Galambos, Berenbaum, & McHale, 2009; Ohannessian, 2009). Females are at greater risk for depression than males during adolescence and this pattern may continue into emerging adulthood (Galambos, Leadbeater, & Barker, 2004; Kessler, 2003; Lewinsohn, Rohde, & Seeley, 1998; Meadows, Brown, & Elder, 2006; Morris, McGrath, Goldman, & Rottenberg, 2014; Nolen-Hoeksema, 2001).

Parental support may reduce depressive symptoms during the transition from adolescence to emerging adulthood. Of note, maternal support may play more of a protective role in reducing depressive symptoms over time (Meadows, Brown, & Elder, 2006). However, these effects may dissipate over time. Moreover, some research suggests that the quality of the relationship between mother and child is related to depressive issues in males and females, while the quality of the relationship between father and child is related to depressive problems in males (Branje, Hale, Frijns, & Meeus, 2010).

Limitations of Past Literature

The primary limitation of the previously discussed literature is researchers' singular focus on one form of social media, Facebook. The majority of social media

research and its relationship to psychological functioning, such as depression, are explicitly focused on Facebook. To date, no published academic research exists on how other social media might impact depression in emerging adulthood. By creating two categories of social networking sites and including other social media besides Facebook, I hope the results from this dissertation extend the social media and mental health literature. Although there has been some discussion on how studying amount of time spent on social media may need to be expanded upon, given that there is a lack of research on other social media sites, it is imperative to start at the beginning by examining frequency of use.

Another limitation in the literature is the lack of diverse samples. A majority of studies have employed convenience samples, or samples that are overwhelmingly White and female (e.g. Jelenchick et al., 2013; Kross et al., 2013; Park et al., 2014; Utz et al., 2015). Therefore, it is difficult to generalize to other populations beyond the studied sample. Because of the diversity of the sample in the current investigation, the findings will be more generalizable.

Finally, there is a limitation in terms of measurement. Some studies found no association between social media use and depression, while a majority of other studies found some type of relationship between these two variables. However, the studies that did not find a link between social media use and depression measured depression differently from the studies that did find a significant relationship. For example, although Jelenchick and colleagues (2013) used a rigorous research design by using experience sampling methodology, the researchers measured depression using the Patient Health Questionnaire. Their study did not indicate a link between Facebook use and depression. The majority of other studies that found a significant relationship

between social media use and depression used the Center for Epidemiologic Studies—Depression Scale (CES-D; Radloff, 1977). Perhaps an explanation as to why a few studies did not find a significant relationship is because of the change in how depression is measured. Hence, the current study intends to use the CES-D to measure depression in this sample to further examine the inconsistencies in the literature.

The Present Study

The aim of the present study is to assess the relationship between social media use and depression in an emerging adult sample and to examine whether parental support and closeness moderates this relationship. Data from the Adolescent Adjustment Project (AAP; Ohannessian, 2009) can help to address some of the previously aforementioned limitations. More specifically, the following research questions will be addressed:

Question #1: What is the prevalence of social media use during emerging adulthood?

Question #2: Are there gender differences in social media use during emerging adulthood?

H1: Gender differences will be observed in social media use, with emerging adult females using social more than emerging adult males.

Question #3: What is the association between social media use (content-based versus image-based) and depression among emerging adult males and females? (see Figure 1) What is the association between depression and social media use (content-based versus image-based) among emerging adult males and females?

H2: There will be a direct association between social media use and depression among emerging adults, such that image-based social media (Instagram

and Snapchat) will be significantly associated with depression for emerging adult women, but not for emerging adult men.

Question #4: Does the level of social media use predict depression (*low* = <30 min/day, *moderate* = 30 min to 2 hours/day, *high* = >2 hours/day; O'Keefe, Clark-Pearson, & Council on Communications and Media, 2011)?

H3: Social media users who are categorized in the "high use" group will have higher rates of depressive symptomatology compared to those in the "low" and "moderate" groups. The group cut scores have been determined from previous research (e.g. Belanger, 2011; Jelenchick et al., 2013; Louacheni et al., 2007; Meekerk et al., 2009; O'Keefe et al., 2011; Tsitska et al., 2009).

Question #5: Does parental support/closeness moderate the relationship between social media use and depression? (see Figures 2 and 3)

H4: Parental support/closeness will moderate the relationship between social media use and depression. This interaction will vary across gender and type of social media use. Perhaps closeness with mothers, more than closeness with fathers, will moderate the relationship between social media use and depression in emerging adults, particularly emerging adult females.

Chapter 3

METHODOLOGY

Participants

The sample for this study was drawn from a larger sample of youth who participated in the Adolescent Adjustment Project (AAP; Ohannessian, 2009). The primary goal of the Adolescent Adjustment Project was to examine why some youth have better adjustment if they are at risk, like living with an alcoholic parent. The Adolescent Adjustment Project collected data between 2006 and 2009 and recently conducted a follow up. The present study used the latest wave of data collection. The sample included 888 18-23 year old participants (M_{age} = 19.98, SD = 1.64; 54% female) (see Tables 1 and 2) and was racially diverse (see Table 3).

Measures

Technology Use Questionnaire

The Technology Use Questionnaire was used to assess frequency of technology and social media use. It is an eighteen item survey designed to measure various types of technology and social media use (e.g. watching television, talking on the phone, e-mailing or IMing, text messaging, playing video games or computer games, listening to music on an iPod or an online station, streaming movies, reading with an e-reader, Facebook, Twitter, Instagram, Snapchat, Vine, Tumblr, YouTube, Skype, Google+, and FaceTime). The survey asked respondents to answer how often

they used the previous media and technologies. The response scale ranged from *1* = none to *6* = 4 or more hours per day. For the purposes of this study, only Facebook, Twitter, Instagram, and Snapchat use were examined.

Parental Support Scale

The Parental Support Scale (Cornwell, 2003; Harker, 2001) is an eight-item survey (four items pertaining to the respondent's mother and four items pertaining to the respondent's father) that was used to measure support from parents. An example item is, "How close do you feel to your mother/father?" Respondents were asked to answer the survey for both their mother and their father, if applicable. The response scale ranged from *1* = Not at all to *5* = Very much. This measure has shown to be reliable and valid (Cornwell, 2003; Harker, 2001). In the present sample, the scale indicated excellent reliability for the maternal scale ($\alpha = .93$) and for the paternal scale ($\alpha = .94$).

Center for Epidemiologic Studies—Depression Scale (CES-D)

The Center for Epidemiologic Studies—Depression Scale (CES-D; Radloff, 1977) is a twenty-item survey that was used to assess depressive symptomatology. This measure was specifically used for the general population and not clinical samples. An example item is, "I felt lonely." The response scale ranges from *0* = rarely or none of the time (less than 1 day) to *3* = most or all of the time (5-7 days). In the present sample, the scale indicated excellent reliability ($\alpha = .91$).

Procedures

This study had University of Delaware's and the Connecticut Children's Medical Center Institutional Review Board approval. During the spring 2014, all prior

participants were invited to complete a mailed or web survey, similar to the survey they completed in the past. Upon completion of the survey, participants were sent a $25 American Express gift card.

Chapter 4

RESULTS

Analysis

First, descriptive statistics were calculated for all variables of interest. Independent samples *t*-tests were conducted to examine if gender differences exist among the study's variables. Next, a series of linear regression models were conducted to assess whether social media use (content-based social media use and/or image-based social media use) predicted depression and/or whether depression predicted social media use. The first set of models included content-based social media use and image-based social media use as the independent variables and the depression score as the dependent variable. The second set of models included the depression score as the independent variable and the content-based social media use and image-based social media use as the dependent variables. In addition to these analyses, four one-way analysis of variance (ANOVA) models were conducted separately to examine if the level of social media use predicted depression. Finally, hierarchical linear regression models were conducted to assess whether parental support, both maternal and paternal, moderated the relationship between social media use and depression. Because gender differences have been found in prior research (Duggan et al., 2015; Galambos et al., 2009; Meadows et al., 2006), all of the analyses were conducted separately by gender.

Table 1 Demographic Information

Variable	n	%
Gender		
Males	412	46.4
Females	476	53.6
Total	888	100
Age		
18	238	26.8
19	160	18
20	137	15.4
21	139	15.7
22	157	17.7
23 or more	56	6.3
Race		
Caucasian	471	63.6
African-American	100	13.5
Hispanic	81	10.9
Asian	53	7.2
Other	36	4.9

The Prevalence of Social Media Use: What is the Prevalence of Social Media Use During Emerging Adulthood?

To answer question one, descriptive analyses were conducted and indicated that each day participants spent, on average, an hour on content-based social media (M = 1.44, SD = 1.22) and a half hour on image-based social media use (M = 1.08, SD = 1.31).

Gender Differences in Social Media Use: Are there Gender Differences in Social Media Use during Emerging Adulthood?

To answer question two, independent samples *t*-tests were conducted to examine whether social media use differed by the gender (see Table 2). There were no statistically significant differences in social media use for both males and females.

Table 2 Means and Standard Deviations for Variables of Interest by Gender

	Males		Females		
Variables	M	SD	M	SD	*t*-statistic
Content-Based Social Media Use	1.55	1.40	1.40	1.09	1.6
Image-Based Social Media Use	1.11	1.41	1.10	1.27	0.15
Maternal Support	15.72	4.47	15.34	4.78	1.10
Paternal Support	13.60	5.15	13.7	5.12	-0.25
Depression	18.48	11.75	18.03	12.48	0.48

*p<.05, **p<.01, ***p<.001

The Relationship between Social Media use and Depression: What is the Relationship between Social Media Use and Depression?

To address question three, three linear regression models were conducted to examine the unique contributions for both outcomes of depression and social media use. In order to assess if social media use predicted depression, the first model included content-based social media use and image-based social media use as the independent variables and depression as the dependent variable. The last two models examined if depression predicted content-based social media use and/or image-based social media use. All of the models controlled for age.

Regression Results for Emerging Adult Females

Depression. Table 3 shows that content-based social media use was related to depression ($\beta = .17$, $p < .01$ but image-based social media use was not related to depression ($\beta = .06$, p = .31)

Social Media Use. Depression was significantly related to both content-based social media use ($\beta = .21$, $p < .001$) and image-based social media use ($\beta = .15$, p < .01) (see Tables 4 and 5).

Regression Results for Emerging Adult Males

Depression. Content-based social media use did not predict depression for males ($\beta = .13$, $p = .11$). However, the relationship between image-based social media use and depression approached significance ($\beta = .14$, $p = .07$) (see Table 3).

Social Media Use. Similar to the results for females, depression was significantly related to both content-based social media use ($\beta = .22$, $p < .001$) and image-based social media use ($\beta = .23$, $p < .001$).

Table 3 Linear Regression: Predicting Social Media Use from Depression

	Males			Females		
Variable	B	SE B	β	B	SE B	β
Content-Based Social Media Use	1.03	0.64	0.13	2.04	0.69	.17**
Image-Based Social Media Use	1.18	0.64	0.14	0.61	0.6	0.06

Note. *p <.05, **p< .01, ***p < .001
The dependent variable for these analyses was depression.

Table 4 Linear Regression: Predicting Depression from Content-Based Social Media Use

	Males			Females		
Variable	B	SE B	β	B	SE B	β
Depression	0.03	0.01	.22***	0.02	0.00	.21***

Note. *p <.05, **p < .01, ***p < .001
The dependent variable for these analyses was content-based social media use.

Table 5 Linear Regression: Predicting Depression from Image-Based Social Media Use

	Males			Females		
Variable	B	SE B	β	B	SE B	β
Depression	0.03	0.01	.23***	0.02	0.01	.15**

Note. *p <.05, **p < .01, ***p < .001
The dependent variable for these analyses was image-based social media use.

The Level of Social Media Use and Depression: Does the Level of Social Media Use Predict Depression?

To answer the this question, the level of social media use was defined as low = <30 min/day, moderate = 30 min to 2 hours/day, high = >2 hours/day, consistent with O'Keefe, Clark-Pearson, & Council on Communications and Media, 2011) definitions. Analysis of Variance (ANOVA) models were conducted to analyze whether the level of social media use was related to depression. For the purposes of these analyses, social media use was examined individually (e.g. Facebook, Twitter, Instagram, and Snapchat use) and not through the previously discussed conceptualizations (content-

based social media use versus image-based social media use). Analyzing the dichotomies eliminated the true level of social media use for participants. For example, if a participant chose 5 (4+ hours) for Facebook and 0 (0 hours) for Twitter, the participant's average would be 2.5. This average time would not accurately reflect the participant's high level of use for Facebook. Therefore, the ANOVA models were conducted separately by individual site. Further, based on the literature, there was a possibility that gender differences could exist for these analyses. Therefore, two-way ANOVA models were run to examine whether gender moderated the relationship between social media use and depression. However, when gender was included the models, it was not significant, suggesting emerging adult males and females do not significantly differ in their levels of social media use.

Content-Based Social Media Use

Facebook. Table 6 presents means and standard deviations for the three groups of Facebook use for the dependent variable of depression. Preliminary comparisons revealed that the homogeneity assumption underlying an ANOVA was not met (Levene statistic = 7.898, df[2,748] p = .001). Therefore, the Welch's F-test was used and was significant *Welch's* $F(2, 279.16) = 9.74$, $p < .001$, indicating that there are significant group differences among the levels of social media use for depression.

Post hoc analyses were assessed using Games-Howell procedure. These results indicated that participants who had a high level of Facebook use had higher scores of depression than those who had a low ($p < .001$) or moderate ($p < .001$) level of Facebook use (see also Figure 1).

A two-way ANOVA was conducted to examine the main effect of gender and the interactive effect between gender and level of Facebook use on depression. While

Facebook use remained significant in this model ($F(2, 684) = 9.65$, $p < .001$), gender was not a significant predictor of depression ($F(1, 684) = .23$, $p = .63$) (see Figure 2). Further, the interaction between gender and level of Facebook use was not significant ($F(2, 684) = .15$, $p = .86$).

Table 6 Means and Standard Deviations for Depression Among Three Groups of Facebook Users

Group	*M*	*SD*
Low	16.43	10.42
Moderate	16.82	11.98
High	21.89	12.14

Note: M = mean, *SD* = standard deviation

Figure 1 Level of Facebook Use on Depression

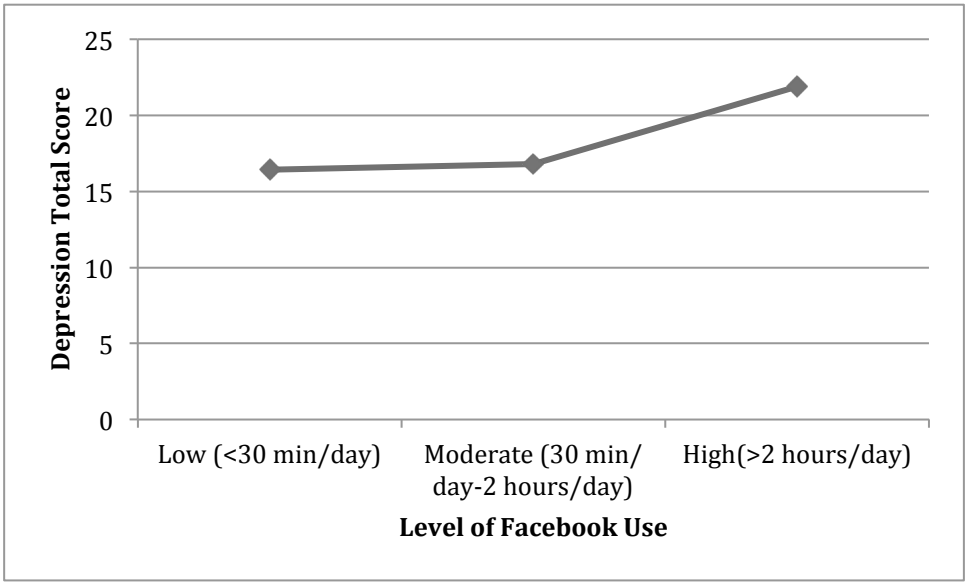
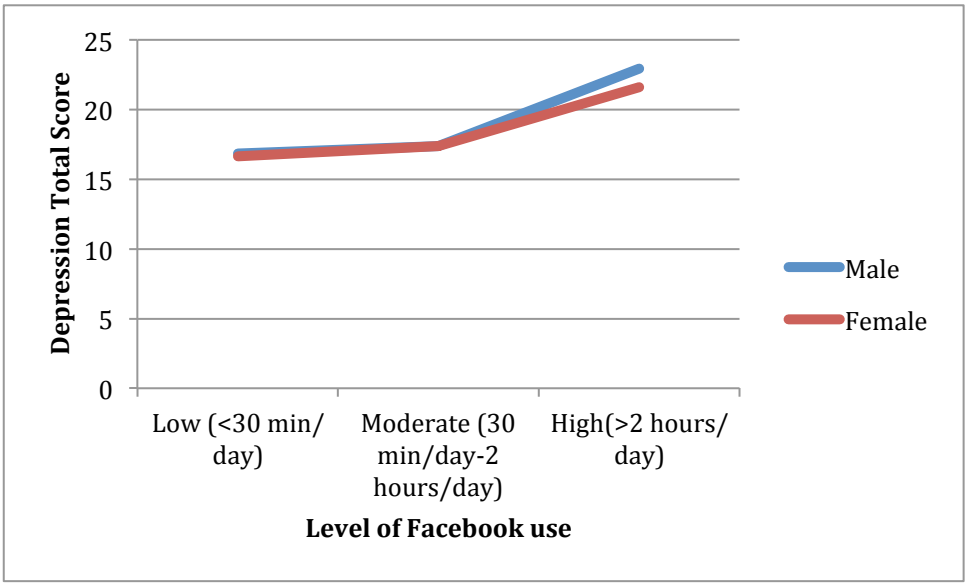


Figure 2 Level of Facebook Use on Depression by Gender



Twitter. Table 7 presents means and standard deviations for the three groups of Twitter use for depression. The Levene's test was not significant (Levene statistic = .86, *df*[2,747] $p > .005$), suggesting that the homogeneity of variance assumption was not violated. Therefore, post hoc comparisons used the Tukey adjustment. Results from the ANOVA test indicated a statistically significant difference among groups ($F = 14.79$, *df*[2,747], $p < .001$).

Tukey post hoc analyses indicated that those participants who were in the high category of Twitter use had significantly higher scores of depression than those who had moderate ($p < .01$) or lower ($p < .001$) levels of use. Interestingly, moderate users had significantly higher scores for depression than lower users as well ($p < .01$) (see also Figure 3).

Another two-way ANOVA was conducted to assess the main effect of gender and the interactive effect between gender and level of Twitter use on depression. Similar to the previous ANOVA, Twitter use remained a significant predictor for depression ($F(2, 682) = 12.19$, $p < .001$). However, gender was not a significant predictor of depression ($F(1, 682) = .19$, $p = .67$) (see Figure 4). In addition, gender did not significantly interact with level of Twitter use to predict depression ($F(2, 682) = .43$, $p = .65$).

Table 7 Means and Standard Deviations for Depression Among the Three Groups of Twitter Users

Group	*M*	*SD*
Low	16.14	11.8
Moderate	18.91	12.2
High	24.3	11.88

Note: M = mean, *SD* = standard deviation

Figure 3 Level of Twitter Use on Depression

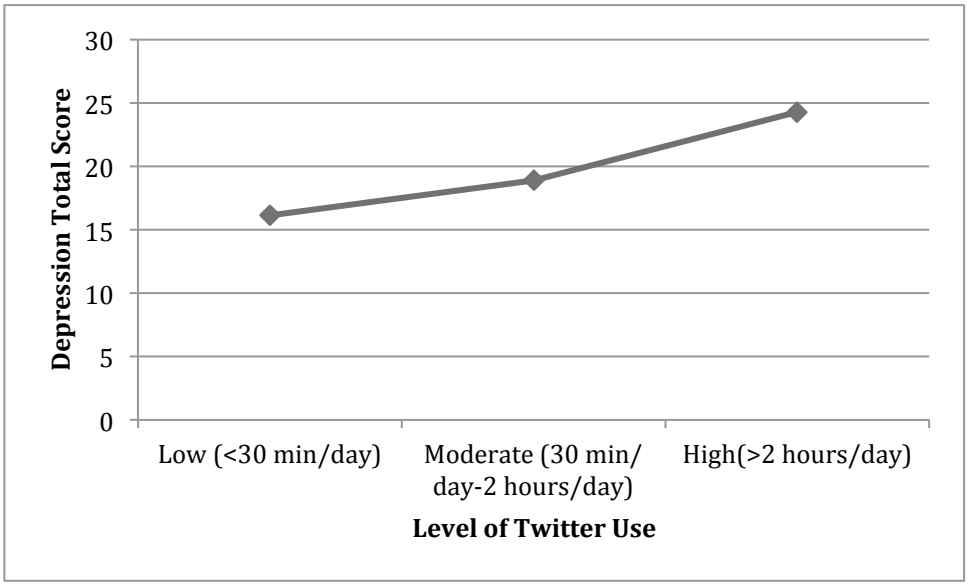


Figure 4 Level of Twitter use on Depression by Gender

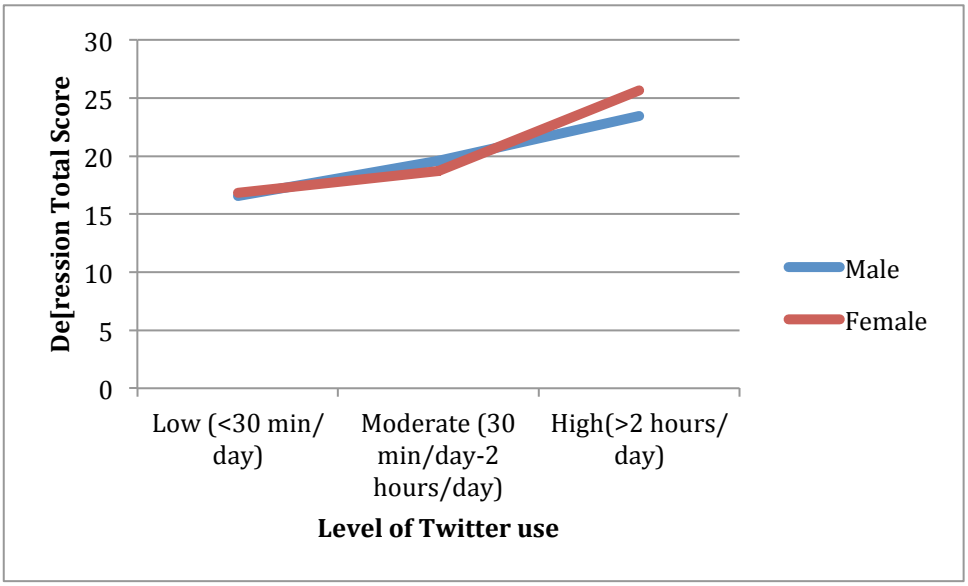


Image-Based Social Media Use

Instagram. Table 8 presents means and standard deviations for the three groups of Instagram use for the dependent variable of depression. Preliminary comparisons revealed that the homogeneity assumption underlying an ANOVA was not met (Levene statistic = 5.73, *df*[2,747] $p = .003$). Therefore, the Welch's *F*-test was used and was significant *Welch's* $F(2, 2441.50) = 6.30$, $p < .001$, indicating that there are significant group differences among the levels of social media use for depression.

Post hoc analyses were assessed using Games-Howell procedure. These results indicated that participants who had a high level of Instagram use had significantly higher scores of depression than those who had a low ($p < .005$) level of use (see also Figure 5).

A two-way ANOVA was assessed to determine whether gender was a significant main effect or interacted with level of Instagram use to predict depression. Similar to the previous model that examined just level of Instagram use, level of Instagram use was a significant main effect ($F(2, 682) = 7.17$, $p < .001$). Similar to the previous models that included gender, gender was not significant ($F(1, 682) = .62$, $p = .43$) (see Figure 6). However, the interaction between gender and level of Instagram use approached significance ($F(2, 682) = 2.51$, $p = .08$).

Table 8 Means and Standard Deviations for Depression Among the Three Groups of Instagram Users

Group	*M*	*SD*
Low	16.44	11.48
Moderate	18.09	12.39
High	21.62	13.13

Note: M = mean, *SD* = standard deviation

Figure 5 Level of Instagram Use on Depression

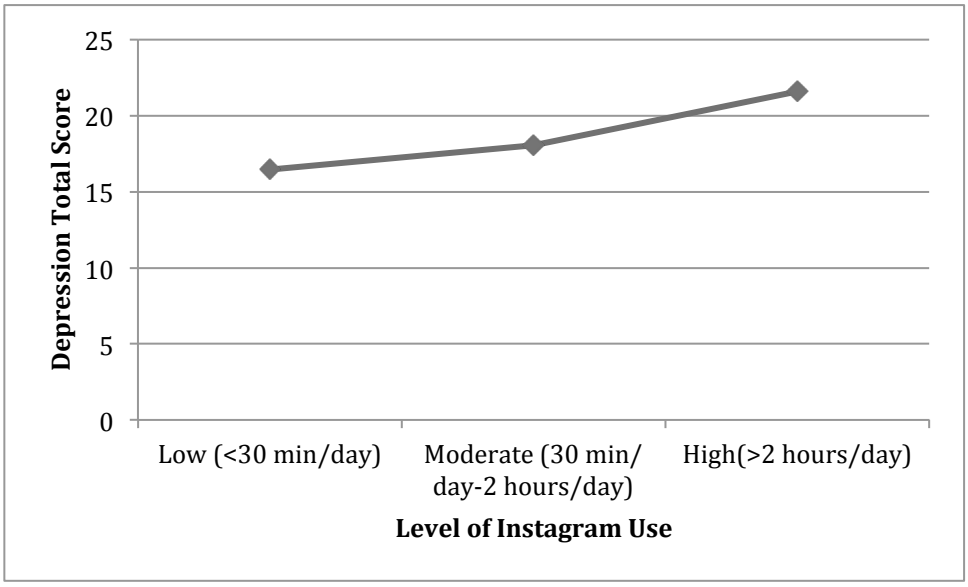
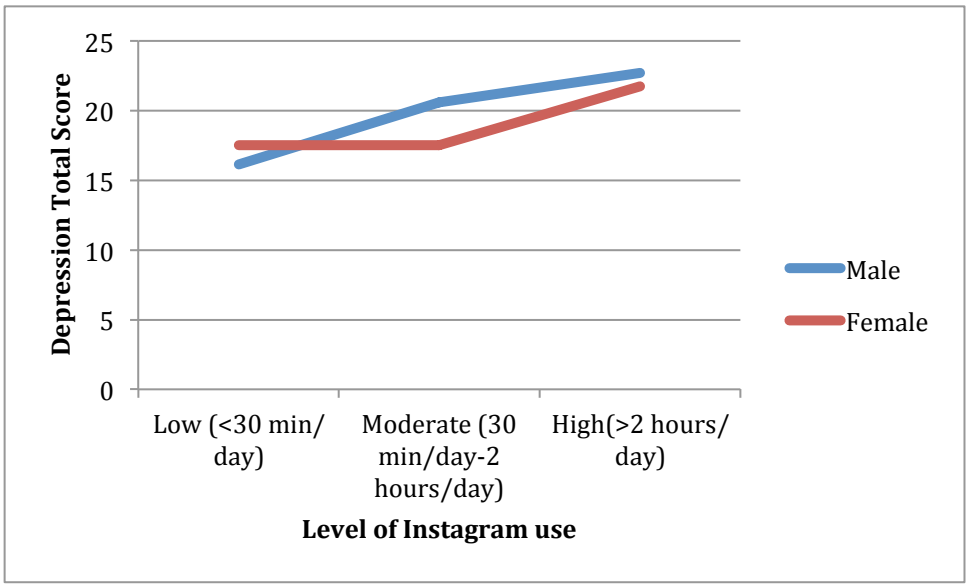


Figure 6 Level of Instagram Use on Depression by Gender



Snapchat. Table 9 presents means and standard deviations for the three groups of Instagram use on the dependent variable depression. Preliminary comparisons revealed that the homogeneity assumption underlying an ANOVA was not met (Levene statistic = 3.74, *df*[2,741] $p = .024$). Therefore, the Welch's *F*-test was used and was significant *Welch's* $F(2, 160.99) = 6.64$, $p < .005$, indicating that there are significant group differences among the level of social media use on depression.

Post hoc analyses were assessed using the Games-Howell procedure. These results indicated that participants who had a high level of Snapchat use had significantly higher scores of depression than those who had a low ($p < .01$) level of use. Interestingly, moderate users of Snapchat had significantly higher scores on depression than lower ($p < .05$) level of users as well (see also Figure 7).

In addition, a two-way ANOVA was conducted to analyze the main effects of level of Snapchat use and gender and whether gender moderated the relationship between the level of Snapchat use and depression. Level of Snapchat use remained significant ($F(2, 676) = 7.14$, $p < .001$), but gender was not a significant main effect ($F(1, 676) = .66$, $p = .42$) (see Figure 8) and it did not interact with level of Snapchat use to predict depression ($F(2, 676) = .71$, $p = .49$).

Table 9 Means and Standard Deviations for Depression Among the Three Groups of Snapchat Users

Group	*M*	*SD*
Low	16.47	11.66
Moderate	19.09	12.48
High	21.45	12.48

Note: M = mean, *SD* = standard deviation

Figure 7 Level of Snapchat Use on Depression

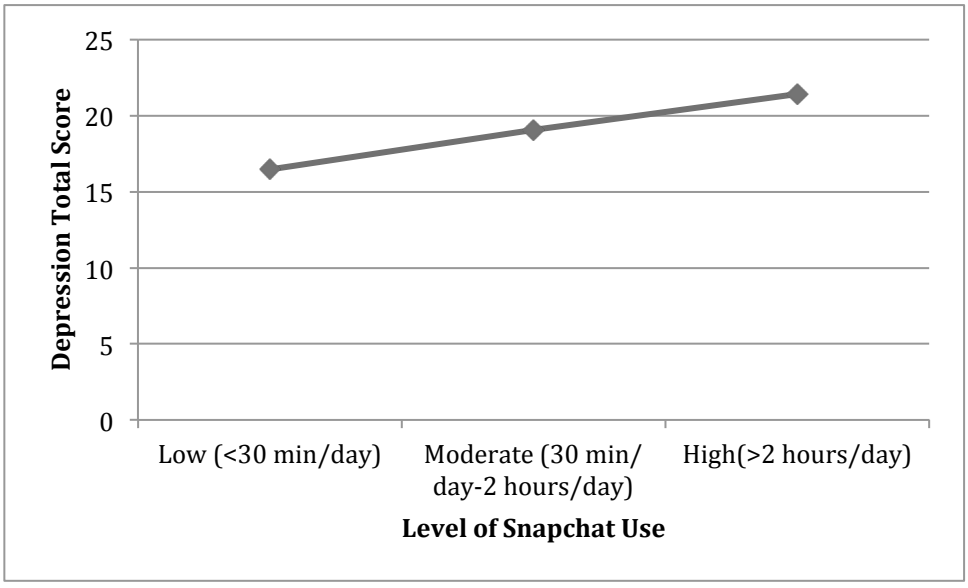
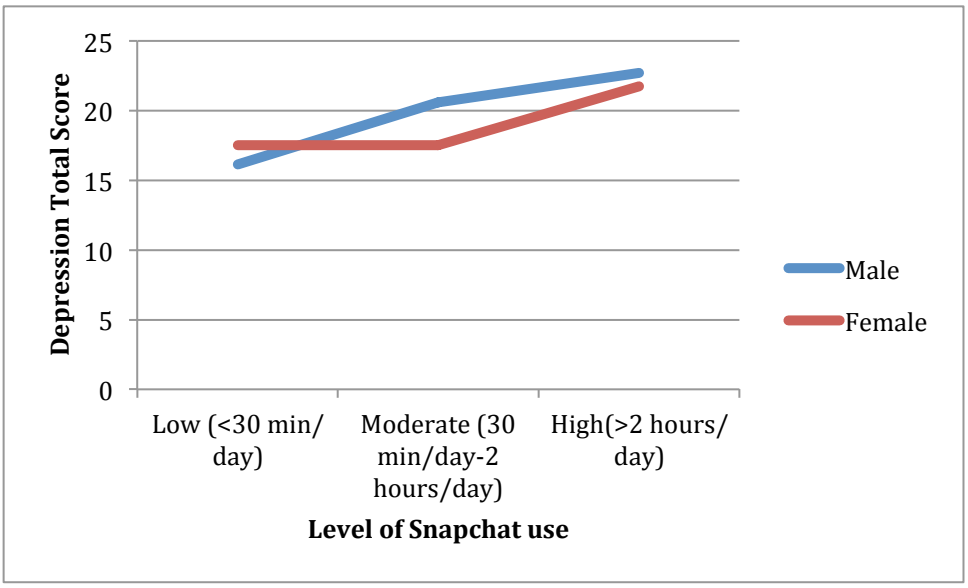


Figure 8 Level of Snapchat Use on Depression by Gender



Does parental support moderate the relationship between social media use and depression?

To assess question #5, a series of hierarchical linear regression models were conducted to determine whether parental support, both maternal and paternal, moderated the relationship between social media use and depression. First, the social media use variables were analyzed as content-based social media (Facebook and Twitter) and image-based social media (Instagram and Snapchat). Second, the parental support variables were continuous variables. Therefore, regression models were conducted. As noted previously, all analyses were completed separately by gender and included age as a control variable. Overall, numerous significant main effects were found but parental support was not found to moderate any of the analyzed relationships.

Hierarchical Linear Regression Results for Females

Content-Based Social Media Use and Maternal Support. As shown below, both content-based social media use (β = .20, p < .001) and maternal support (β = -.27, p < .001) significantly predicted depression. However, maternal support did not moderate the relationship (β = -.05, p = .33)

Table 10 Summary of Hierarchical Regression Analysis for Content Social Media Use and Maternal Support Predicting Depression for Females

Variable	B	SE B	β
Step 1			
Age	0.74	0.44	0.09
Step 2			
Content-Based Social Media Use	2.90	0.69	0.20**
Maternal Support	-3.21	0.59	-0.27**
CB Social Media Use*Maternal Support	-0.64	0.65	-0.05

Note: *p < .05, **, p < .01, ***p < .001

Content-Based Social Media Use and Paternal Support. Content-based social media use (β = .22, p < .001) and paternal support (β = -.22, p < .001) both significantly predicted depression. Paternal support did not moderate the relationship (β = .02, p =.76.) (see Table 11).

Table 11 Summary of Hierarchical Regression Analysis for Content Social Media Use and Paternal Support Predicting Depression for Females

Variable	B	SE B	β
Step 1			
Age	0.73	0.44	0.09
Step 2			
Content-Based Social Media Use	3.05	0.69	0.22**
Paternal Support	-2.77	0.63	-0.22**
CB Social Media Use*Paternal Support	0.22	0.72	0.02

Note: *$p < .05$, **$p < .001$

Image-Based Social Media Use and Maternal Support. For this model, image-based social media use ($\beta = .18$, $p < .001$) and maternal support ($\beta = -.29$, $p < .001$) were significant predictors of depression. However, maternal support did not moderate the relationship between image-based social media use and depression ($\beta = -.08$, $p = .11$) (see Table 12).

Table 12 Summary of Hierarchical Regression Analysis for Image Social Media Use and Maternal Support Predicting Depression for Females

Variable	B	SE B	β
Step 1			
Age	0.74	0.44	0.09
Step 2			
Image-Based Social Media Use	2.40	0.64	0.18**
Maternal Support	-3.53	0.60	-0.29**
IB Social Media Use*Maternal Support	-1.16	0.72	-0.08

Note:*$p < .05$, **$p < .001$

Image-Based Social Media Use and Paternal Support. As indicated below, both image-based social media use (β = .19, p < .001) and paternal support (β = -.24, p < .001) were found to predict depression for females. Paternal support was not a significant moderator in the relationship between image-based social media use and depression (β = -.03, p = .56)

Table 13 Summary of Hierarchical Regression Analysis for Image Social Media Use and Paternal Support Predicting Depression for Females

Variable	B	SE B	β
Step 1			
Age	0.73	0.44	0.09
Step 2			
Image-Based Social Media Use	2.49	0.66	0.19**
Paternal Support	-3.05	0.64	-0.24**
IB Social Media Use*Paternal Support	-0.40	0.69	-0.03

Note:*p < .05, **p < .001

Hierarchical Linear Regression Results for Males

Content-Based Social Media Use and Maternal Support. As shown below, similar to females, both content-based social media use (β = .24, p < .001) and maternal support (β = -.20, p < .001) significantly predicted depression for males. Maternal support did not moderate the relationship (β = .04, p = .48).

Table 14 Summary of Hierarchical Regression Analysis for Content Social Media Use and Maternal Support Predicting Depression for Males

Variable	B	SE B	β
Step 1			
Age	0.75	0.47	0.09
Step 2			
Content-Based Social Media Use	2.37	0.56	0.24**
Maternal Support	-2.49	0.69	-0.21**
CB Social Media Use*Maternal Support	0.40	0.57	0.04

Note: *$p < .05$, **$p < .01$, ***$p < .001$

Content-Based Social Media Use and Paternal Support. Both content-based social media use ($\beta = .25$, $p < .001$) and paternal support ($\beta = -.17$, $p < .005$) were significant predictors of depression. However, paternal support did not moderate the relationship between content-based social media use and depression ($\beta = .02$, $p = .76$) (see Table 15).

Table 15 Summary of Hierarchical Regression Analysis for Content Social Media Use and Paternal Support Predicting Depression for Males

Variable	B	SE B	β
Step 1			
Age	0.75	0.47	0.09
Step 2			
Content-Based Social Media Use	2.51	0.58	0.25**
Paternal Support	-1.95	0.67	-0.17**
CB Social Media Use*Paternal Support	0.17	0.57	0.02

Note: *$p < .05$, **$p < .001$

Image-Based Social Media Use and Maternal Support. As indicated below, similar to the results for females, image-based social media use (β = .22, p < .001) and maternal support (β = -.18, p < .01) significantly predicted depression. However, the interaction between image-based social media use and maternal support in predicting depression was not significant (β = .05,p = .34) (see Table 16).

Table 16 Summary of Hierarchical Regression Analysis for Image Social Media Use and Maternal Support Predicting Depression for Males

Variable	B	SE B	β
Step 1			
Age	0.71	0.48	0.09
Step 2			
Image-Based Social Media Use	2.33	0.61	0.22**
Maternal Support	-2.21	0.69	-0.18**
IB Social Media Use*Maternal Support	0.60	0.63	0.05

Note: *p < .05, **p < .001

Image-Based Social Media Use and Paternal Support. Both image-based social media use (β = .24, p < .001) and maternal support (β = -.13, p < .05) were significantly related to depression. Paternal support did not moderate the relationship (β = .05, p = .37) (see Table 17).

Table 17 Summary of Hierarchical Regression Analysis for Image Social Media Use and Paternal Support Predicting Depression for Males

Variable	B	SE B	β
Step 1			
Age	0.71	0.47	0.09
Step 2			
Image-Based Social Media Use	2.55	0.6	0.24**
Paternal Support	-1.56	0.66	-0.13*
IB Social Media Use*Paternal Support	0.51	0.57	0.05

Note: *$p < .05$, **p<.01, ***p < .001

Chapter 5

DISCUSSION

The goals of the present study were to examine the prevalence of social media use, gender differences in social media use, the relationship between social media use and depression, and the level of social media use in predicting depression, and to assess whether parental support moderated the relationship between social media use and depression.

The Prevalence of Social Media Use

On average, participants spent about an hour on content-based social media (Facebook and Twitter) and about a half hour on image-based social media (Instagram and Snapchat). For the amount of time spent on content-based social media sites, the results from the present study are in line with previous research (e.g. Jelenchick et al., 2013; Junco, 2011). Further, the latest research indicates that emerging adults are spending about twenty-four minutes on Instagram and about twenty minutes on Snapchat (Bennett, 2014), somewhat similar to the present study's findings.

Are there gender differences in social media use during emerging adulthood?

In the present study, there were no significant gender differences in social media use. These results are not in line with previous research, as some research

suggests that females, in general, are more likely to use social media more than males (Duggan et al., 2015). Perhaps this inconsistent finding could be attributed to the uniqueness of this sample. Many previously published studies have used convenience samples, where researchers surveyed mostly introductory-level social science courses. These samples were typically overwhelmingly female and/or Caucasian (e.g. Jelenchick et al., 2013; Kross et al., 2013; Park et al., 2014; Utz et al., 2015), and therefore lacked gender or racial diversity and are not representative of the entire population. Unlike other studies, this sample was a national community sample. Given the diversity of the present sample, the external validity likely is greater compared to other studies. Future research should continue to study gender and racial differences in samples that are more representative of the emerging adult population.

In addition to a lack of significant gender differences in social media use, significant gender differences in depression also were not observed. This finding is inconsistent with the vast literature that suggests that females, in comparison to males, are especially susceptible to developing depression over the lifespan (Berry, 2004; Morris et al., 2013; Morris et al., 2014). However, some research indicates that because emerging adulthood is wrought with extensive growth and change (Arnett, 2007), the assumption that depression increases during adolescence and continues to increase during emerging adulthood may be premature. Arnett (2007) posits that emerging adulthood has the potential for multiple patterns of change for a variety of reasons, such as the decrease of institutional structures that may have bound adolescents. Indeed, recent studies have indicated that depressive symptoms may

stabilize during emerging adulthood (Galambos & Krahn, 2008). For instance, Galambos and colleagues (Galambos, Barker, & Krahn, 2006) found that while emerging adult women had high levels of depressive symptoms and lower levels of self-esteem at age 18 than men did women improved at a faster rate than men did at age 25. Perhaps for females, the transition from adolescence to emerging adulthood brings about an increase in power and independence that may accompany increases in psychological well-being and self-esteem.

The relationship between social media use and depression for emerging adults

For females, results indicated that content-based social media use (Facebook and Twitter) predicted depression, but image-based social media use (Instagram and Snapchat) did not. These results replicate previous findings that found females spent more time on content-based social media sites, like Facebook, than males (McAndrew & Jeong, 2012). For males, both content-based social media use and image-based social media use were not significant predictors of depression. In addition, these results are contradictory to those reported by Jelenchick and colleagues (2013). It is possible that Jelenchick and colleagues (2013) did not find a significant relationship between Facebook use and depression due to a choice in how they measured depression. This study used the Patient Health Questionnaire to measure depression and did not find a significant relationship between Facebook use and depression (Jelenchick et al., 2013), whereas the present study used the CES-D to measure

depression. Previous studies that found a significant relationship between social media use and depression used the CES-D (e.g. Park et al., 2013; Wright, Rosenberg, Egbert, Ploeger, Bernard, & King, 2013). However, comparable to previous research, the present study found that content-based social media use (Facebook and Twitter) significantly predicted depression. The findings from the present study replicate results from previous research suggesting that social media use is significantly associated with depression (e.g. Davila, Hershenberg, Feinstein, Gorman, Bhatia, & Starr, 2012; Hur & Gupta, 2013; Kross, Verduyn, Demiralp, Park, Lee, Shablack, Jonideas, & Ybarra, 2013).

These findings possibly could be explained by two theories—emotion contagion and social comparison theory. Emotion contagion theory suggests that individuals are able to transfer positive and negative emotions and moods to other individuals (Schoenewolf, 1990). Typically, studies that have focused on emotion contagion examine if, in physical interactions, individuals perceive others' positive and/or negative facial cues and then these emotions are transferred to them (e.g. Barsade, 2002). However, Kramer, Guillory, and Hancock (2014) recently found that facial cues are not necessary for emotion contagion to happen. In their study, results suggested that emotion contagion might happen outside of in-person interaction (Kramer et al., 2014). In other words, the Facebook data scientists manipulated the type of content participants saw on their News Feed. When there was less positive content, individuals produced more negative posts and fewer positive posts. In contrast, when there were more negative posts, individuals posted more positive

content and fewer negative posts. These results suggest that other individuals' emotional states may influence our own emotions without the need for facial cues (Kramer et al., 2014). Therefore, results from the current study could possibly be explained by emotion contagion theory, where those who are using social media more frequently may become more depressed, depending on what individuals are seeing online.

Further, social comparison theory could provide another explanation for why social media may influence depression. Developed by Festinger (1954), social comparison theory posits that individuals seek to assess their opinions and abilities. In order to function, individuals need to evaluate their abilities and determine if their assumptions are accurate. In cases when objective standards are not available, individuals will compare themselves with other people who are similar to them (Festinger, 1954). This potential unfair comparison may lead to unwarranted negative consequences. For example, in a sample of adults, Bäzner, Brömer, Hammelstein, and Meyer (2006) found that depressed individuals are more likely to participate in social comparisons compared to those who are not depressed. In addition, past research suggests when individuals compare themselves with others who are better off in some way, these comparisons can decrease individuals' self-esteem and mood (e.g. Ahrens & Alloy, 1997; Gibbons & Buunk, 1999). Unfortunately, particularly on social media sites, many individuals post their highlight reels instead of posting both the positive and negative occurrences that are happening in their lives. Applying past research findings to the context of the current study, it may be likely that individuals who are

spending more time on social media, a place where their friends and family members could be self-selecting the content that they post, feelings of inadequacy may be associated with users feeling more depressed.

When the reverse direction was examined, that is, the study of whether or not depression predicted social media use, the pattern yielded some consistencies. For both emerging adult males and females, depression significantly predicted content-based social media use and image-based social media use. These relationships could possibly be explained by withdrawal hypothesis or as a means of coping. For example, the withdrawal hypothesis proposes that individuals who already are depressed, withdraw from physical interactions, and therefore use other venues to replace the lack of physical interactions. Individuals could be withdrawing physically and then spending more time on social media and receiving their interactions via this medium. Prior research alludes to the hypothesis that depressed individuals withdraw from social and physical activity but increase their media use (Choudhury, Gamon, Counts, & Horvitz, 2013; Romer et al., 2013; Romer, Jamieson, & Pasek, 2009). Depressed individuals therefore, may withdraw from more intensive activities and seek out lower cognitive-intense activities, such as engaging in media use, which could possibly explain why depression is significantly associated with an increase in social media use in the current study.

Some scholars have been interested in determining the causal link in the relationship between social media use and depression. The present study was interested in analyzing whether individuals develop depression first and are then more

likely to engage in more social media use, or whether individuals use social media more frequently and are more susceptible to developing depression. From the results of the current study, it appears that both directions of effect are supported.

Consistent with the developmental contextualism perspective, results from this study indicate that the relationship between social media use and depression is a bi-directional relationship. Based on developmental contextualism, the individual influences the context and the context affects the individual (Lerner, 2001; Levesque, 2011). In accordance with results from the present study, developmental contextualism could explain why the relationship between social media use and depression may be bi-directional instead of unidirectional. Results from this study provide evidence that the more frequently individuals use social media, the more likely they are to have higher scores of depression. In comparison, those individuals who are already depressed may seek out and use social media more frequently. For example, perhaps those users who are already depressed and use social media more frequently could be more frequent users of social media because they are using social media as a coping mechanism. Past research suggests that individuals may use media to psychologically escape or cope with their current situations (Ohannessian, 2009).

Does the level of social media use predict depression?

Findings from this study suggested that the level of social media use might have a varying effect on depression. For example, participants who were heavy users

of all four social media sites (Facebook, Twitter, Instagram, and Snapchat) had higher scores of depression than those who were moderate or low users. These findings are consistent with previous research that suggests that the highest media use is associated with depression (e.g. Romer et al. 2013; Ybarra, Alexander, & Mitchell, 2005). Moreover, these results have implications for future research in terms of examining the nuanced relationship between social media use and depression. According to some researchers, perhaps it is not the amount of time spent online that matters when analyzing the relationship between social media use and depression. Instead, what matters most is what individuals are *doing* or *viewing* on these social media sites (Moreno et al., 2011). However, results from the current study suggest that time spent on these social media sites may be an important factor when studying the influence that social media use has on depression as well. While the latest studies indicate that more emphasis needs to be placed on the types of activities individuals are engaging in online, these results may remind researchers not to discount the idea that frequency of social media use is relevant.

Interestingly, both moderate Twitter users and moderate Snapchat users had significantly higher depression scores than low users of both platforms. Compared to the literature, this is an inconsistent finding. Previously, researchers found that the highest level of media users had higher scores of depression than moderate and low users (Romer et al., 2013). Moreover, moderate use of Internet was actually associated with an increase in extracurricular activities (Romer et al.., 2013), which is a positive outcome compared to the present study's outcome of depression. However, the youth

in the aforementioned study lived in more advantaged neighborhoods, which could suggest that their moderate media use was mitigated by the benefits of living in an affluent community (Romer et al., 2013).

Does parental support moderate the relationship between social media use and depression?

The hypothesis that parental support would moderate the relationship between social media use and depression was not supported. In every model, both content and image-based social media use and parental support (both maternal and paternal) significantly predicted depression in the expected directions. The more time individuals spent on content-based and image-based social media, the higher levels of depressed symptomatology. In addition, higher levels of maternal and paternal support predicted lower levels of depression. Although an interaction was not found between social media use and parental support in the present study, it is apparent, and similar to previous research, that parents still play an important role in their children's lives, even when their children are emerging adults (e.g. Kenny & Sirin, 2006; Pettit, Roberts, Lewinsohn, Seeley, & Yaroslavksy, 2011; Shaw, Krause, Chatters, Connell, & Ingersoll-Dayton, 2004; Sijtsema, Oldehinkel, Veenstra, Verhulst, & Ormel, 2014; Stice, Ragan, & Randall, 2004). In other words, the relationships emerging adults have with their parents still matter, considering parental support was a significant predictor of depression. Even though in the present study, parental support was not a significant moderator between social media use and depression, varying degrees of social support have been shown to be significant moderators. For example, a recent study found that

an adverse family environment, comprised of a variety of elements such as lack of parental support, was related to higher levels of emerging adult depressive symptoms (Reed, Ferraro, Lucier-Greer, & Barber, 2014). Further, the researchers found other types of social support were significant moderators of the relationship between an adverse family environment and emerging adult depression, such as romantic or peer support (Reed et al., 2014). It may be that as long as individuals are receiving some type of support from an individual or a group of individuals, the support may mitigate the potential negative consequences that a lack of parental support has on emerging adult depression. For example, a recent review found online peer-to-peer support to be effective in combating emerging adult depression (Ali, Farrer, Gulliver, & Griffiths, 2015).

Perhaps other factors are more significant moderators that could compensate for the effects of social media use on depression. Variables that are more closely related to social media use may be more salient moderators between the relationship of social media use and depression. For example, Facebook envy may mediate the relationship between Facebook use and depression (Tandoc, Ferrucci, & Duffy, 2015). In a sample of college students, Tandoc, Ferruci, and Duffy (2015) found that Facebook use was linked to Facebook envy and Facebook envy was associated with depression. Participants who were heavy Facebook users had higher levels of Facebook envy, which were related to higher depression scores. In contrast, perhaps there are variables that moderate the relationship between social media use and depression and possibly decrease individuals' depressive symptoms or depression.

Another recent study examined adolescents' daily stress, social support seeking through Facebook, perceived social support through Facebook, and depressed mood (Frison & Eggermont, 2015). Results indicated daily stress positively predicted adolescents' seeking of social support through Facebook. However, when participants sought social support through Facebook, but it was insufficient, seeking social support through Facebook increased adolescents' depressed mood. Further, seeking social support through Facebook positively predicted adolescents' perceived social support through Facebook, which decreased adolescents' depressed mood (Frison & Eggermont, 2015). Although parental support did not moderate the relationship between social media use and depression, different types of social support may be paramount in playing a protective role for social media users developing depression.

On another note, social media sites themselves could act in more protective roles for their users. For example, Tumblr will not allow users to tag their posts with harmful behaviors, like "cutting" or "pro-ana". However, while individuals are able to tell their Facebook friends if they are "okay" after a natural disaster, fewer resources are available in terms of individuals discussing their mental health. Perhaps published scientific research could help spur conversations between mental health researchers and officials and social media sites to ensure users know resources and help are available should they need them.

Strengths of the Present Study

This study adds to the growing literature by exploring social media use and its effect on individuals' lives. Previous research has been limited by small, homogeneous samples, samples that are not representative of the general population. To date, the majority of samples have been overwhelmingly white, female college students (e.g. Jelenchick et al., 2013; Kross et al., 2013; Park et al., 2014; Utz et al., 2015). The lack of diversity of these samples makes it difficult for the findings to have strong external validity. This study addressed this limitation by including a larger and more diverse sample of 18-25 year olds, where almost half the sample was not Caucasian.

Another strength of the study was the inclusion of multiple social media sites. Most of the previous research only focused on Facebook (e.g. Davila et al., 2012; Grieve et al., 2013; Jelenchick et al., 2013; Kramer et al., 2014; Rosen et al., 2013; Simoncic et al., 2014). This is one of the first studies to examine other social media sites, besides Facebook, and their relationship to a psychological outcome. Because this study is one of the first to assess other social media sites, like Instagram and Snapchat, it could possibly provide a foundation for future research. In a world where the most popular social media site are constantly changing, researchers must keep abreast of what sites emerging adults are using the most to ensure they are studying the most relevant area.

Finally, because of the inconsistencies in the literature that suggests either Facebook was related to depression or Facebook was not related to depression, the

present study used a more reliable, valid measurement of depression, the CES-D (Radloff, 1977). Select previous studies (Jelenchick et al., 2013; Simoncic et al., 2014) did not find a significant association between Facebook use and depression, but both studies used different measures of depression. All of the studies that did find a significant relationship between Facebook use and depression used the CES-D. Therefore, since the present study also found a significant relationship between social media use and depression, perhaps the two studies with non-significant findings could be attributed to lack of reliable and valid measurement.

Limitations

Although this study has several strengths, limitations must be noted. First, the study relied solely on self-reported data. One study suggests that, particularly for assessing Facebook use, self-reported time and frequency of time are significantly correlated but have large discrepancies (Junco, 2013). Individuals either vastly underestimate the amount of time they spend on Facebook if they are heavy users or dramatically overestimate the amount of time they spend on Facebook if they are light users (Junco, 2013). Given that the study of social media is still relatively new and is challenging to analyze, self-report assessments seem to be the easiest and most efficient way of capturing this phenomenon. However, future research should continue to use other data collection methods, such as experience sampling methodology (Jelenchick et al., 2013), and use these advanced methods to further the

field's understanding of this complex relationship between social media use and depression.

Another limitation of the present study was the lack of knowledge of what individuals did online (e.g. posting comments or statuses, liking posts, uploading photographs, watching videos). In the present study, participants only were asked how much time they spent online on a given day. While this study demonstrates the importance of continuing to understand and analyze frequency of social media use, future research should collect data on frequency *and* on the types of activities individuals are doing online. Moreover, studies need to account for the fact that social media sites are overlapping in use and ability. For example, an individual can post content on a variety of social media sites but may use them for different purposes. Researchers should intend to create reliable, valid measures to account for this overlap in use.

In addition, the present study was cross-sectional and correlational in nature and therefore unable to detect true casual relationships. It is still unknown if individuals are becoming depressed because they spend so much time on social media or if individuals are already depressed and seeking replacements for physical interactions online. Future research should continue to study the relationship between social media use and depression both longitudinally and experimentally to understand the causal pattern of this relationship.

Finally, future research should include parents' perspectives of their emerging adults' social media use, especially considering a majority of emerging adults still are

living at home with their parents (Settersten & Ray, 2010). Perhaps it is not parental support, per se, that may moderate the relationship between social media use and depression but it may be how parents feel about their children's social media use that could moderate this relationship. If emerging adults feel that their parents think negatively about their social media use, this might incite conflict and may further propagate the effects social media use may have on depression.

Conclusion

Results from the present study highlight the importance of understanding the complicated relationship between social media use and depression. Future researchers should use these findings to inform their next steps in analyzing how social media use may incite higher levels of depression or how heavily depressed individuals might use social media as a coping mechanism. Importantly, results from this study lay a foundation for other researchers to build upon when it comes to studying social media use. Further, the results from the study should inform future interventions that could be put in place to buffer the harmful effects heavy social media use may inflict on individuals. In addition, it would be important for researchers to delineate what processes may underline the relationship between social media use and depression. . In a world where individuals have the Internet at their fingertips and are spending large amounts of time online, research needs to be conducted to address how this context might affect its users. Individuals are so heavily connected to each other in

today's society and many popular news media outlets are coming to the conclusion that this constant connection may have negative consequences, without scientific evidence. Given the mixed findings, results from this study paint a picture suggesting that all social media may not be inherently negative and might not have as much of a negative effect as people would like to believe. The negative dialogue that surrounds social media use may be unwarranted, but it is clear that the highest level of social media users warrant our concern and attention. Current research regarding social media and the effects on our lives is woefully inadequate. Longitudinal studies are warranted from a public health perspective, as well as micro-health viewpoint, to address and utilize these tools for better health for all individuals.

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Appendix A

PARENTAL SUPPORT SCALE

Parental Support/Closeness

1. How close do you feel to your resident (biological, adoptive, step, or foster) mother?
   1 2 3 4 5
   not at all very much

2. How much do you think your mother cares about you?
   1 2 3 4 5
   not at all very much

3. Is your mother warm and loving?
   1 2 3 4 5
   strongly disagree strongly agree

4. Are you satisfied with communication with your mother?
   1 2 3 4 5
   strongly disagree strongly agree

5. Are you satisfied, overall, with your relationship with your mother?
   1 2 3 4 5
   strongly disagree strongly agree

6. How close do you feel to your resident (biological, adoptive, step, or foster) father?
   1 2 3 4 5
   not at all very much

7. How much do you think your father cares about you?
   1 2 3 4 5
   not at all very much

8. Is your father warm and loving?
   1 2 3 4 5
   strongly disagree strongly agree

9. Are you satisfied with communication with your father?
   1 2 3 4 5
   strongly disagree strongly agree

10. Are you satisfied, overall, with your relationship with your father?
    1 2 3 4 5
    strongly disagree strongly agree

Appendix B

TECHNOLOGY USE QUESTIONNAIRE

TECHNOLOGY USE QUESTIONNAIRE 2013

We would like for you to tell us how much you use technology.
Please indicate how much time you spend doing each activity **on an average/typical day** by circling the appropriate number.

For each activity, please circle one of the following:
0 = none
.5 = about a ½ hour
1 = 1 hour
2 = 2 hours
3 = 3 hours
4 = 4 hours or more

	HOURS A DAY					
	0	.5 (about ½ hour)	1	2	3	4 or more
1. Watch TV	0	.5	1	2	3	4
2. Talk on the phone	0	.5	1	2	3	4
3. E-mail or IM	0	.5	1	2	3	4
4. Text	0	.5	1	2	3	4
5. Play video games (PlayStation, Xbox, Wii, etc.) or computer games	0	.5	1	2	3	4
6. Listen to music on an iPod or an online station (Pandora, iHeartRadio, etc.)	0	.5	1	2	3	4
7. Stream movies (through Neflix, etc.)	0	.5	1	2	3	4
8. Read with an e-reader (Kindle, NOOK)	0	.5	1	2	3	4

Appendix C

CENTER FOR EPIDEMIOLOGIC STUDIES DEPRESSION SCALE (CES-D)

Center for Epidemiologic Studies Depression Scale

The purpose of this questionnaire is to find out how you were feeling during the **past week.**
For each sentence, circle either: 1 = You felt or acted this way NOT AT ALL
2 = You felt or acted this way A LITTLE
3 = You felt or acted this way SOMETIMES
4 = You felt or acted this way A LOT

Please **circle** the number below that best describes how you felt or acted during the **past week.**

During the Past Week:	Not At All	A Little	Some	A Lot
1. I was bothered by things that usually don't bother me.	1	2	3	4
2. I did not feel like eating, I wasn't very hungry.	1	2	3	4
3. I wasn't able to feel happy, even when my family or friends tried to help me feel better.	1	2	3	4
4. I felt like I was just as good as other kids.	1	2	3	4
5. I felt like I couldn't pay attention to what I was doing.	1	2	3	4
6. I felt down and unhappy.	1	2	3	4
7. I felt like I was too tired to do things.	1	2	3	4
8. I felt like something good was going to happen.	1	2	3	4
9. I felt like things I did before didn't work out right.	1	2	3	4
10. I felt scared.	1	2	3	4
11. I didn't sleep as well as I usually sleep.	1	2	3	4
12. I was happy.	1	2	3	4
13. I was more quiet than usual.	1	2	3	4
14. I felt lonely, like I didn't have any friends.	1	2	3	4
15. I felt like kids I know were not friendly or that they didn't want to be with me.	1	2	3	4
16. I had a good time.	1	2	3	4
17. I felt like crying.	1	2	3	4
18. I felt sad.	1	2	3	4
19. I felt like people didn't like me.	1	2	3	4
20. It was hard to get started doing things.	1	2	3	4

Appendix D

IRB APPROVAL LETTER

UNIVERSITY OF DELAWARE
RESEARCH OFFICE

210 Hullihen Hall
University of Delaware
Newark, Delaware 19716-1551
Ph: 302/831-2136
Fax: 302/831-2828

DATE:	February 12, 2015
TO:	Jessica Schulz
FROM:	University of Delaware IRB
STUDY TITLE:	[718080-1] Social media use and depression among emerging adults: The moderating effect of parental support
SUBMISSION TYPE:	New Project
ACTION:	DETERMINATION OF EXEMPT STATUS
DECISION DATE:	February 12, 2015
REVIEW CATEGORY:	Exemption category # *(4)*

Thank you for your submission of New Project materials for this research study. The University of Delaware IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations.

We will put a copy of this correspondence on file in our office. Please remember to notify us if you make any substantial changes to the project.

If you have any questions, please contact Nicole Farnese-McFarlane at (302) 831-1119 or nicolefm@udel.edu. Please include your study title and reference number in all correspondence with this office.