

SOCIAL NETWORK SITE USE AND BODY IMAGE AMONG ADOLESCENTS

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Abstract

This study analyzed the relationships between social network site use and body image in adolescents, while taking into account internalized body ideals. Social network sites are a newer form of social media and the research base on them and the effects of interacting with them continues to grow. This study looked at and compared visually-oriented social network sites and non-visually-oriented sites. Further, this study included males, which isn't often done, so comparisons between gender could be made. There were 94 male and female participants, in grades 9-12, from two school districts in rural western New York. Analyses showed that the social networking site use measures lacked strong statistical backing (i.e., reliability and validity), indicating adolescents' potential difficulty with accurate social network site use reporting and a need for better measures. Thus, results should be interpreted with caution. Results indicated that greater usage of social network sites was not related to body image. It was found that greater internalization of appearance ideals was significantly related to poorer body image for both male and female adolescents. For male participants only, a relationship was found that ran contrary to what was hypothesized; male participants who endorsed more visually-oriented social network site use reported more positive body image. For both males and females, there was a relationship between parental education and body image. Additionally, for males, there were also relationships found between parental education and internalization, body mass index (BMI) and body image, and BMI and internalization. These findings encourage further examination of these newer forms of media, internalized body ideals, and body image in adolescence. Additionally, this study demonstrates the need for further research that includes male adolescents.

Chapter I: Introduction

Research has shown that the media plays a role in influencing youth development, with one study indicating that 8- to 18-year-old youth invest approximately 6.5 hours per day in consuming some type of media (Pempek, Yermolayeva, & Calvert, 2009). There are many forms of media use, including social media, music playing, computer games, video games, and television. One of the newest forms of media is social network sites. Social network sites, also referred to as social networking sites, SNS, or social media, are defined as web-based services that allow for a profile creation within a bounded system, the development of connections with other users, and the viewing and traversing among these connections and the system in general (Boyd & Ellison, 2007).

There are hundreds of social network sites, many of which have millions of users. Social network sites tend to vary in terms of their network culture, the degree to which they strengthen pre-existing social networks versus helping to form new connections, the type of audience toward which they are most geared, and the amount of new information and communication tools they offer (Boyd & Ellison, 2007). Many sites offer the opportunity to add photos, publicly display connections, and leave messages for others.

The first recognizable social network site, called Six Degrees, which launched in 1997, enabled users to create and upload their profile and make friends with other users. Several of the most popular social network sites that we know today (e.g., Facebook, Myspace) were launched in the early 2000s. Related, there has been a surge in the sales of smartphones in recent years, with nearly two-thirds of Americans owning a smartphone as of 2015. As a result, mobile devices are serving more and more as a key entry point to the online world and social media (Smith, 2015). This surge in

smartphones provides many people with an easy and frequent way to access social network sites, without having to rely on their personal computer or laptop.

One recent large-scale study was carried out by Common Sense, a nonprofit organization that seeks to improve the lives of children and families by way of providing information and education on relevant topics and issues. This study sought to provide a comprehensive picture of the use of media by U.S. youth ages 8 to 18, by looking at variables such as media enjoyment level, frequency of media use, and time devoted to media activities and devices. Results from this study showed that 67% of teenagers had their own smartphone and that 58% of them used their smartphone on any given day. Of those teens who had and used smartphones, the average daily smartphone use was 4 hours and 38 minutes, with social media use and music playing being the two activities that dominated smart phone usage. Further, mobile devices accounted for 41% of all screen time among tweens (ages 8-12) and 46% of all screen time for teens (ages 13-18), with the remaining screen time being taken in via online videos (e.g., YouTube), TV on other platforms (e.g., Tablet), TV programming on a TV set at the time it is broadcast, time-shifted viewing on a TV set (i.e., watching TV at a time when the show is not actually broadcast), and DVDs (Common Sense Media, 2015b). As of 2018, the percentage of teenagers who had access to a smartphone had risen to 95%, with 45% of teenagers reporting being online almost constantly and 44% saying they go online several times a day (Anderson & Jiang, 2018).

Types of Social Networks

Although there are several social network sites that may have more subscribers and/or popularity than the majority of others, the actual scope of sites is impressively

large. First, there are social connection sites, which are generally used as ways to keep in touch with friends and family members. Examples of these are Facebook, Twitter, and Google +. Second, there are multimedia sharing sites, which provide easy ways to share video and photography content online. Examples include YouTube, Flickr, Snapchat, and Instagram. Further, there are hobby sharing sites, which allow for individuals to share projects, topic ideas, and/or interest/hobby-related information with others who are likeminded (White, 2017). An example is Pinterest. Finally, there are sites that are similar to hobby sharing sites like Pinterest, but with more of a blog-based focus, such as Tumblr. There are an increasing number of social network sites, and existing sites regularly add new and improved features and capabilities. It should be noted that the aforementioned types of social network sites are not hard and fast categories because the landscape of emerging and existing social network sites regularly changes and adapts to meet the consumers' needs and wants.

Prevalence and Popularity of Social Networks

Social network site use is abundant among both adolescents and adults. Regarding adolescents, one study found that 41% of 12- to 13-year-olds and 61% of 14- to 17-year-olds use social networking sites and that the average daily usage of social media was around one hour and 11 minutes (Common Sense Media, 2015b). Among college students, social network usage has been found to be nearly universal (Pempek et al., 2009). In terms of who has a social media profile (i.e., online profile or page), one study found that 26% of 8- to 11-year-olds and 74% of 12- to 15-year-olds had a profile (Ofcom, 2016). As of January 2009, Facebook has been the most popular social network site in the country; Facebook has more than 175 million active users, 68% of U.S. adults

report that they use the site, and the term “Facebook addict” had been included in the Urban Dictionary (Kaplan & Haenlein, 2010, p. 64).

According to more recent research (Pew Research Center, 2017), Facebook is the most widely-used social network site among U.S. adults, in terms of the percentage of people who use the site. More women use Facebook than men, with 74% of U.S. adult women and 62% of U.S. adult men using Facebook. Facebook is most popular among the 18-29 age group, as 81% of people within this age group use it. In terms of other social network site use, 35% of U.S. adults use Instagram, 29% use Pinterest, 27% use Snapchat, 25% use LinkedIn, and 24% use Twitter. Similar to the discrepancies found with Facebook use, women use the sites more than men and the 18-29 age group use all aforementioned social network sites more than any other age group and for all sites besides LinkedIn and Twitter.

Considering 8- to 11-year-olds, Facebook was the most used site, followed by Instagram, Snapchat, YouTube, and WhatsApp. For 12- to 15-year-olds, the most used sites followed exactly the same order, with the fastest growing sites for this age group being Instagram and Snapchat (Ofcom, 2016). As of 2018, Facebook was no longer dominating the social media landscape among teenagers, however, as they reported using YouTube, Instagram, and Snapchat more often than Facebook (Anderson & Jiang, 2018). This means that teens’ social media use is shifting and that the popularity and prevalence of newer visually-oriented sites, such as Instagram and Snapchat, and video sharing sites, such as YouTube, continues to grow.

Social Networking and Body Image

Much research has been done to analyze the impact of social network sites on its users, as the internet has such a pervasive daily presence in the lives of adolescents, young adults, and adults in the U.S. The research has looked at the relationship between social network site use, or more globally internet use, and body image, eating disorder risk, self-esteem, well-being, depression, anxiety, social/political engagement, happiness, envy, perceptions of others, social capital, conduct problems and substance abuse, and life satisfaction. What follows here is an examination of the relationship between social network site use and body image, whereas the remaining research is reviewed in Chapter 2. Body image can be conceptualized as the “psychological experience of embodiment, especially but not exclusively one’s physical appearance,” but moreover it is a multidimensional construct that encompasses self-perceptions and self-attitudes about the body, including how individuals think, feel, see, and treat their bodies (Cash, 2004, pp. 1-2). If one has a positive, healthy, and/or adaptive body image, there is the potential for a host of positive psychological and social effects, but the opposite can be true if one has a negative, unhealthy, or maladaptive body image. Body dissatisfaction is a predictor of eating and weight-related outcomes such as frequent dieting, bulimic symptoms, dietary restraint, and weight gain (Ackard, Croll, & Kearney-Cooke, 2002; Cooley & Toray, 2001, Neumark-Sztainer, Paxton, Hannon, Haines, & Story, 2006; van den Berg & Neumark-Sztainer, 2007). Body dissatisfaction has also been identified as a risk factor for depressive symptoms and as a mediator of the relationship between body mass index and outcomes such as self-esteem (Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006; Wertheim, Koerner, & Paxton, 2001).

Body image and corresponding body concerns and dissatisfaction develop at an early age and continue into adulthood (Common Sense Media, 2015a). Studies have found that youth as young as 6 are concerned with their body image and are exhibiting body dissatisfaction (Lowes & Tiggemann, 2003). More specifically, Lowes and Tiggemann (2003) found that 55-59% of girls between the ages of 6-8 and 33-35% of boys between the ages of 6-8 reported that their ideal bodies were thinner than what their current body was. Further, by age 7, one in four children had engaged in some type of dieting behavior. Research regarding the relationship between social media and body image in teen populations has found that body image/appearance concerns and dissatisfaction persist into adolescence; over half of 10-year-olds reported being afraid of becoming fat, over half of 13-year-old girls reported being unhappy with their body, around 30% of 10- to 14-year-olds were actively dieting, and over half of teenage girls reported using unhealthy weight control behaviors (as did 30% of teenage boys) (Gallivan, 2014). Brown University conducted a study which found that many male and female college students (including those of normal-weight) report thinking about their weight or appearance *all the time* or *frequently* (Brown University, 2015). Given the stability of body image and appearance concerns and body dissatisfaction, which persists from an early age into adulthood, it is imperative to further the research taking place in the realm of body image.

Body image.

Research examining the relationship between social network site use and body image has contradictory findings. Since the research on the relationship between social media and body image is abundant, what follows is representative of findings thus far.

Several studies point to a positive relationship between social network site use and body image concerns and dissatisfaction. For example, one systematic review of the available peer-reviewed research investigating the relationship between social network site use and body image found that across different methodologies, social network site use has been associated with increased body dissatisfaction and disordered eating, with results holding across gender (Holland & Tiggemann, 2017). Tiggemann and Slater (2013) found that for adolescent girls, time spent on the internet was significantly related to the internalization of the idea that a thin body is the ideal body and to greater self-objectification of the body (i.e., habitually monitoring the body's appearance). Further, it was found that Facebook users scored significantly higher on body image concern measures than non-users.

Longitudinal research spanning a period of 18 months, with male and female adolescent participants, has found a positive relationship between social network site use and body dissatisfaction, and between social network site use and increased peer influence on body image (through peer appearance-related discussion and feedback). For both the male and female participants, more social network site use predicted greater future body dissatisfaction and increased peer influence on body image (de Vries, Peter, Graaf, & Nikken, 2016).

Not all research has come to this conclusion, however, as other research has identified potential mediating variables in the relationship between social network site use and body image. For example, Fardouly and Vartanian (2015) found that the positive relationship between Facebook use and body image concerns in college females may be mediated by the following variables: the frequency with which one makes general appearance comparisons between themselves and others, the frequency with which one

compares their appearance to the appearance of their friends and peers, and the frequency with which one makes upward comparisons, such as comparing oneself to celebrities or those who are famous. Additionally, other researchers, such as Meier and Gray (2014), have found that overall Facebook usage is not significantly correlated with any measures of body image in adolescent females. While these dissenting results do not necessarily rule out either a positive or negative relationship between social network site use and body image, the research that supports that exposure to media does negatively impact body image is more abundant.

Visually-oriented social network sites and body image.

Several of the fastest growing social network sites, including Snapchat and Instagram, have a strong focus on photo-related activities (i.e., editing, viewing, sharing) and thus researchers have sought to find out if these photo-focused sites and/or the practice of sharing photos on social media is related to body image or dissatisfaction. Research carried out by the Center for Generational Kinetics revealed that among Generation Z, which includes those born from the mid-1990s to the early 2000s, the popularity of both Snapchat and Instagram is on the rise; more specifically, Snapchat is being sought out more often for posting/sending a video of oneself or posting/sending a selfie and Instagram is being sought out more for following the brands one likes (Boucher, 2016). A recent documentary, entitled *Social Animals*, found that for adolescents, Instagram is increasingly being used for self-marketing, asserting individuality, and social activity such as messaging, flirting, dating, and bullying (Talbot, 2019). A study done by McLean, Paxton, Wertheim, and Masters (2015) examined the relationship between social media photo-related activities and body dissatisfaction in

adolescent females (mean age 13.1 years). Females who reported regularly sharing self-images on social media did experience higher levels of overvaluation of their shape and weight, body dissatisfaction, dietary restraint, and internalizing of the thin-ideal than females who did not regularly share self-images. Further, engaging in more manipulation of self-images and having greater investment in the self-images prior to sharing them on social media were both related to greater overvaluation of shape and weight, body dissatisfaction, and dietary restraint.

A bevy of related studies have looked specifically at the impacts of one photo-related social network site, Instagram. One experimental study, which took place in Australia, exposed its college female participants to fitspiration images from Instagram. These fitspiration images are meant to inspire people to exercise and eat healthily in order to obtain a certain type of body. That said, exposure to these images resulted in a more negative mood and body dissatisfaction (Tiggemann & Zaccardo, 2015). Cohen, Newton-John, and Slater (2017) also found that social network site use could be detrimental after conducting a study which looked at the Facebook and Instagram appearance-focused activities of young women (ages 18-29). The researchers found that although appearance-focused social network site use was related to body image concerns for young women, general social network site use was not. More specifically, although engaging in photo activities on Facebook was associated with greater thin-ideal internalization and body surveillance, general Facebook use was not. Similarly, although following appearance-focused accounts on Instagram was associated with thin-ideal internalization, body surveillance, and drive for thinness, following appearance-neutral accounts was not.

Despite these concurring findings, other recent research has revealed results that are inconsistent with the above research. Slater, Varsani, and Diedrichs (2017) conducted a study with female undergraduate student participants between the ages of 18-25, from the south of England and Wales. The researchers found that exposure to fitspiration images did not relate to significantly poorer body image or negative mood compared to exposure to neutral Instagram images. Results did reveal, however, a relationship between fitspiration image viewing and self-compassion, which is an engagement in self-kindness and learning to understand that flaws and making mistakes are part of human nature. More specifically, the results showed that women who viewed fitspiration images reported significantly less self-compassion at post-exposure than those women who had not viewed fitspiration images. In this same study, researchers found that self-compassion is beneficial to women's body image.

A study by Ruotsi (2017), which involved University of Arizona students between the ages of 18-54, found no statistically significant correlations between student Instagram use and levels of body dissatisfaction. The researchers looked at Instagram use in a variety of ways in order to try to detect if any of the ways Instagram can be used were related to body dissatisfaction. Specifically, Instagram use was looked at in terms of how many diet accounts participants followed, the amount of time that was spent editing photos by the participants, the minutes per day participants spent on Instagram, and the days per week participants used Instagram, but no significant results were found. Overall, these mixed research results indicate that further research is necessary to understand the impact that exposure to this type of social media imagery might have on body image and body dissatisfaction.

Gender and differences in body image.

Many studies examining the relationship between social network site use and body image focus on females, to the exclusion of males. A series of two meta-analyses were conducted in 2008 in order to determine the extent to which mass media pressure to conform to the muscular/ideal male body type affects men's self-image (Bartlett, Vowels, & Saucier). Results indicated that males feel pressure from the mass media to look a certain way and that this results in them feeling worse about their bodies. Negative correlations were found between media pressure and body satisfaction, body esteem, and self-esteem, while positive correlations were found between media pressure and psychological disorders (e.g., depression) and behavioral outcomes (e.g., excessive exercising). Although this posits that both male and female's body image is affected by media, it is important to analyze the ways in which males and females experience body image concerns differently.

A study done by Grossbard, Lee, Neighbors, and Larimer (2009), which involved male and female first-year college students, looked at gender differences in body image concerns and the relationship between contingent self-esteem (i.e., self-esteem based on the approval of others or on social comparisons) and body dissatisfaction. Results showed that female college students had greater concerns about weight and body shape than males, whereas males had a greater drive for muscularity than females. Analyzing the relationship between contingent self-esteem and body dissatisfaction revealed that greater contingent self-esteem had a stronger association with weight and body concerns among females than among males. For males, greater contingent self-esteem was associated with a stronger drive for muscularity.

The previous study builds on the findings of older research which found that for first-year college students, self-esteem was consistently related to body image satisfaction for women, but significantly less so for men (Lowery et al., 2005). This research also found that women demonstrated a more negative body image than men, even when level of exercise (i.e., degree to which one regularly exercises) was controlled for. Furnham, Badmin, and Sneade (2002) looked at body dissatisfaction in an adolescent population (16-18-year olds in England) and their results showed some of the same themes that were previously mentioned. Whereas adolescent boys were more likely to want to gain weight in order to become more muscular, very few adolescent girls desired to be heavier, as the majority wanted to be thinner. Body dissatisfaction was related to lower self-esteem in females, not males. It was also found that adolescent girls engaged in more disordered eating than adolescent boys.

One study took a slightly different approach and looked at the differences in body image and eating disturbances in male and female heterosexual and homosexual samples (Gettelman & Thompson, 1993). Participants in the study were in their mid-20s. Heterosexual females were found to be the most concerned with appearance, weight, and dieting, and to have the greatest body image concerns and highest levels of eating disturbances. Homosexual males showed slightly fewer appearance/weight/diet concerns and slightly fewer body image concerns and eating disturbances than heterosexual females, but still significantly more than homosexual females and heterosexual males. Heterosexual males had the fewest body image disturbances and eating disturbances. More research with LGBTQ individuals is needed to better understand differences related to body image experiences.

Current Study

Examination of the recent literature has revealed that relative to the available research regarding the relationship between traditional media use (e.g., tv, internet, magazines) and body image, there is noticeably less research that examines the relationship between social media use and body image (Common Sense Media, 2015a). Additionally, less research in both of these veins of study have focused on children and adolescents as most studies have looked at young adults. Further, the majority of available research has focused on females to the exclusion of males. The recent literature has also focused almost exclusively on the social network site, Facebook, with the literature suggesting that newer social network sites and their effects on body image could be further explored (Jong & Drummond, 2013). Expanding upon earlier research by looking at both adolescent males and females and measuring their social network site use across various sites helped to further inform the field and provide new insights into the relationship between social network site use and body image. Since experimental research has demonstrated that viewing images that portray the thin-ideal or fit/lean body type can be particularly detrimental to body image, it was important to note if this correlational and descriptive research shows different relationships between more visually-oriented social network sites and body image than less visually-oriented social network sites and body image. This study examined the relationship between social networking site use and body image in adolescents and measured social network site use across several sites. Due to the inclusion of male and female adolescent participants and the measurement of usage across a variety of social network sites, this research differed from previous research.

The current study addressed the following hypotheses:

1. Individuals who endorse greater social media usage will have more negative body image than individuals who endorse lower levels of social media usage.

The rationale for this hypothesis came from the studies that have pointed to a detrimental relationship between social network site use and body image (de Vries et. al., 2016; Holland & Tiggemann, 2017; Tiggemann & Slater, 2013).

2. Individuals who endorse greater usage of visually-oriented (photo-focused) sites will have more negative body image than individuals who endorse lower levels of visually-oriented (photo-focused) site usage.

The rationale for this hypothesis came from the studies that have pointed to a relationship between photo-focused sites and body image dissatisfaction (McLean et al., 2015; Tiggemann & Zaccardo, 2015) and the need for further exploration as evidenced by some researchers' diverging results regarding the aforementioned relationship (Ruotsi, 2017; Slater et al., 2017). Image networks, such as Instagram, Snapchat, Pinterest, and Flickr, are a newer burgeoning subset of social networking sites that put visual representation and photo sharing at the forefront; this differs from the many other professional, video, information sharing, and blogging-based social network sites that do not place such a heavy focus on visually-oriented content (Digital Guide, 2017). With the visual content and means of content sharing that these image networks utilize, it is likely that these sites will have different impacts and leave different impressions on users, when compared to other types of social network sites.

3. Females will endorse using social network sites more than males.

The rationale for this hypothesis came from previous research regarding the differences in teen female and male social network site use. For example, one study found that teen (13-18 years old) females spent about 40 minutes more a day on social media sites than males and more female teens reported using social media daily than male teens (Common Sense Media, 2015b).

4. The relationship between social network site use and body image will be stronger for females than for males.

The rationale for this hypothesis came from previous research which demonstrated that more females were using social media daily and that females were spending more time per day on social media sites (Common Sense Media, 2015b). Additionally, previous research has shown that women demonstrate a more negative body image than men, are more concerned with appearance, weight, and dieting, and have a greater number of body image concerns (Gettelman & Thompson, 1993; Lowery et al., 2005). Since females have been found to spend more time engaging with social media and hold more negative perceptions of their bodies, it was predicted that there will be a stronger relationship between females' social network site use and body image than males'.

5. The relationship between social network site use and body image will be stronger for individuals who endorse a higher degree of internalization of appearance ideals than for individuals who endorse a lower degree of internalization of appearance ideals.

The rationale for this hypothesis came from the research findings suggesting that those who are exposed to appearance ideals (e.g., through magazines) and those who engage in forming personal body ideals and perceptions based upon these ideals and/or

engage in the appearance culture (e.g., having conversations with friends focused on appearance) regularly have greater feelings of body dissatisfaction and body shame than those who are not exposed to or engaged in these ideals (Bessenoff & Snow, 2006; Jones et al., 2004). Since the internalization of societal appearance ideals is associated with more negative body image, it was predicted that the degree to which an individual internalizes appearance ideals will affect the relationship between social network site use and body image.

Chapter II: Literature Review

As stated earlier, there has been a large volume of research in the past two decades which has analyzed the impact of social network sites on adolescent, young adult, and adult users. In this chapter, the relationship between demographic variables (i.e., age, gender, race/ethnicity, and parents' education level) and social network use will be examined, as will the relationships between social network site use and health-related variables (i.e., self-esteem, well-being, social capital, anxiety, conduct problems and substance abuse, eating disorder risk, and body image). To further understand the relationship between social network site use and body image, the history of body image research will be explored as will the following relationships: use of other media platforms (e.g., television, magazine) and body image, media-based body-image platforms (e.g., Instagram) and body image, internalization of appearance ideals and body image, and demographic variables (i.e., age, gender, race/ethnicity, and parents' education level) and body image. While the broad findings are representative of the available findings, they do not represent an exhaustive coverage of all relevant research.

Demographic Variables and Differences in Social Network Use

Research has shown that social media usage can vary depending upon age, gender, race/ethnicity, and parents' education level. With regard to how the use of social media differs based upon age, a large-scale census study found the following differences between teens' (ages 13-18) and tweens' (ages 8-12) social media use: on average, more teens reported enjoying social media, using social media on a daily basis, and spending more time per day on social media than tweens. Specifically, 36% of teens reported enjoying social media a lot while 13% of tweens reported enjoying social media a lot.

Moreover, 10% of teens reported that social media use was their favorite activity, while 4% of tweens reported that social media was their favorite activity. The percentage of teens who used social media every day was 45% whereas the percentage of tweens who used social media every day was 10%. Lastly, among those teens and tweens who used social media, the average time teens spend on social media per day was 2 hours and 4 minutes while the average time tweens spent on social media was 1 hour and 43 minutes. Considering all teens and tweens included in the census study, teens spent an average of 1 hour and 11 minutes using social media, whereas tweens spent an average of 16 minutes per day using it (Common Sense Media, 2015b).

One recent study (Mérelle et al., 2017) looked at whether problematic video-gaming or problematic social media use could affect adolescents' health in a significant way. The study involved 21, 239 secondary school participants (mean age 14.4 years), all of whom live in the Netherlands. Results indicated that both problematic (i.e., addictive, compulsive) video-gaming and social media use were associated with health-related problems such as conduct problems and sedentary behavior. It was gender, however, that ended up being the most relevant demographic factor. Males were at a higher risk for problematic video-gaming whereas females were at a higher risk for problematic social media use.

This research supports earlier Census results that revealed males and females have different media preferences and habits. While both males and females reported listening to music and using social media often, females did report spending more time doing these activities and enjoying them more. Specifically, teen (13-18 years-old) females spent about 40 minutes more a day on social media sites than males. They also reported

enjoying social media more than male teens, as 44% of female teens and 29% of male teens reported enjoying social media a lot. Further, more female teens reported using social media daily than male teens (52% compared to 38%; Common Sense Media, 2015b). Lastly, in a later study, more teenage girls (50%) reported being near-constant online users than teenage boys (39%; Anderson & Jiang, 2018). Research carried out by the Center for Generational Kinetics revealed that among Generation Z, which includes those born from the mid-1990s to the early 2000s, females averaged 12% more usage in all measured social media situations than males. The measured social media situations included checking group events on Facebook, creating group events on Facebook, posting or sending a video of oneself on Snapchat, posting and sending a selfie on Snapchat, following brands they like on Instagram, and setting up fake social media accounts on Instagram. The research indicated that while males and females accessed the same sites and used the sites for similar reasons, females spent more time on these sites than males (Boucher, 2016).

Social media is popular among teens, regardless of race/ethnicity, as 58% of White teens, 57% of Black teens, and 55% of Hispanic teens reported using social media every day and were equally likely to report liking social media a lot. There is some evidence, however, that social media use might be particularly enjoyed by Black teens, as 18% of Black teens said using social media was their favorite media activity, while only 8% of White teens and 9% of Hispanic teens said the same. Further, for those teens who did use social media daily, Black teens spent about an hour more per day using social media than White and Hispanic teens (Common Sense Media 2015b).

There is evidence that SES could impact the amount of time youth spend engaging with social media. Socioeconomic status (SES) refers to a combined economic and social variable which includes a person's work experience and/or a family's economic and social position in relation to others, based on income, education, and occupation (American Psychological Association, 2018). The 2015 Census study (Common Sense Media 2015b) revealed that teens more often access social media through smartphones, rather than through any other type of device, and 63% of teens' social media time is spent on smartphones. There are differences, however, in ownership of smartphones as a result of differences in income, as 65% of lower income teens had a smartphone while 93% of higher-income teens had one. Tweens and teens from lower-income families have been found to spend more time with media than those from higher-income families (average difference of two hours and 45 minutes per day). Similarly, teens and tweens whose parents have a high school education spend more time with media than those whose parents graduated from college (average difference of 1 hour and 50 minutes per day). These findings suggest that there may be a negative correlation between SES and media consumption, where those from lower-income families and/or those from families with less parental education who do engage in media-related activities, spend more time doing so.

Social Networking and Health-Related Variables

In order to better understand the effects that social media use can have on different facets of individuals' health, the research base is examined below. The relationships between social network site use and a variety of health-related variables will be looked at in greater depth. These health-related variables include self-esteem, well-

being, social capital, anxiety, conduct problems and substance abuse, eating disorder risk, and body image. When applicable, contrary or diverging results are described, and the broad findings can be considered to be representative of the research findings that are available.

Self-esteem.

Self-esteem is the evaluative component of self-concept, meaning it incorporates a person's positive and/or negative evaluation of themselves as well as their views about how worthwhile and competent they are (Coopersmith, 1967). Self-esteem can be conceptualized as both a stable trait that develops and remains consistent over time as well as a fluid state that responds to daily happenings and contexts (Heatherton & Polivy, 1991). Diverging results have been found when exploring the relationship between social network site use and self-esteem. Valkenburg, Peter and Schouten found (2006) that it was not so much the frequency with which an individual used social networking sites, but rather the type of feedback being received on the site, that impacts one's self-esteem. This research focused on adolescents' social self-esteem, defined as their evaluations of their self-worth or satisfaction with their physical appearance, romantic attractiveness, and the ability to form and maintain close friendships. Although the frequency of social network site use was found to have an indirect effect on adolescents' self-esteem, the type of feedback they received had a direct effect, with positive feedback enhancing social self-esteem and negative feedback decreasing it. Therefore, while adolescents who always or predominantly receive positive feedback on their profiles may experience an enhancement of their social self-esteem after interacting with social network sites, those

adolescents who always or predominantly receive negative feedback on their profiles may experience aversive effects on their self-esteem.

Like adolescents, college students' use of social network sites, particularly Facebook, does seem to be related to self-esteem. In one study, adolescents' frequency of social network site use had only an indirect effect on self-esteem and college students' frequency of social network site use was found to directly relate to self-esteem. More specifically, spending a lot of time on Facebook was negatively related to self-esteem (Kalpidou, Costin, & Morris, 2011). Similarly, Vogel, Rose, Roberts, and Eckles (2014) found that Facebook use was associated with lower trait self-esteem (i.e., enduring self-esteem across time/situation) in college students and that temporary exposure to Facebook profiles lowered college students state self-esteem (i.e., momentary, situational form of self-esteem) and relative self-evaluations.

Not all research found that social network site use was related to lower self-esteem, however, as Gonzalez and Hancock (2011) found that for college students, becoming self-aware of their Facebook profile, by updating their profile and viewing it regularly, actually enhanced self-esteem. Collectively, research demonstrates that there is a relationship between social network site use and self-esteem, albeit one that cannot be considered wholly positive or negative. Perhaps spending time on a social network site can aid in bolstering self-awareness and one's liking of their self-presentation for some, but it also seems that adolescents may be vulnerable to the negative feedback that can permeate social network site profiles and that college students may experience negative effects from spending too much time on social network sites.

Well-being.

Well-being is a state of comfort, health, and happiness which incorporates how a person feels and how satisfied they are with their life (Kross et al., 2013). Recent studies have demonstrated a negative relationship between social network site use and well-being. Researchers found that years of using Facebook was related to one's perception of others' lives and their own life, as those who had used Facebook for a longer period of time more strongly believed that others were happier than they were and less strongly believed that life is fair. Similarly, the number of hours spent on Facebook each week was also found to also relate to one's perception of others' lives and their own, as those who spent more time on Facebook each week more strongly believed that others were happier than they were and that others had better lives than they did. Further, the more *friends* people included on their Facebook that they did not know on a personal basis, the stronger they believed that others had better lives than they did (Chou & Edge, 2012). Kross et al. (2013) found that the more young adults used Facebook, the worse they felt moment-to-moment and the less satisfied they were with their lives over time (i.e., several weeks thereafter). The researchers also found no evidence to support plausible alternative interpretations of these results, as interacting with other people directly did not predict declines in well-being and the declines in well-being were not influenced by the size of people's Facebook networks, their perceived supportiveness, motivation for using Facebook, gender, loneliness, self-esteem, or depression.

Several researchers have proposed and researched the notion that interacting with peer-dominated social networking sites generates upward social comparison and brings forth feelings of envy and jealousy, which in turn negatively impact one's well-being. Fox and Moreland (2015) found that young adult and adult Facebook users feel pressured

to access the site frequently due to the fear of missing out and keeping up with relationship maintenance demands; however, they reported that when they do use Facebook, users are engaged in constant comparison (e.g., number of Facebook friends, Facebook posts) to other network members, which triggered jealousy and dissatisfaction. Krasnova et al. (2013) found that the passive following (i.e., scrolling, not actively engaging with people/posts) on Facebook was related with experiencing envious emotions. Specifically, Facebook users experienced feelings of envy towards others' happiness, the way others spend their vacations, and the ways in which others socialize. Altogether, the presence of such feelings contributed to undermining overall life satisfaction and happiness. Similar results were found by Verduyn et al. (2015), namely that passive Facebook use was related to negative changes in affective well-being (i.e., how people felt over time) and an increase in feelings of envy, even when active Facebook use, non-Facebook online social network use, and direct social interactions were controlled for.

Social capital.

Social capital is a multidimensional construct that involves the networks of relationships among different people and members of society, the features of one's social life that enable people to act together more effectively and pursue shared objectives within their communities, and the value of bonding similar people and bridging diverse people (Valenzuela, Park & Kee, 2009). Research thus far demonstrates a positive relationship between social network site use and several facets of social capital. To offer an example, Deters and Mehl (2013) found that posting more status updates on Facebook, and thus having greater interaction with others through Facebook, was related to reduced

feelings of loneliness and increased feelings of connection to friends in college students. This increase in connectivity with friends and thus the strengthening of relationships within one's social network is a key component of social capital. These results are in accordance with what earlier have studies have found. For example, Ellison, Steinfield, and Lampe (2007) found a strong positive association between college students' Facebook use and three different types of social capital, which include bonding capital, bridging capital, and maintained capital. To further explain these associations, bridging capital refers to the weak ties or loosely-based connections with other individuals which provide information and perspective; bonding capital refers to the emotional and personal support provided by family, close friends, and other close/tight-knit relationships; and maintained capital refers to the ability to stay in touch with people who are a part of your social network but who you are not seeing/interacting with in person. Similar to the results of Ellison et al. (2007), Burke, Marlow, and Lento (2010) found that social network site use was associated with increased social capital and reduced loneliness in adults.

In a similar vein of study, Valenzuela et al. (2009) found a positive relationship between college students' Facebook use and their stock of social capital. More specifically, higher intensity of Facebook use, measured by number of Facebook friends, amount of time spent on the site per day, and level of agreement with statements gauging users' emotional attachment to the site revealed the following: more intense Facebook use was positively correlated with social trust (i.e., how much you feel other people can be trusted), civic engagement (i.e., community or nonpolitical group volunteering/participation), and political participation. Gil de Zúñiga, Jung, and

Valenzuela (2012) found that for young adults and adults, those who seek information from social network sites more often report higher levels of social capital as well as more engagement in civic and political action. In this study, levels of social capital were measured via the degree to which participants felt intimate in the community, shared community values, talked about community problems, felt connected, helped resolve problems, and watched out for community members.

A meta-analysis which included 36 studies, one of which was the Valenzuela et al. (2009) study, looked at the relationship between social media use and participation in civic and political life (Boulianne, 2015). The studies included in the meta-analysis included both general population and student samples. The measurement of social media included variables such as the general hours of use, building of social networks, and online news or political information consumption. The measurement of participation included variables such as campaigning (e.g., voting and persuading others to vote), protesting (e.g., petitions, marches and demonstrations), and civic engagement (e.g., volunteering and donating). Overall, this meta-analysis demonstrated a positive relationship between social media use and participation in political and civic life, with 82% of the coefficients being positive and half the coefficients being statistically significant. Since the studies in this meta-analysis which employed a random sample of youth were more likely to report significant effects than studies using other types of samples (i.e., not entirely youth), the researchers attributed some of the difference in their research findings to whether or not a general population sample was utilized. Overall, this meta-analysis demonstrated that social media use appears to be an efficient single

indicator of political engagement among young people, as it explained more variance than other demographic variables.

Depression.

When considering social network site use, particularly Facebook, there is the mention of a phenomenon called Facebook depression, insinuating that the use of certain social network sites may create a negative change in underlying mood (O’Keeffe & Clarke-Pearson, 2011). Research on the matter has been mixed. A systematic review of 30 quantitative studies (Baker & Algorta, 2016) captured these diverse findings, as well as several mediating factors/variables. Of the studies analyzed, only 16% found a positive correlation between engagement in online social networking and symptoms of depression. The majority of studies suggested a relationship between online social networking and depression that involves multiple psychological, social, behavioral, and individual factors that may mediate or moderate the relationship. Some of these factors were the frequency, quality (e.g., negative social networking interactions, social support satisfaction, and perceived social connectedness), and type (e.g., posting or surveilling others’ posts) of social network site use, as well as gender and personality factors (e.g., neuroticism).

One study included in the Baker and Algorta review (2016), which took place in Greece and included participants between the ages of 18-34, examined the relationship of social networking site problematic usage with personality characteristics (i.e., neuroticism, agreeableness, conscientiousness, openness to experience, and extraversion) and depressive symptomatology. Problematic usage included the cognitions and behaviors related to social network site and internet use that affect psychosocial health

(i.e., mood alteration, perceived social benefits, negative outcomes, compulsive use, excessive time online, withdrawal, and social control). The depressive symptoms assessed were a variety of affective, cognitive, and somatic ones. Researchers found that the higher the problematic SNS usage, the higher the depressive symptomology. Further, participants higher in neuroticism spent significantly more time on social networking sites, had higher levels of problematic SNS usage and exhibited more depressive symptoms. Conversely, individuals higher in the trait of agreeableness were found to have lower problematic SNS usage. There were no significant relationships found between problematic SNS use and conscientiousness, openness to experience, or extraversion (Giota & Kleftras, 2013). Such studies point to the complexity of the relationship between social network site use and depression.

Jelenchick, Eickhoff, and Moreno (2013) conducted a study with undergraduate students between the ages of 18-23 to examine the association between social networking site use and depression. Through the use of a real-time assessment of internet use (i.e., the administration of a number of surveys over a seven-day period via the sending of text messages to and from participants' personal cell phones) and a validated clinical screening instrument for depression, no evidence to support the relationship between social network use and moderate/severe depression in older adolescents was found.

Conversely, several other studies have found a relationship between social network use and depressive symptoms. Feinstein et al. (2013) examined whether the tendency to negatively compare oneself with others while using Facebook led to increases in depressive symptoms and whether this relationship was mediated by increases in rumination. Participants included college-age young adults. The researchers

did find that negatively comparing oneself with others seen on Facebook may place college students at risk for rumination and, in turn, depressive symptoms. Sagioglou and Greitemeyer (2014) conducted two studies, both utilizing young adult and adult participants, and found that: 1) more time spent on Facebook was related to a more negative mood, and 2) Facebook activity led to deterioration in mood compared to two different control conditions. In conducting two studies, Steers, Wickham, and Acitelli (2014) found that for college students, spending more time on Facebook was related to experiencing more depressive symptoms, as a result of the way in which they compared themselves and their lives to other individuals on Facebook (i.e., social comparison). Tandoc, Ferrucci, and Duffy (2015) came to the conclusion that for college students, using Facebook in a surveillance manner (i.e., looking over the content but not actually interacting with the content/people or posting anything) and using Facebook more often were both related to depression, but the relationships were mediated by Facebook envy. Facebook envy includes feelings of envy towards others' happiness, the way others spend their vacations, and the ways in which others socialize. These results indicated that Facebook use on its own did not directly lead to depression but that Facebook use (both amount of use and type of use) was linked to Facebook envy and that Facebook envy was linked to depression.

Several researchers have recognized that although there may be a relationship between social network use and internalizing symptoms (e.g., depression), the relationship may be bi-directional, and it could be the internalizing symptoms that are influencing the way in which someone interacts with and uses Facebook. Underwood and Ehrenreich (2017) examined how adolescents' internalizing symptoms, such as

depression, anxiety, and loneliness, related to the way in which they communicated on Facebook and to the responses they received from their peers on Facebook. The adolescent participants (mean age 18) completed a series of questionnaires assessing their social and psychological adjustment (to get at their internalizing symptoms) during the summer after their 12th grade year. They also downloaded an application that allowed all of their Facebook communication on their account to be stored.

After two months of collecting participants' status updates and comments given/comments received (to/from peers), results showed that the relationship between internalizing symptoms and Facebook communication differed for girls and boys. For girls, internalizing symptoms did positively predict Facebook posts containing negative affect, somatic complaints, and requests for support. For boys, internalizing symptoms were not related to their Facebook posts. The relationship between internalizing symptoms and peers' responses on Facebook also differed by gender. Girls who had higher levels of internalizing symptoms received more comments from peers which expressed negative affect and offers of support, whereas internalizing symptoms did not predict peer responses for boys. Whereas girls were found to post more frequently on Facebook overall, the research findings did hold when total number of posts was controlled for. These results lend support to the notion that for adolescent girls, internalizing symptoms may influence the way in which Facebook is used and/or engaged with and these findings put forth evidence that some girls may actually be using Facebook to engage in a process that is similar/comparable to co-rumination (i.e., rumination with their peer network audience).

Anxiety.

The research that examines the relationship between social network site use and anxiety has undergone a shift in recent years, with regard to how the relationship is being conceptualized and looked at. Specifically, much of the research prior to 2016 focused on the relationship between social network site use and anxiety (particularly social anxiety) as it related to how those with social anxiety interacted on the internet. For example, one study looked at the relationship between social anxiety symptoms and different Facebook usage patterns in college students. The study revealed that greater social anxiety symptoms were associated with spending more time on Facebook and engaging in more frequent passive Facebook use (Shaw, Timpano, Tran, & Joormann, 2015). This research is in accordance with earlier research done by Weidman et al. (2012), who found that for university students higher in social anxiety, using the internet to socialize resulted in greater feelings of comfort and self-disclosure than communicating face-to-face did. In follow-up research, carried out by the same researchers, it was found that social anxiety was associated with a lower quality of life and higher instances of depressive symptoms and the results were the strongest for those who communicated more frequently online. Thus, while using the internet can be an alternative to face-to-face communication, particularly for those with more social anxiety, it may ultimately result in poorer well-being.

The most recent research (i.e., 2016-present) has looked at how the use of social media is related to anxious symptoms in those who use it. Woods and Scott (2016) conducted a study which involved Scottish secondary students (i.e., ages 11-17) and found that greater overall social media usage, nighttime-specific social media usage, and high emotional investment in social media were each related to higher levels of anxiety.

The three aforementioned variables were also related to poorer sleep quality, higher levels of depression, and lower levels of self-esteem. Another study, utilizing a sample of emerging adults (mean age 20) found that higher daily social media use was associated with greater dispositional anxiety symptoms and a greater likelihood of having an anxiety disorder (Vannucci, Flannery, & Ohannessian, 2017).

Altogether, the research findings suggest that those with more anxiety, particularly social anxiety, are more likely to use social network sites such as Facebook as a way to communicate and self-disclose things. While in-person interactions can be too stressful and anxiety provoking for these individuals, conversing through social network sites offers a more comfortable means of communication. This greater use of social network sites such as Facebook, however, may in turn enhance or instill symptoms of anxiety in individuals, perhaps because it takes away time from engaging in other enjoyable activities and/or having positive and fulfilling face-to-face interpersonal interactions.

Conduct problems and substance use.

Although the research examining the relationship between social media use and conduct problems is limited, there is reason to believe that there might be a connection. Galica, Vannucci, Flannery, and Ohannessian (2017) conducted a study with emerging adults (i.e., ages 18-22), measuring their current social media use and the presence of conduct disorder symptoms before the age of 15. Results suggested that the higher the prevalence of childhood conduct disorder symptoms, the greater the daily social media use during emerging adulthood. Further, a greater amount of current daily social media

use was significantly correlated with current antisocial personality disorder symptoms. Though this research points to a connection, the direction of the relationship is unknown.

Other recent studies have focused on the link between social media use and substance use. Gutierrez and Cooper (2016) conducted a study with undergraduate students and found that on average, participants reported spending 46 hours per month on social networking sites. The following use of substances were reported: 71% reported using alcohol, 14% reported using marijuana, and 3% reported using synthetic cannabinoids within the last month. Hours spent on social network sites was significantly related to more frequent use of alcohol and synthetic cannabinoid use. It is important to note that men were more likely to use alcohol and marijuana than women. Again, the possibility of a relationship persists as the available research has not ruled this out, but the direction of the relationship is unknown.

An earlier study conducted by Hoffman et al. (2014) had found that among private and public university students, the students' use of social media related to alcohol marketing (i.e., alcohol-related use) predicted their alcohol consumption and engagement in risky-behaviors while their use of social media more generally, which did not include being exposed to alcohol-related social media-marketing content, did not predict alcohol consumption. The social media related alcohol marketing being referred to included alcohol advertisements and content that portrayed people drinking or engaging in social experiences which involved drinking. These results indicate that exposure to substance-specific marketing and advertisement, via social media platforms, may be related to drinking attitudes and behaviors.

Eating disorder risk.

There is research that supports a harmful connection between social network site use and disordered eating practices. For example, research has shown that more frequent use of the social network site Facebook is associated with greater disordered eating in female college students (Mabe, Forney, & Keel, 2014). Further, Sidani et al. (2016) found that young adults who use social media the most (volume and frequency) were at significantly greater odds of having eating concerns. It is not just the use of social media that can impact one's eating, but also the way in which one interacts with social media. One study found that women who post fitspiration images, meant to inspire people to exercise and eat healthily in order to obtain a certain type of body, scored significantly higher on drive for thinness, bulimia, drive for muscularity, and compulsive exercise measures; of these women, nearly a fifth (17.5%) were at risk for diagnosis of a clinical eating disorder (Holland & Tiggemann, 2017).

In a talk at the New York Association of School Psychologists Conference, Bronfman (2017) spoke about eating disorders in the current age of technology and social media. During this talk, she shared her observations about how our culture has continued to consume images and visuals that prod us to eat a certain way and attain an ideal form of beauty. Further, she shared her experiences working with youth and noted that as the youth continue to utilize visually-oriented social network sites, such as Instagram and Snap Chat, eating disorders continue to proliferate.

Body image.

Chapter I provided an overview of the available research regarding the relationship between body image and social network site use, the impacts that the newer

and primarily visually-oriented social network sites have on body image, and the differences in body image for males and females. This section will expand upon the literature regarding the relationship between body image and social media by examining the history and relevance of body image research, the relationship between body image perception/dissatisfaction and demographic variables, and the impacts that other media forms, media-based body image platforms, and the internalization of appearance ideals have on body image.

History and relevance of studying body image.

In the early 2000s, research was showing that many young adult females had negative body image perceptions and body image concerns. In 2004, a report commissioned by Dove (a Unilever Beauty Brand) and entitled *The Real Truth About Beauty: A Global Report* was published (Etcoff, Orbach, Scott, & D'Agostino, 2004). Key research findings, which were gathered from this study of 3,200 women from ten countries, aged 18 to 64, included the following: women around the world were most comfortable using words like natural (31%) or average (29%) to describe how they looked while only 2% of women around the world described themselves as beautiful; almost half of all women (47%) rated their body weight as “too high”; and almost half of all women (48%) strongly agreed that when they felt less beautiful, they felt worse about themselves in general. Further, just 13% of all women said they were very satisfied with their beauty, 12% with their physical attractiveness, 17% with their facial attractiveness, and 13% with their body weight and shape.

It is not just adults, however, who experience negative body image perceptions and body image concerns. Adolescents may be particularly vulnerable to negative body

image due to the fact that they are experiencing significant physical changes as a result of puberty and are in an environment (i.e., school) which impacts their self-esteem and self-evaluation, both of which strongly influence body image. To put things into perspective, one study found that 50-88% of adolescent females felt negatively about either their body shape or size, over one-third of males thoughts that their current size was too small, and only 30% of older adolescents considered their current size as being acceptable (Stang & Story, 2005).

To better understand female and male adolescents' body dissatisfaction over time, a comprehensive longitudinal examination was undertaken by Bucchianeri, Arikian, Hannan, Eisenberg, and Neumark-Sztainer (2013). This study included 1902 participants from diverse ethnic/racial and socioeconomic backgrounds. Changes in body dissatisfaction from adolescence to young adulthood were examined. Results revealed that both female and male participants' body dissatisfaction increased between middle and high school and that their body dissatisfaction further increased when transitioning to young adulthood. This illustrates a trend where female and male youth are becoming increasingly dissatisfied with their bodies over time and that these levels of body dissatisfaction are being sustained.

Karazsia (2016) conducted meta-analyses to examine differences in two dimensions of body dissatisfaction: thinness-oriented dissatisfaction, utilizing data across 31 years and 100,228 participants, and muscularity-oriented dissatisfaction, utilizing data across 14 years and 23,575 participants. Therefore, instead of looking at changes in body dissatisfaction for specific individuals over time (as Bucchianeri et al., 2013 had), Karazsia looked at differences in body dissatisfaction across cohorts over time. Results

indicated that over time, girls' and women's thinness-oriented dissatisfaction scores decreased gradually. While women continued to report being dissatisfied with their bodies, with regard to thinness, this dissatisfaction decreased over the 31-year period studied suggesting that overall, women have been demonstrating increased acceptance of their bodies compared to women in the past. Results of the meta-analysis also revealed that over time, boys' and men's thinness-oriented and muscularity-oriented dissatisfaction scores remained consistent. This indicates that men reported being equally dissatisfied with their bodies, with regard to thinness and muscularity, over the time period studied, suggesting no differences in acceptance of their bodies than men in the past.

These studies indicate that body image concerns are a reality for adolescents, young adults, and adults, and that female and male youth are becoming increasingly dissatisfied with their bodies as they grow older. Therefore, while overall body dissatisfaction may be decreasing or remaining constant across cohorts, over time, many individuals are still not feeling satisfied with their body. This body dissatisfaction and concerns related to one's body and physical appearance can be detrimental, as body image is known to have both physical and mental health implications. Earlier research, which sought to examine the relationships of anxiety, depression, and self-esteem with perceived body image dissatisfaction in adolescents (ages 12-18) found support for the hypothesis that body dissatisfaction could affect mental health. The results showed that for both males and females, anxiety and depression were found to be positively related to perceived body image dissatisfaction and self-esteem was found to be inversely related to perceived body image dissatisfaction, even though males reported a higher level of self-

esteem and lower levels of depression and anxiety than females (Kostanski & Gullone, 1998).

Research done in the early 2000s supports the finding that body image dissatisfaction can affect mental health and also lends support to the idea that body image dissatisfaction may influence eating behaviors/practices. Johnson and Wardle (2005) looked at whether dietary restraint and/or body dissatisfaction could be predictors of emotional eating, binge eating, abnormal attitudes about eating and weight, low self-esteem, stress, and depression. In a sample of 1,177 adolescent females, body dissatisfaction was found to be significantly associated with all of the aforementioned adverse outcomes while dietary restraint was found to be associated only with abnormal attitudes to eating. These results indicate that body dissatisfaction is related to not only detrimental psychological effects but also harmful behavioral practices. Longitudinal research has further shown that lower body satisfaction is related to health-compromising behaviors, such as unhealthy weight control behaviors in adolescents, and that body dissatisfaction is a risk factor for depressive mood and low self-esteem for both male and female adolescents (Paxton, Neumark-Sztainer, Hannan, & Eisenberg, 2006).

Supporting earlier research, more recent research has shown that body dissatisfaction and self-esteem are strongly related among middle school and high school males and females, with stronger dissatisfaction being related to lower self-esteem. Additionally, longitudinal analyses which spanned a 5-year period revealed that the strength of the association did not change significantly as adolescents grew older (van den Berg, Mond, Eisenberg, Ackard & Neumark-Sztainer, 2010). Further, recent research utilizing university student participants suggested that body image importance

(i.e., the emphasis one puts on the importance of weight and shape to one's value as a person) is positively related to restrained eating and compensatory behavior (e.g., purging, using laxative misuse, diuretics misuse, and hard exercise) (Brechan & Kvalem, 2015). The research linking body image concerns and dissatisfaction to mental health outcomes and/or unhealthy practices/behavior has found that being dissatisfied with one's body can have a bevy of maladaptive implications.

Other media platforms and body dissatisfaction and eating disturbances.

Although social media may be the newest form of media that is impacting health-related outcomes for both adolescents and adults, other forms of media have been found to have similar effects. Andersen and DiDomenico (1992) examined the relationship between eating disorders and sociocultural norms promoting particular desirable male and female body shapes. The 10 most popular magazines read by young men and women, between the ages of 18 and 24, were analyzed in order to determine the degree to which male and female magazines showcased sociocultural norms promoting a thin/ideal body shape. Therefore, 20 different magazines were analyzed. Results revealed that popular women's magazine contained 10.5 times as many advertisements and articles promoting weight loss as popular men's magazines. It was also found that men's magazines included significantly more advertisements and articles meant to incentivize the changing of body shape rather than to incentivize weight loss. The 10-fold difference in diet-promoting content in the magazines most frequently read by young females is similar to the difference in prevalence of females to males with eating disorders. Overall this research shows a significant difference in the media messages sent to men vs. women

regarding weight and shape ideals, and it appears that media advertising and content could be a persuading source when it comes to weight and shape concerns.

A later study, which involved male and female participants in high school and college, examined the relationship between magazine reading and body image, as well as eating disturbances. In this study, Botta (2003) found that sports magazines were less likely than other types of magazines to encourage obsessive body image attitudes and behaviors for both males and females. In contrast, reading health and fitness magazines was found to be an important predictor of body image and eating disturbances for both males and females. Although males who read health/fitness magazines were more committed to being muscular and were more likely to take pills or supplements in order to gain muscle, females who read health/fitness magazines had a stronger drive to be thin and were more likely to engage in anorexic and/or bulimic intentions and behaviors (i.e., vomiting, laxatives, and fasting). The way in which the individuals processed the magazine content and images also helped to explain attitudes and behavior. Males and females who focused on the central content of the magazines were less likely to engage in eating-disordered behavior than those who focused on the magazine models' body size and shape.

Television and commercials/advertisements are other forms of media that have been studied in relation to body image and dissatisfaction. One study (Tiggemann & Pickering, 1996) found that for adolescent females (mean age 15.5 years), the amount of television watched in general did not correlate with body dissatisfaction or a drive for thinness, which can also be understood as a desire to be thin and/or become thinner. The specific type of television watched, however, did correlate with body dissatisfaction.

Watching soap operas and/or movies was positively correlated with body dissatisfaction and music video watching was positively correlated with a drive for thinness. Another experimental study looked specifically at male undergraduate college students and whether or not media exposure affected their body image (Agliata & Tantleff-Dunn, 2004). During the study, participants watched a television program with one of two following types of advertisements inserted between television segments—advertisements containing the ideal lean and muscular male body type or advertisements containing neutral images. Results showed that being exposed to media advertisements that depicted the ideal lean and muscular male body type increased males' muscle dissatisfaction and increased depression. Conversely, neutral advertisements were not found to have effects on body dissatisfaction.

Visually-oriented body-image platforms and body image.

As has been discussed, social media platforms such as Instagram have specific photo content that is termed fitspiration, which are images meant to portray a specific (i.e., thin, fit) body type or lifestyle and to help others attain said body type. Fitspiration and similar content does not exist solely on Instagram, however. A content analysis done by Boepple, Ata, Rum, and Thompson (2016) looked at fitspiration websites on the internet and found that most of fitspiration website messages focus on appearance, a need to exercise for appearance-based reasons, and dieting/food restraint. Overall, the analysis of 51 individual fitspiration websites shows that these websites reinforce placing a lot of evaluation on physical/outward appearance and perpetuate both excessive amounts of exercise and eating-related concerns. Further research looking specifically at fitspiration images on Instagram has revealed that the text and images associated with fitspiration

posts perpetuate sociocultural appearance ideals (i.e., low body fat as well as muscularity for men) for men and women and showcase exercise as a means of attaining the ideal appearance/body (Deighton-Smith & Bell, 2017).

Perhaps even more polarizing and maladaptive are the Internet websites termed *pro-ana* or pro-anorexia. Pro-ana websites showcase and promote anorexia nervosa (AN) as a choice one makes and as a lifestyle one can adopt (Custers & Bulck, 2009). A study done in 2003 showed that there were over 500 pro-ana websites on the internet (Chesley, Alberts, Klein, & Kreipe, 2003). Research involving these websites has shown the detrimental impact that this type of content can have for both adolescent and college-age students. A study which involved Belgian students in the 7th, 9th, and 11th grade found that 12.6% of female and 5.9% of male participants who completed the study questionnaire had visited pro-ana websites (Custers & Bulck, 2009). For females, visiting pro-ana sites was associated with a greater drive for thinness, a worse perception of one's appearance, and a higher drive for perfectionism. It should be noted that none of the students involved in the study had an eating disorder diagnosis.

Researchers have also investigated the effects of viewing a pro-ana website in a female undergraduate population. One experimental study randomly assigned female undergraduate students to one of three conditions: viewing a pro-ana website, viewing a website related to female fashion which used average sized models, or viewing a website related to home decor; affect, cognitions, and behavioral expectations were assessed after participants viewed one of the three websites (Bardone-Cone & Cass, 2007). It was found that participants exposed to the pro-ana website experienced a more overall negative affect, lower social self-esteem, and lower appearance self-efficacy after

viewing the website than participants who viewed either of the comparison websites. Further, the pro-ana website viewers thought of themselves as heavier, reported a greater future likelihood of exercising and thinking about their weight, and took part in more visually-oriented comparison than participants who viewed either of the comparison websites.

One content analysis revealed that different from the pro-ana (pro-eating disorder) internet sites, pro-ana social network sites focus more on social interaction and contain less eating disorder specific content which is characteristic of the pro-ana internet sites (Juarascio, Shoaib, & Timko, 2010). This indicates that pro-ana groups on social networking sites may be more geared more towards providing social support than pro-ana websites and might actually contain less content that would be detrimental to body image.

Thinspiration websites are those that are similar to pro-ana websites in term of containing content meant to promote weight loss and eating disorders, but different from fitspiration websites, which promote diet and exercise to attain a particular muscular and fit/thin appearance. Thinspiration websites motivate individuals to engage in eating disorder-related behaviors and often include images that promote an extremely thin body ideal that is accompanied by pro-eating disorder text. Whereas fitspiration platforms claim to inspire a healthy and fit lifestyle through healthy diet and exercise, thinspiration platforms encourage individuals to attain the ideal thin body type through any means, including unhealthy/maladaptive ones.

There has been much dialogue regarding whether pro-ana websites should be banned or censored. To date, several social media platforms have begun banning pages/sites that promote eating disorders and unhealthy weight control practices and

certain internet servers are prohibiting the accessing and listing of pro-ana websites. Thinspiration websites, however, remain operable and accessible despite containing strikingly similar content (Boepple & Thompson, 2016). Boepple and Thompson (2016) conducted a study which compared the content of fitspiration and thinspiration websites and found that thinspiration websites contain more content that is related to losing weight/fat, praising a thin body type/shape, showcasing poses that make one look thin, and causing food-based guilt. Both types of websites, however, contained the following potentially detrimental types of content: guilt-inducing messages pertaining to body weight, fat/weight stigmatization, body objectifying phrases, and messages about dieting.

Recently, newer photo-content platforms meant to celebrate a larger and healthier body type/shape have arisen, seemingly as a counter to the pro-ana, thinspiration, and fitspiration platforms. These are often referred to as fatspiration and/or health at every size content and can be found primarily on the social media site Instagram. One content analysis found that fatspiration images/posts most frequently promoted fat acceptance through fashion and beauty showcasing, meant to illustrate that style and beauty are not exclusively reserved for women who are thin. Health at every size images/posts most frequently feature physically-active portrayals, holistic well-being and self-care, weight-neutral health promotion ideas, and the challenging of the thin/ideal body type through appreciation of the full spectrum of diverse bodies (Webb, Vinoski, Bonar, Davies, & Etzel, 2017). While fatspiration and health at every size platforms are primarily image based and thus may also constitute body objectification and reflect high appearance investment, both of which are risk factors for unhealthy body image, these platforms do not directly promote unhealthy weight/body related activities in the way pro-ana and

thinspiration platforms do. Further, they promote comfort with one's current and unique body shape rather than promote the pursuit of what is considered to be the fit and healthy ideal which is often promoted by fitspiration platforms (Webb et al., 2017).

Internalization of appearance ideals and body image.

Research has shown that internalization of appearance ideals, perpetuated by society, culture, and media, does play a role in the relationship between the way in which men and women look at and feel about their body. One study looked at the relationship between magazine exposure and internalization, self-objectification, eating attitudes, and body satisfaction in male and female university students (Morry & Staska, 2001). The results showed that magazine exposure was associated with the internalization of the ideal body form, which for women is thin and for men is physically fit. This internalization of the ideal body form is related to more self-objectification (i.e., internalizing an observer's objective perspective of one's body). Participants who read fitness magazines (for men) and beauty magazines (for women) showed a greater concern about their physical appearance, more body dissatisfaction, and exhibited more behaviors related to disordered eating, than to those who did not read magazines. A later study that involved female college students found that women who perceived the cultural standard (ideal body) to be thinner had thinner personal body ideals and experienced more body shame (Bessenoff & Snow, 2006).

Studies have focused not just on university students with regard to understanding the relationship between body image and the internalization of appearance ideals. Research studies have sought to understand this relationship among adolescents and adults as well. One study, which looked at adolescent male and females (grades 7-10)

examined the relationship between body image and appearance culture (Jones, Vigfusdottir, & Lee, 2004). Appearance culture was measured in several ways, including friend conversations focusing on appearance, peer criticism geared towards appearance, appearance magazines, and the internalization of appearance ideals. The study found that students who engaged in more frequent conversations with friends about appearance were likely to endorse greater internalization and greater feelings of body dissatisfaction; this was found for both males and females, although the results were stronger for females. Peer appearance criticism was also linked to greater internalization of feelings of body dissatisfaction and the results were strongest for males. Body mass index (BMI), which is a measure/calculation of someone's body weight in relation to their height, was found to also predict body dissatisfaction for both males and females and was linked to internalization for females. The relationship between appearance magazines and body dissatisfaction was only confirmed for females and it should be noted that this relationship was not as strong as the previously mentioned relationships. This research found further evidence of gender differences, with females reporting more appearance conversations with friends, less body satisfaction, and greater internalized appearance ideals than males. More recent research has not found gender differences related to internalization of appearance ideals. Lawler and Nixon (2011) found that for adolescent boys and girls, body mass, appearance conversations with friends, peer appearance criticism, and internalized appearance ideals emerged as significant predictors of body dissatisfaction. Although the researchers' findings suggested that gender moderated the effect of body mass on body dissatisfaction, meaning body mass exerted a differential

risk for body dissatisfaction among boys and girls, internalization was found to be related to body dissatisfaction among both boys and girls.

A study aiming to investigate whether internalization of thin/ideal standards and social comparison impact body-focused anxiety in adult women (mean age 32.7 years) utilized an experimental design which exposed women to one of three types of images: thin models, average-size models, or no models (control) (Dittmar & Howard, 2004). Internalization was found to be a more specific predictor of women's anxiety than general social comparison. Results also showed that low internalizers (i.e., women who do not internalize the thin/ideal standard) had no ill effects, but that average internalizers had significantly greater body-focused anxiety after viewing thin models than they did after viewing average-size or no models. Body-focused anxiety continued to increase in strength as internalization became stronger.

Demographic variables and differences in body image.

Body image can vary based upon factors such as one's gender and age, as was described in the Introduction and Literature Review chapters. Further, body image can also vary depending upon other demographic variables such as BMI, race/ethnicity and socioeconomic status (SES).

BMI.

A study by Barker and Galambos (2003) found that for boys and girls in grades 7 and 10, who took part in a three-year longitudinal study, the risk factors for girls' body dissatisfaction were weight (higher BMI), greater figure management (i.e., greater effort to manage body shape and size), and being teased about their appearance, while the only identified risk factor for boys' body dissatisfaction was being teased about appearance.

Another study which looked at risk factors for body dissatisfaction in adolescence and included 531 male and female participants found that elevations in body mass were among the variables that predicted increases in body dissatisfaction; other variables which predicted increases in body dissatisfaction were negative affect and perceived pressure to be thin from peers (Presnell, Bearman, & Stice, 2004). A later five-year longitudinal study, looking at prospective predictors of body dissatisfaction in adolescent boys and girls, found that at the time of the first assessment and at the time of follow-up five years later, BMI was a predictor of increases in body dissatisfaction in all samples (i.e., across times and gender) (Paxton, Eisenberg, & Neumark-Sztainer, 2006). These studies support earlier research which found that BMI was positively related to body dissatisfaction in male and female high school students (Paxton et al., 1991). While the aforementioned research has found BMI to be a predictor of body dissatisfaction, for male and/or female adolescents, not all research has come to the same conclusion. For example, one longitudinal study which looked at body dissatisfaction in adolescent boys and girls found that BMI did not predict body dissatisfaction for adolescent boys or girls (Bearman, Presnell, Martinez & Stice, 2006).

Race and ethnicity.

Howard et al. (2017) looked at patterns of social networking site use, body dissatisfaction, and disordered eating in African American and White female undergraduate students. They found that African American women reported less body dissatisfaction and marginally less disordered eating than White women. Miller et al. (2000) had conducted an earlier study which looked at body image and related components of body image, including physical appearance, weight, and health, in

college-age African American, European American, and Latino/a American men and women. They found that African American men and women reported the greatest body satisfaction and least overestimation of their weight when compared to European Americans and Latino Americans. African American women, specifically, rated themselves as more sexually attractive and had a higher sense of self-esteem regarding their weight than European American women and Latina women. Latino/a Americans were found to score equal to or higher (indicating greater satisfaction) than European Americans on all measured indices. The aforementioned findings were supported by earlier research which found that African American female college students reported high levels of self-esteem and more positive body image than White female college students (Molloy & Herzberger, 1998).

Research done around the same time had shown that for female college students, White women reported greater levels of disordered eating, dieting behaviors (i.e., dietary restraint), body concerns (i.e., eating concern, shape concern, and weight concern), and greater body dissatisfaction than Asian American and African American women (Akan & Grilo, 1995). Later research showed that the perception of being overweight was more common in White adults than Black or Hispanic adults and that White women were most likely to report that they were overweight. Further, White women and men, compared to Black women and men, demonstrated the ability to more accurately and correctly perceive their overweight status (Paeratakul, White, Williamson, Ryan & Bray, 2002).

Contrary to other research, a study which included Asian, Hispanic, Black, and White male and female participants (mean age 24.3 years old) found that when controlling for age, education, and body weight, no ethnic differences were found for

men. Regarding women, Asian women reported less body dissatisfaction than the other groups and Black women, White women, and Hispanic women were found to have similar levels of body dissatisfaction (Cachelin, Rebeck, Chung, & Pelayo, 2002).

Research that has been conducted to study the ways in which adolescents' body image varies depending upon race/ethnicity has also come to different conclusions. One study that looked at male and female adolescents found that weight-related concerns and behaviors were prevalent among adolescents, regardless of their ethnic/racial background. That being said, differences were found as African American females reported higher body satisfaction and lower levels of unhealthy weight control behaviors than White females. Among males, weight-related concerns/behaviors were equally or more prevalent among African, Asian American, and Native American males than among White males. African American and Asian American males, specifically, were at a greater risk for weight-related concerns/behaviors that would be considered maladaptive and potentially harmful (Neumark-Sztainer et al., 2002).

A later study, which included Asian, Black, Hispanic, and White adolescent participants and specifically looked at the similarities and differences in body image and eating disturbances across ethnic groups, found no ethnic differences in mean levels of any eating disorder symptoms measured (i.e., fear of fat, weight and shape concerns, compensatory behaviors, high or low BMI) or in most eating disorder risk factors measured (i.e., pressure to be thin, modeling of eating disordered symptoms of parents or peers, body dissatisfaction, dieting, self-esteem) (Shaw, Ramirez, Trost, Randall, & Stice, 2004). The only significant main effect was that Black and Hispanic individuals evidenced significantly less internalization of the thin ideal than did Asian or White

individuals. Internalization of the thin ideal was considered to be an eating disorder risk factor in this study and despite its significance, the overall findings contradicted prior studies which suggested more robust ethnic differences in body image and eating disturbances across ethnic groups.

Taken together, research findings do indicate differences in levels of disordered eating, dieting behaviors, body concerns, body dissatisfaction, and perceptions of being overweight for male and female adults and adolescents of different ethnicities/races. These differences have been observed to change when studies control for age, education, and body weight and several studies have come to different conclusions or found no ethnic differences. A possible interpretation of these mixed findings is that earlier research was showing more robust ethnic differences in body image and eating disturbance due to sociocultural pressures for thinness reaching some ethnic groups more than others, while more recent research suggests that sociocultural pressures for thinness are becoming more widespread and reaching all ethnic groups to a similar degree (Shaw et al., 2004).

Socioeconomic status (SES).

The relationship between socioeconomic status (SES) and body image has also been explored. Paeratakul et al. (2002) found that socioeconomic status was also related to body image, specifically the perception of being overweight. Those individuals with higher income and education more often perceived themselves as being overweight than those with a lower income and less education. Earlier research had found that higher SES female adolescents dieted more frequently than lower SES females and that lower SES females were less likely to perceive themselves as being overweight (Story, French,

Resnick, & Blum, 1995). Among both male and female adolescents, however, higher SES was associated with greater satisfaction and pride in one's body and lower rates of pathological weight control behaviors such as binge eating and vomiting. These results indicate that although higher SES females may be more likely to diet and view themselves as overweight, they may also be more likely to adopt healthier/adaptive eating and exercise behaviors (compared to lower SES adolescents) rather than maladaptive weight control efforts. This is perhaps due in part to their access to more information, programs, and foods.

A more recent study, which looked at the association between self-esteem and body image in male and female adolescents found that self-esteem and body dissatisfaction were positively correlated, as females with higher SES had higher body satisfaction and self-esteem than those with lower SES (van den Berg et al., 2010). The researchers did note, however, that self-esteem and body satisfaction were less strongly associated among girls in the lowest SES group than among girls in the highest SES group, though the association remained significant overall. While the results have been mixed, the research does demonstrate the presence of a relationship between socioeconomic status and body image.

Summary

The research thus far helps provide context for understanding the relationship between social network site use and body image. The representative findings suggest the presence of relationships between social network site use and a variety of health-related variables, including self-esteem, well-being, social capital, anxiety, conduct problems, substance abuse, eating disorder risk, and body image. In further examining the

relationship between social network site use and body image, research findings suggest the presence of relationships between body image and the following: use of other media platforms (e.g., television, magazine), use of media-based body-image platforms (e.g., Instagram), internalization of appearance ideals, and demographic variables (i.e., age, gender, BMI, race/ethnicity, and parents' education level).

Regarding the research examining the relationship between social network site use and body image, much of the available research has focused on females (adolescent and young adults), to the exclusion of males, and on Facebook or Instagram, to the exclusion of other social network sites. There is more recent literature suggesting that the newer social network sites and their effects on body image could be further explored (Jong & Drummond, 2013). Earlier research can be expanded upon by looking at both adolescent males and females and measuring their social network site use across various social network sites, including examining whether more visually-oriented social network sites have different impacts on body image than less visually-oriented social network sites. The current study addressed whether adolescents who endorsed greater social media usage (volume and frequency) held more negative perceptions of their body, whether adolescents who endorsed greater usage of primarily visually-oriented sites held more negative perceptions of their body, and whether one's gender and/or the degree to which individuals internalize societal appearance ideals affected the relationship between social network site use and body image.

Chapter III: Methodology

This study analyzed the relationship between social networking site use and adolescent males' and females' body image, utilizing a survey format. The statistical relationships between social network site use and body image were examined through the use of structural equation modeling (SEM).

Design

This study included several measures, which were part of a larger survey packet examining social media use in adolescents. This study looked at the relationships between social media use, body image, and internalization of appearance ideals, whereas the larger survey looked at school engagement, subjective well-being, internalizing problems, externalizing problems, attention problems, mindfulness, perfectionism, fear of missing out, and peer victimization. Survey research allows for the exploration of causes of phenomena and can provide descriptive information, data about real life people and situations, and an understanding of behavior in a wider context. Further, social network sites are a fluctuating and varied platform, which would be challenging to try to capture in a controlled environment (Fardouly & Vartanian, 2016). Additionally, correlational/descriptive research is useful due to its provision of a relatively complete picture of what is occurring, at a particular time, and its ability to effectively capture a snapshot of the current state of thoughts, feelings, and behaviors, both of which help to guide future research (University of Minnesota, 2010).

Participants

The study included 94 participants. All participants attended one of two schools within the western NY region, both of which were in rural areas. The schools were

central school districts with between 1,300 and 1,500 total K-12 students. One district had 410 students in grades 9-12, 25% of students eligible for free lunch, and 25% of students eligible for reduced lunch, while the other district had 530 students in grades 9-12, 38% of students eligible for free lunch, and 12% of students eligible for reduced lunch. Based upon the combined free and reduced lunch eligibility within the two school districts, both of which were 50%, the National School Lunch Program considers these two districts to be mid-low poverty schools as they have between 25.1-50 percent of students eligible for free and reduced lunch (National Center for Education Statistics, 2019).

Originally, there were 97 total participants; however, three had to be removed due to missing data. Of the 94 participants included, 93.6% were White and 58.5% were female (41.5% male). All were between the ages of 14-18 (mean = 16.12, SD = 1.34), and in grades 9-12. The participants of this study came from relatively educated households and all participants reported that at least one of their parents had more than an eighth-grade education. Moreover, 46.8% of the participants in this study had at least one parent with a bachelor's degree or higher, whereas the proportion of children in the United States (in 2017) between the ages of 6-18 with parents who had a bachelor's degree or higher was 38% among fathers and 36% among mothers (Child Trends, 2019). Participants reported a wide range of BMIs, calculated using their self-reported height and weight; calculated BMIs ranged from 16.82-40.25 (overall mean = 25, SD = 5.81; female mean = 25.02, SD = 6.03; male mean = 24.98, SD = 5.57). Per the CDC BMI growth chart, the normal or healthy BMI ranges for adolescent males are as follows: between 16-22.6 for 14-year-olds, 16.6- 23.4 for 15-year-olds, 17-24.2 for 16-year-olds,

17.6-25 for 17-year-olds, and 18.2-25.6 for 18-year-olds. Looking at the average male BMI and average male BMI by age (i.e., 14, 15, 16, 17, 18) for the male participants in this study, it is evident that more males were in the overweight range than the normal/healthy range. The normal or healthy BMI ranges for adolescent females are as follows: between 15.8-23.4 for 14-year-olds, 16.2-24 for 15-year-olds, 16.8-24.6 for 16-year-olds, 17.2-25.2 for 17-year-olds, and 17.6-25.6 for 18-year-olds (Centers for Disease Control and Prevention, 2020). Looking at the average female BMI and average female BMI by age (i.e., 14, 15, 16, 17, 18) for the female participants in this study, it is evident that, similar to males, more females were in the overweight range than the normal/healthy range. See Table 1 for a more specific description of the demographic data.

Determining sample size requirements for SEM is a challenge faced in the field, as there are several methods and guidelines that can be utilized and followed, but no clear consensus regarding which is best. Proposed guidelines include having a minimum sample of 100 or 200 participants, 5 or 10 observations per estimated parameter, 10 cases per variable, and/or the use of an A-priori sample size calculator (Gefen, Rigdon, & Straub, 2011; Wolf, Harrington, Clark & Miller, 2013). For this study, an A-priori sample size calculator (i.e., power calculator) for structural equation models was utilized as it takes into account the anticipated effect size, desired statistical power level, number of latent variables, number of observed variables, and probability level. The sample size that was recommended in order to detect effects for the models in this study was 87 participants or more (Free Statistics Calculators, 2020).

The total sample size of this study met this threshold with 94 participants; however, since males and females were analyzed separately, the sample sizes for the

models were 39 (males) and 55 (females). In order to further understand the role that dividing the sample among males and females had, several factors were considered and will be described in the results section. Overall, running separate male and female SEM models with smaller sample sizes did not yield significantly poorer fit statistics, modification indices, standardized residuals, or different paths of significance than running SEM models with all 94 participants did. That being said, having a smaller sample size and one that is below the desired threshold for detecting significant effects likely decreased the overall power of the study and increased the margin of error, specifically the likelihood of a Type II error (i.e., a false negative). Due to this, inferences drawn from the data and corresponding results need to be interpreted with caution as it is possible that relationships (i.e., coefficients/beta values) approaching significance may actually be significant but due to a power problem resulting from a small sample size, they are not meeting the significance threshold.

Measures and Variables

Demographic Questionnaire (see Appendix A).

This questionnaire was included to acquire background information about each participant, including age, grade, gender, race/ethnicity, height, weight, and parents' education level. For participants' demographic information, refer to Table 1.

Age and grade.

Age and grade of the participants were recorded to ensure that the participants met the parameters of the present study, specifically that they were currently enrolled in 9th, 10th, 11th, or 12th grade and were thus between the ages of 14 to 18.

Gender.

Gender of the participant was recorded, turned into a dummy variable, and included as a moderator variable in the analyses. This variable was important because it was hypothesized that male and female participants would differ in terms of social network site usage and body image dissatisfaction.

Race/ethnicity.

Race/ethnicity of the participants were recorded as White, Black/African American, Asian, American Indian/Alaska Native, Native Hawaiian or Other Pacific Islander, and other (specified). Race/Ethnicity was intended to be used as a control variable, but ultimately was not included in the actual analyses since the sample was nearly homogenous, with 93.6% of the sample self-identifying as being White.

BMI.

Participants' height and weight were recorded via the self-report measure included in the questionnaire. Height and weight for each participant were then entered into the publicly available body mass index (BMI) calculator to obtain a standardized BMI score (U.S. Department of Health & Human Services, n.d.). Standardized BMI scores were used as a control variable (BMI formula: kg/m^2).

Parents' education level.

Parents' education level was measured via an ordinal scale. The highest education of each participant's mother and father were recorded, and of those, the highest education level reported was used (per Neumark-Sztainer, Story, Hannan & Croll, 2002; van den Berg et al., 2010). Parents' education level was used as a control variable and a measure of SES. The education levels were coded 1-8, with each number corresponding to an increase in level of education attained; more specifically, one corresponded to less

than an 8th grade education while eight corresponded to a doctorate or other professional degree (e.g., JD, MD).

Social Networking Site Usage (see Appendix B).

This component of the survey asked participants to think about their typical social networking use over the last month and report how frequently they used the different social networking sites/apps listed. Participants were also asked to think about how much time they typically spent on each of the listed social networking sites/apps per day and report on this as well. The measures were created after researching and exploring the commonly used indices for measuring time spent on social networking sites as well as their subsequent limitations (Olufadi, 2016). Measures used in recent research to capture social networking site use were also analyzed in order help create a new measure that would best capture the frequency of use and time spent on social networking sites for the purposes of the present study (Galica et al., 2017; Vannucci, Flannery & Ohannessian, 2017; Woods & Scott, 2016). Lastly, input was gained from a university communications professor who had experience researching social media, understood the inherent difficulties of measuring such a fluid and changing medium, and had recent data from an undergraduate population regarding daily/weekly social media use (N. Schlegel, personal communication, May 8, 2018).

While previous research and measures had often only looked at one site, to the exclusion of other frequently used sites, the current measures included nine of the most widely used (i.e., popular) sites among adolescents, with an additional option of other (to be specified). Further, previous research had included only a narrow range of potential response options (e.g., 1-2 hours, 3-4 hours, 5 or more hours) while the current measures

included a wider range of possible responses (e.g., responses ranged from 0 hours to 10 hours or more). Lastly, the current measures took into account that social network use is not one-dimensional; therefore, instead of just looking at social network site use in terms of total time spent on the sites, both total time spent on the sites and frequency of use of the sites were examined.

Social network use per day.

The participants self-reported their social network use per day. The measure that was used to assess participants' social network use per day included nine of the most widely used social network sites among adolescents and a 10th option of other (specified). For each social network site, the participants used an equal interval scale to indicate the number of hours spent on each site per day, ranging from 0 hours to 10 or more hours.

Participants' responses resulted in one score indicating the total number of hours per day of social network site use, as each of the options in the equal ordinal scale (e.g., 1 hour, 2 hours, 3 hours) was assigned a value 0-11, where a higher score indicated higher levels of social media use. The social network use per day data was also used to determine how many hours per day were spent on photo-focused (visually-oriented) social network sites, specifically. These sites were considered to be those whose primary/sole mode of communication and connection is through pictures/images, which includes Snapchat, Instagram, Flickr, and Pinterest. Due to the fact that there were few participants who endorsed the 10th option of other (specified) and that a significant portion of those who did specified using video games and/or tv streaming services instead

of social network sites, the option of other was excluded from analysis. See Table 2 for participants' responses on the daily social network site use measure.

Social network use over past month.

The participants also reported their social network use over the past month. The measure that was used to assess participants' social network use over the past month included nine of the most widely used social network sites among adolescents and a 10th option of other (specified). For each social network site, the participants used an ordinal scale to indicate the number of times they used each site over the past month, ranging from "I do not use this" to more than 50 times per day.

Participants' responses resulted in one score indicating the total number of times per month social network sites were used, as each of the options in the ordinal scale (e.g., I do not use this, more than 50 times per day) was assigned a value 1-12, where a higher score indicated higher levels of social media use. The social network use per month data was also used to determine how much time per month was spent on photo-focused (visually-oriented) social network sites, specifically. These sites were considered to be those whose primary/sole mode of communication and connection is through pictures/images, which includes Snapchat, Instagram, Flickr, and Pinterest. As was previously stated, the option of other was excluded from analysis. See Table 3 for participants' responses on the monthly social network site use measure.

Sociocultural Internalization of Appearance Questionnaire-Adolescents (SIAQ-A; Keery, Shroff, Thompson, Wertheim, & Smolak, 2004; see Appendix C).

The SIAQ-A is a five-item self-report measure which is meant to assess respondents' internalization of societal norms related to appearance. The original version of the SIAQ-A, which assessed respondent's reactions to viewing magazines, was modified for the purposes of this study to include media in general (i.e., television, movies, magazines, and the internet). Measuring respondents' reactions to viewing media (including television, movies, magazines, and the internet) was pursued in order to get at participants' internalization of societal norms related to appearance. No other modifications were made to the five-item self-report measure and the measure included a 5-point Likert scale ranging from definitely disagree to definitely agree. The five responses were added in order to obtain a total score, with scores ranging from 5 to 25.

This scale has been validated on early adolescent samples from three different countries (i.e., US, Australia, and India) and validation of the measure indicates that the SIAQ-A may be used to investigate media influence and the role that internalization of appearance-related societal norms has as a potential risk factor for body image problems or disturbances. More specifically, research has shown the SIAQ-A to have uniformly high internal consistency levels among sixth and seventh grade students ranging from 0.83 to 0.92 and high convergent validity estimates. Utilizing the same population, internalization has been found to positively correlate with levels of body dissatisfaction, restriction, and bulimic behavior and to negatively correlate with levels of self-esteem, with correlations in the 0.40 to 0.60 range (Keery et al., 2004). See Table 4 for participants' responses on the SIAQ-A items. See Table 5 for the mean, range, and standard deviations of participants' item responses.

Body Esteem Scale for Adolescents and Adults (BESAA; Mendelson, Mendelson, & White, 2001).

The BESAA is a 23-item self-report measure which assesses the three aspects of body esteem, including individuals' general feelings about their appearance, their levels of satisfaction with their weight, and their beliefs about others' evaluations of their body and appearance (attribution). BESAA items which assess an individual's general feelings about their appearance include items about wanting to look like someone else and wanting to change one's looks; BESAA items which assess an individual's satisfaction with their weight include items about being satisfied with one's weight and thinking one has a good body; BESAA items which assess an individual's beliefs about others' evaluations of their body and appearance include items about whether other people would consider one to be good looking and whether one believes they are as nice looking as most people (Mendelson, Mendelson, & White, 2001).

To facilitate participant responding and provide more continuity among survey packet measures, the original 4-point Likert scale on the BESAA was modified to reflect a 5-point Likert scale that was similar to that of other measures; prior to analyzing the data, the responses were recoded to be consistent with the 4-point Likert scale (i.e., 1 point responses were recoded to 0; 2 point responses were recoded to 1; 3 point responses were recoded to 2; 4 point responses were recoded to 3; 5 point responses were recoded to 4). No other modifications were made to the measure. The Likert scale options ranged from never to always, with negative items reverse scored. The items which needed to be reverse scored were reverse scored after being recoded to be consistent with the 4-point Likert scale. The 23 responses were added in order to obtain a total score, with potential

scores ranging from 0-92. Separate scores were also calculated for the three aspects of body esteem measured, so they could be combined in the analyses, which are described below.

The scale was originally developed in 1982 to be used with children, but the present and revised form, validated in 2001, consists of items that are suitable for adolescents and adults, age 12 and up. Research has shown the BESAA to have strong internal consistency among males and females between the ages of 12 to 25, with internal consistency levels ranging from .75 to .96 (Mendelson et al., 2001). More recent research has shown the BESSA to have adequate to strong internal consistency among males and females (mean age of 11.9 years) with levels ranging from 0.71 to 0.89, and concurrent validity based on significant correlations with self-esteem (levels ranging from 0.50 to 0.70) and BMI (Cragun, DeBate, Ata, & Thompson, 2013). For participant scores on the BESAA, refer to Table 6.

Procedure

Public high schools within the western NY region were contacted by trained graduate students and an Alfred University graduate school faculty member. Two schools agreed for their students to participate in this study. Permission was obtained from all of the participants' parents prior to administration and completion of the questionnaires, via a consent letter sent home with students. The adolescent students were informed that the survey was meant to help examine the relationship between social network site use and health-related variables. Subsequent to this, each student filled out an assent form to participate in the research study (see Appendix D for the consent/assent forms). School staff, the trained graduate student(s), and Alfred University faculty

member aided in the distribution and collection of surveys, answered questions that arose, and protected the participants' confidentiality. The survey was presented in the form of a questionnaire packet, which took approximately 30 to 45 minutes to complete in its entirety. Both schools administered the survey during the school day; one school had the student participants complete the survey in their general classroom, while the other school had the student participants complete the survey in the auditorium.

Students who returned a parental consent form were provided with candy/edible treats and those who completed the survey were entered into a raffle for a \$25 iTunes/local store gift card. School-appointed liaisons, who aided in the distribution of consent forms and/or the logistics of data collection, were also given a \$20 gift card.

Statistical Analyses

The data from this study were analyzed using structural equation modeling (SEM). SEM is a multivariate method, used often in nonexperimental research, that utilizes a model to show the influence one or more causes have on one or more effects (Keith, 2014). This analysis allows for the control of variables other than the ones of direct interest, eliminating the effects spurious variables could have. SEM models are most often represented in a graphic form as this allows for all the variables in the model to be seen and for the variable presentation to be shown. The presentation of the variables is decided upon based on a combination of previous research, theory, and logical reasoning. The STATA program (Stata Corp LLC, 2019) which allows for the drawing of the model, was used to analyze the proposed models.

The Proposed Models

The hypothesized models were created after considering the previous research, theory, and SEM practices, as well as guidelines put forth by Keith (2014). The models were created to test the direct effects of social network site usage on body image and the indirect effects of social network site usage on body image, taking into account internalization of appearance ideals and gender.

In the models, rectangles denoted measured variables, based upon participants' direct responses (from the survey), and ovals denoted latent variables, which were those that were not directly observed but rather inferred from other variables that were observed. Arrows drawn with a straight line indicated a direct effect where one variable directly affected another, and arrows drawn with a curved line indicated variables that were correlated with no implied causality. Running the models in STATA allowed for the calculation of direct effects and indirect effects, the latter of which look for causal effects between variables where one or more other variables are mediating the effect. Additionally, total effects were calculated in STATA by combining (adding) the direct and indirect effects and residuals were included in the model to show the influence on the variables not already accounted for.

Model 1: Daily and Monthly Social Network Site Use.

The planned *Model 1* can be seen in *Figure 1*, while the STATA SEM *Model 1* can be seen in *Figure 2* with the path values included; the planned model shows the original conceptualization of the variables and the relationships between them whereas the STATA SEM model is the model that was run and estimated using STATA statistical software. Looking at the STATA SEM *Model 1* in a left to right manner, parents' education level and BMI were presented first in the model, as exogenous variables.

Exogenous variables are presumed to have causal effects on the other variables in the model while having no variables in the model exerting influence upon them. Exogenous variables appear with curved arrows between them to indicate correlation without assumed causality and were included as control variables. Race would have been included as an exogenous control variable, but since the sample was nearly homogenous with 93.6% of the sample self-identifying as being White, race was not included as a variable in the analyses. The rationale behind including parents' education level and BMI as control variables within the models was based upon prior research which demonstrated that these variables are causally related to social network site use, internalization of appearance ideals, and body image; further, these variables (i.e., social network use, internalization, and body image) do not exert influence upon parents' education level or BMI (Jones, Vigfusdottir, & Lee, 2004; Paeratakul et al., 2002; van den Berg et al., 2010).

Gender was included as a moderator, in order to test the effect gender had on the other variables in the model, as research had demonstrated that an individual's gender can influence their social network use and body image (Common Sense Media, 2015b; Furnham, Badmin, & Sneade, 2002; Grossbard et al., 2009; Jones, Vigfusdottir, & Lee, 2004; Lowery et al., 2005; Mérelle et al., 2017; Miller et al., 2000). In the planned *Model 1* (see *Figure 1*) gender appeared before the other variables of interest (i.e., social network site use, internalization of appearance ideals, and body image) because as a moderator variable, it was expected to exert influence over the other variables. There was a curved arrow between gender and BMI to indicate correlation.

In the STATA SEM *Model 1* (see *Figure 2*), gender was not depicted or included in the same manner. There are two approaches which can be used in SEM to include a categorical moderator, such as gender, in the model: 1) including it through single-group analysis, where the moderator is represented by a variable, or a set of variables, in the model (as in planned *Model 1*) and 2) including it through multi-group analysis, where the observations (i.e., results) are separated into groups at each level of the moderator rather than having the moderator appear in the model as a variable (Ryu & Cheong, 2017). For this study, the multi-group analysis approach was utilized because it is less restrictive than the single-group analysis; whereas single-group analysis assumes equal paths between groups, multi-group analysis allows paths to differ between groups, unless additional equality constraints are imposed (Rye & Cheong, 2017). Therefore, for the STATA SEM *Model 1*, there were separate models run for each gender (i.e., there was one model for males and a different model for females).

The STATA SEM *Model 1* included the endogenous variables of social network site use (variable names in model: totalmonsnsu, totaldaysnsu), sociocultural internalization of appearance ideals (variable name in model: totalsiaqa), and body image (variable name in model: body image). Endogenous variables influence and are influenced by other variables in the model, and thus these variables have arrows going towards them and away from them and towards other variables. Based upon previous research and theory, social network site use was presented as the first endogenous variable(s), before the internalization of appearance ideals and body image variables. This is because media (e.g., social media, social networks) expose individuals to images, words, messages, and content related to appearance ideals, which may then be

internalized by the individual(s) consuming the media (Dittmar & Howard, 2004; Jones, Vigfusdottir, & Lee, 2004; Morry & Staska, 2001). Further, based upon the research described in previous chapters, engaging with social media and social networks appears to impact the way individuals think about and view their body, which may impact the overall body image of the individual consuming the media.

Social network site use was included as two variables: one variable represented daily social network site use (i.e., totaldaysnsu) and another variable represented monthly social network site use (i.e., totalmonsnsu). There was a curved arrow between daily use and monthly use to indicate correlation. The way in which these social network site use variables were presented in the model allowed for their use to be compared.

Sociocultural internalization of appearance ideals was the next endogenous variable presented, after social network site use, as earlier research demonstrated a relationship between greater internalization of appearance ideals and more negative body image (Bessenoff & Snow, 2006; Jones et al., 2004). Body image was presented as the dependent variable as it was hypothesized to be influenced by the exogenous and endogenous variables. Body image was presented in the model as a multi-dimensional latent variable, as separate scores were calculated for the three aspects of body esteem measured, including an individual's general feelings about their appearance, their satisfaction with their weight, and beliefs about others' evaluations of their body and appearance. These values together comprised the latent variable of body image (body image latent variable components in model: attbesaa, weightbesaa, appbesaa).

Model 2: Visually and Non-Visually-Oriented Social Network Site Use.

The planned *Model 2* can be seen in *Figure 3* while the STATA SEM *Model 2* can be seen in *Figure 4*, with the path values included. Similar to *Model 1*, parents' education level and BMI were presented first in the STATA SEM *Model 2*, as exogenous variables. Again, race was not included as a variable in the model and subsequent analyses. Gender was included in the model as a moderator. As was the case with *Model 1*, in the planned *Model 2* gender appeared before the other variables of interest (i.e., social network site use, internalization of appearance ideals, and body image) with a curved arrow between gender and BMI whereas in the STATA SEM *Model 2*, gender was not depicted in the model but was incorporated as a moderator through the multi-group analysis approach. Therefore, for the STATA SEM *Model 2*, there were separate models run for each gender (i.e., there was one model for males and a different model for females).

The STATA SEM model included the endogenous variables of social network site use (variable names in model: ztotvissnsu, ztotnonvissnsu), sociocultural internalization of appearance ideals (variable name in model: totalsiaqa), and body image (variable name in model: body image). The variables were presented in the same order as in the STATA SEM *Model 1*, with social network site use being presented as the first endogenous variable(s), before the internalization of appearance ideals and body image variables.

Social network site use was included in STATA SEM *Model 2* as two variables, with a curved arrow between them to indicate correlation; one variable represented visually-oriented social network site use (i.e., ztotvissnsu) and the other represented non-visually-oriented social network site use (i.e., ztotnonvissnsu). The visually-oriented social network site use variable included both the daily and monthly visually-oriented

social network site use and the non-visually-oriented social network site use variable included both the daily and monthly non-visually-oriented social site use. Since daily and monthly site use were combined to obtain total visually-oriented site use and total non-visually-oriented site use, both daily and monthly use values were standardized before being combined. The way in which these social network site use variables were presented in the model allowed for their use to be compared. After the social network site use variables, sociocultural internalization of appearance ideals was the next endogenous variable presented. Lastly, body image was presented as the dependent variable, again as a multi-dimensional latent variable (body image latent variable components in model: attbesaa, weightbesaa, appbesaa).

Analyses

To address the proposed research hypotheses, the research design employed path analysis in the form of SEM that utilized both observed and latent variables to test a causal model (per Keith, 2014). This form of analysis allowed for the comparison of the influence independent variables had on a dependent variable as well as the testing of more complex pathways.

Hypothesis one (using *Model 1*), which states that individuals who endorse greater social media usage will have more negative body image, was analyzed by looking at the direct paths and total effects from daily social network site use to body image, for both males and females, and the direct paths and total effects from monthly social network site use to body image, for both males and females.

Hypothesis two (using *Model 2*), which states that individuals who endorse greater usage of visually-oriented (photo-focused) sites will have more negative body image, was

analyzed by looking at the direct paths and total effects from visually-oriented social network site use to body image, for both males and females. Additionally, the paths and total effects from non-visually-oriented social network site use, for both males and females, were analyzed for comparative purposes.

Hypothesis three, which states that male and female participants will differ in terms of social network site usage, with female participants using social network sites more, was analyzed by conducting *t*-tests to test for statistically significant differences between groups (i.e., gender) with regard to daily social network site use and monthly social network site use.

The fourth hypothesis (*using Model 1*), which states that the relationship between social network site use and body image will be stronger for females, was analyzed by comparing the direct paths (for both males and females) and total effects from monthly social network site use to body image and from daily social network site use to body image.

The fifth hypothesis (*using Model 1*) states that the relationship between social network site use and body image will be stronger for those who endorse a higher degree of internalization of appearance ideals. This was analyzed by examining the indirect effects of both monthly social network site use and daily social network site use on body image through internalization of appearance ideals, as it was these indirect effects which indicated whether internalization acted as a mediator in the relationship between social network site use and body image. Additionally, the direct paths and total effects from daily social network site use to body image, monthly social network site use to body image, daily social network site use to internalization of appearance ideals, monthly

social network site use to internalization of appearance ideals, and internalization of appearance ideals to body image were also analyzed to fully understand the relationships between these variables.

Chapter IV: Results

The data was analyzed using structural equation modeling (SEM), represented in model (graphic) form, with the presentation of the variables based upon a combination of previous research, theory, and logical reasoning. The models were created to test the direct effects of social network site usage on body image and the indirect effects of social network site usage on body image, taking into account internalization of appearance ideals and gender.

Reliability Testing

Given that the social media use measures had been created for the purposes of this study, their psychometric properties were analyzed. Factor analysis was done on both the monthly and daily social network site use measures, with a focus on internal consistency results (i.e., Cronbach's alpha). Cronbach's alpha is a measure which helps to explain how closely related a set of items are within a group. When analyzing results, a reliability coefficient of .70 or higher is considered to be acceptable, whereas anything below .70 needs to be interpreted carefully as the scale or measure is not then considered to have strong reliability or validity (Keith, 2014). Overall, results indicated a lack of evidence for these being valid and reliable measures of social media usage. The monthly social network site use measure had three separate identified factors that collectively explained 55.33% of the variance, with a Cronbach's alpha of .523. Factor 1 included Snapchat, Instagram, and Twitter; factor 2 included Facebook and Pinterest; and factor 3 included Flickr, YouTube, Google+, and Tumblr. The daily social network site use measure had four separate identified factors that collectively explained 68.58% of the variance, with a Cronbach's alpha of .614. Factor 1 included Facebook, Snapchat, and

Instagram; factor 2 included Tumblr and Flickr; factor 3 included Google+ and YouTube; and factor 4 included Pinterest and Twitter. Comparatively, the daily use measure was a slightly stronger measure than the monthly use measure.

Factor analysis, with a focus on internal consistency results, was also done for the constructs of the visually-oriented social networks sites and the non-visually-oriented social network sites, and results indicated a lack of evidence for these being valid and reliable measures of these different types of social media usage. The visually-oriented sites on the daily use measure had two separate identified factors that collectively explained 67.40% of the variance, with a Cronbach's alpha of .507. Factor 1 included Snapchat and Instagram; factor 2 included Flickr and Pinterest. The visually-oriented sites on the monthly use measure had the same two identified factors that collectively explained 67.52% of the variance, with a Cronbach's alpha of .505. The non-visually-oriented sites on the daily measure had three separate identified factors that collectively explained 74.61% of the variance, with a Cronbach's alpha of .347. Factor 1 included Twitter and Tumblr; factor 2 included Google+ and YouTube; and factor 3 included Facebook. The non-visually-oriented sites on the monthly use measure had two separated identified factors that collectively explained 50.70% of the variance, with a Cronbach's alpha of .090. Factor 1 included Twitter and Tumblr; factor 2 included Google+, YouTube, and Facebook. Given the factor analysis results from the monthly and daily social network site use, it was expected that several factors would emerge when analyzing the visually-oriented and non-visually-oriented sites, however, it was not expected that Facebook would emerge as its own factor among the sites with which it was grouped.

Comparatively, the visually-oriented sites showed slightly stronger statistics than the non-visually-oriented sites and the social network site daily use showed slightly stronger statistics than the social network site monthly use. Overall, however, there was a lack of strong statistical underpinnings regardless of how social network site use was analyzed, provided the data collected using the measures in this study. This suggests that there are differences among the popularity of social network sites and the degree to which adolescents are using and interacting with them, both in terms of time and frequency of use. Some sites seem to attract similar levels of use and engagement from adolescents (e.g., Snapchat and Instagram); however, the majority of sites seem to attract varying levels of use/engagement as evidenced by the different identified factors among daily and monthly use. These results also suggest that the correlations among social network sites may be quite complex and that there could be more to consider than whether the sites rely on a primarily visual or non-visual manner of conveying news/information (i.e., the sites are still quite distinct, even though they may share news/information in a similar manner). All of this should be taken into account when interpreting the findings to follow. A list of which social network sites fall together on each factor, for monthly, daily, visually-oriented, and non-visually-oriented use, are provided in Table 7.

Goodness of Fit Statistics

To examine the overall models, fit statistics were analyzed. Goodness of fit statistics describe how well a statistical model fits a set of observations, for example by comparing the hypothesized model with that of a baseline model (i.e., a model with the worst fit). Fit statistics can also summarize the discrepancy between observed values/correlations and the values/correlations expected, and therefore test if sample data

represents the data you would expect to find in the actual population or if it is somehow skewed. For both *Model 1* and *Model 2*, the Chi-Square index, the Root Mean Squared Error of Approximation (RMSEA), the CFI and Tucker-Lewis index (TLI), the Root Mean Squared Residual (SRMR), and coefficient of determination (CD) were analyzed. The norm guidelines that were utilized when analyzing the fit statistics for both models were as follows: a Chi-Square probability value where $p\text{-value} > .05$ indicates acceptable model fit; a RMSEA lower bound value that is $< .08$ (ideally $< .05$) with regard to the 90% confidence interval is a good fit but the fit is considered to be poor if the upper bound is above 0.10; a CFI and/or TLI value close to 1.0 indicates a good fit (ideally > 0.90); a SRMR of 0 is a perfect fit and a good fit is considered to be < 0.08 ; a perfect fit for the CD (R^2) is 1 (stata.com, n.d.). When considering R^2 values, a low value is not considered to be inherently bad as some fields of research involve variables which are harder to predict and a low R^2 value does not negate the presence of statistically significant predictors and the conclusions which can be drawn from them (Enders, 2020). It is important to note that goodness of fit statistics, specifically Chi-Square, can be sensitive to the sample size; this is relevant as this study included a modest sample size of 94 participants.

For *Model 1*, the results of these tests were mixed, in terms of indicating a good fit. The Chi-Square index was 35.36 ($p > .05$). The CFI was determined to be .96 and the TLI was .91. The RMSEA was .09, with a lower bound of .00 and an upper bound of .16. The SRMR was .07, and R Square (i.e., coefficient of determination) for the model was .27, indicating that approximately 27% of the variance was explained by the model. Therefore, Chi-Square, CFI, TLI, and SRMR indicated a good fit, RMSEA did not

indicate a good fit, and the coefficient of determination was relatively low. For *Model 2*, the results of these tests were also mixed, in terms of indicating a good fit. The Chi-Square index was 43.17 ($p < .05$). The CFI was .92 and the TLI was .83. The RMSEA was .13, with a lower bound of .06 and an upper bound of .19. The SRMR was .08, and R Square (i.e., coefficient of determination) for the model was .28, indicating that approximately 28% of the variance had been explained by the model. Therefore, CFI and SRMR indicated a good fit, Chi-Square, TLI, and RMSEA did not indicate a good fit, and the coefficient of determination was again relatively low.

One feature of SEM, when running it in STATA, is that STATA provides the opportunity for the researcher to re-specify the model to try to obtain a better fit; it does so by providing modification indices, which are proposed changes that would reflect improvement in the model fit by typically adding a previously omitted parameter. While modification indices can be useful in helping to identify source(s) of misfit within the model, there are also risks involved in using them as they are determined by data rather than theory and previous research suggests that using them rarely leads to the true population model (Curran-Bauer Analytics, 2019; MacCallum, Roznowski, & Necowitz, 1992).

In examining the proposed modification indices for *Model 1*, several suggestions were made. One of these suggestions was adding a pathway between monthly social network site use and the attribution subscale of the BESAA for males and a pathway between sociocultural internalization of appearance ideals (SIAQ-A) and the attribution subscale of the BESAA for females. Considering that gender was included in the model as a moderator variable, by way of multi-group analysis, it would not be possible to

create gender-specific paths. More specifically, if a path were drawn between monthly social network site use and the attribution subscale of the BESAA for males, it would also show up on the model for females and if a path were drawn between internalization and the attribution subscale of the BESAA for females, it would also show up on the model for males. Changing the way in which gender is incorporated in the model would not be logical as it was incorporated as a moderator variable based on theory and previous research that demonstrated gender-based differences with regard to social network site use and body image. Further, adding in the proposed paths, for both genders (as gender specific paths were not possible, as previously mentioned) would not result in improved fit statistics.

In examining the proposed modification indices for *Model 2*, again several suggestions were made. These suggestions were adding a pathway between visually-oriented social network site use and the attribution subscale of the BESAA for males and a pathway between sociocultural internalization of appearance ideals (SIAQ-A) and the attribution subscale of the BESAA for females. For the same reasons as were described with regard to *Model 1*, these proposed changes would not be advantageous. As was the case in *Model 1*, adding in the proposed paths, for both genders (as gender specific paths were not possible) would not result in improved fit statistics.

Ultimately, the proposed modification indices were considered but not incorporated into the models. Altogether, the results of the fit statistics were mixed. The fit statistics suggested a good fit when it came to comparing the fit of the hypothesized models with that of a baseline model (i.e., a model with the worst fit; see CFI and TLI results) and when looking at the difference between the observed correlation and the

predicted correlation (see SRMR results). Conversely, the fit statistics did not suggest as good of a fit when it came to the discrepancy between the hypothesized model and the population covariance matrix (i.e., the relationships between variables in the general population; see RMSEA results), and the proportion of the variance in the dependent variable (i.e., body image) that is predictable from the independent variable(s) (see coefficient of determination results). Finally, the fit statistics suggested a good fit for *Model 1*, but not for *Model 2*, with regard to how well the observed distribution of data fits with the expected distribution (see Chi-Square results). Having mixed results does not mean that the models are poor, but rather that the results and findings derived from the running of the models need to be interpreted with caution.

Standardized residuals for both *Model 1* and *Model 2* were also analyzed.

Residuals are a measure of the strength of the difference between observed and expected values. If the data is normally distributed, 95% of the data should be within two standard deviations from the mean. Residuals less than -2 and/or greater than 2 represent observed frequencies that are less/greater than the expected frequency; residuals greater than +/- 3 represent unusual data distribution; residuals +/- 4 represent something extremely unusual about the data distribution (Acock, 2016). All standardized residuals for the variables in *Model 1* and *Model 2* were less than 2, indicating no unusual or extremely unusual data distribution for the variables of interest. These findings suggest an adequate model as non-normality of residuals may indicate an inadequate model.

Comparative Analyses to Look at Study Sample Size

In order to further understand the role that dividing the sample among males and females had, two additional models were created in SEM and analyzed; these models

included the gender variable in the actual model and thus utilized single-group analysis rather than multi-group analysis. This means that these two models included the total sample of 94 participants. One of these models looked at the daily and monthly social network site use (like *Model 1*) and the other looked at visually and non-visually-oriented social network site use (like *Model 2*). For comparative purposes, several things including model fit, paths, modification indices, and residuals were examined.

When looking at the new model for daily and monthly social network site use, having the model include the total sample size did not result in better goodness of fit statistics. As was described, for *Model 1* the Chi-Square, CFI, TLI, and SRMR indicated a good fit while RMSEA did not; in the new model, the Chi-Square no longer indicated a good fit and the RMSEA indicated a poorer fit. The new model created also did not have significantly different (i.e., better) standardized residuals, indicating it did not represent a better fit than *Model 1*. Further, when considering the path results, no additional paths of significance were found in the new model. Lastly, the results were similar for the modification indices suggested, again indicating that the new model did not represent a better fit than *Model 1*.

When looking at the new model for visually and non-visually-oriented social network site use, the findings followed a similar pattern. The goodness of fit statistics were not significantly improved by including the entire sample in the model. As previously stated, for *Model 2*, CFI, TLI, and SRMR indicated a good fit, while Chi-Square and RMSEA did not; in the new model, although R Square (i.e., coefficient of determination) was higher at 0.36, the RMSEA and TLI indicated a poorer fit. The new model created also did not have significantly different (i.e., better) standardized residuals

than *Model 2*, nor any additional paths of significance. Lastly, the results were similar for the modification indices suggested. Altogether, these results indicated that the new model did not represent a better fit than *Model 2*. When considering the results for both of the new models and the results of *Model 1* and *Model 2*, it is evident that running SEM models with all 94 participants did not yield significantly better fit statistics, modification indices, or standardized residuals than running separate SEM models based upon gender. The SEM models with all 94 participants also did not indicate any additional paths of significance, compared to *Model 1* and *Model 2*. Therefore, while running the SEM models separately for each gender resulted in smaller sample sizes being utilized; this did not appear to negatively impact the overall model and/or model fit.

As was previously stated, however, having smaller sample sizes that were below the calculated threshold for detecting significant effects likely negatively affected the overall power of the models. This potential power problem made it more likely that a Type II error would occur, which is when a test indicates a condition failed or was not significant when it actually was successful (i.e., failing to believe a true condition). Due to this, relationships that are approaching significance should be interpreted as potentially being significant.

Hypotheses

The results (i.e., paths) that follow can be seen in *Figures 2* and *4*. Additionally, Tables 8 and 9 present correlation matrixes, and Tables 10-13 provide the direct, indirect, and total effects. Path values will be reported in standardized beta coefficients as these standardized values allow for the comparison of the effect of each independent variable on the dependent variable; when comparing these values, the higher the absolute value of

the beta coefficient, the stronger the effect. Betas are calculated by subtracting the mean from the variable and dividing by its standard deviation, resulting in standardized variables having a mean of 0 and a standard deviation of 1. Effects (direct, indirect, and total) were calculated by STATA SEM. Direct effects are the standardized beta coefficients, also called beta weights; indirect effects are the effects from the independent variables to the dependent variable that go through a mediator which is calculated by taking the product of the beta weights; and total effects are the sum of the direct and indirect effects (Acock, 2016). When looking at direct effects, standardized values less than .10 may indicate a *small* effect, values around .30 a *medium* effect, and values greater than .50 a *large* effect (Suhr, 1984).

Hypothesis 1 posited that individuals who endorsed greater social media usage would have more negative body image than individuals who endorsed lower levels of social media usage (see *Figure 2*). For females, there were no significant direct effects of daily social network site use (variable name in model: totaldaysnsu) on body image, nor were there significant direct effects of monthly social network site use (variable name in model: totalmonsnsu) on body image (direct paths: daily $\beta = .08, p = .51$, monthly $\beta = -.02, p = .87$). There were also no significant indirect effects of social network site use on body image through internalization of appearance ideals (variable name in model: totalsiaqa) (indirect effects: daily $\beta = -.01, p = .93$, monthly $\beta = -.00, p = .98$), or total effects of daily or monthly social network site use on body image (total effects: daily $= .07, p = .68$, monthly $= -.02, p = .89$).

Similarly, for males there were no significant direct effects of daily or monthly social network site use on body image (direct paths: daily $\beta = -.11, p = .46$, monthly $\beta =$

.20, $p = .22$), indirect effects of social network site use on body image through internalization of appearance ideals (indirect effects: daily $\beta = .12$, $p = .29$, monthly $\beta = -.21$, $p = .09$), or total effects of daily or monthly social network site use on body image (total effects: daily = .00, $p = .99$, monthly = -.01, $p = .96$). These results indicate that hypothesis 1 was not supported. See Table 10 for direct effects and Table 11 for indirect and total effects.

Hypothesis 2 stated that individuals who endorsed greater usage of visually-oriented (photo-focused) social network sites would have more negative body image than individuals who endorsed lower levels of visually-oriented social network sites (see *Figure 4*). For females, there were no significant direct effects of visually-oriented social network site use (variable name in model: ztotvissnsu) on body image (direct path: $\beta = .09$, $p = .43$), indirect effects of visually-oriented social network site use on body image through internalization of appearance ideals (indirect effects: $\beta = -.13$, $p = .25$), or total effects of visually-oriented social network site use on body image (total effects = -.04, $p = 0.82$).

For males, however, there was a significant direct effect of visually-oriented social network site use on body image (direct path: $\beta = .25$, $p = .04$). Although the path was significant for males, it was not in the hypothesized direction, as the results indicated that males who endorsed greater usage of visually-oriented social network sites also endorsed having better body image. There were no significant indirect effects of visually-oriented social network site use on body image through internalization of appearance ideals (indirect effects $\beta = -.12$, $p = .18$) or total effects of visually-oriented social network site use on body image (total effects = .13, $p = .35$). Given the results,

specifically that males who endorsed greater usage of visually-oriented social network sites also endorsed having better body image, hypothesis 2 was not supported. See Table 12 for direct effects and Table 13 for indirect and total effects.

For comparative purposes, the paths from non-visually-oriented social network site use (variable name in model: *ztotnonvissnsu*) to body image were analyzed. For both females and males, these paths were found to not be significant as there were no significant direct effects of non-visually-oriented social network site use on body image (direct paths: female $\beta = -.03$, $p = .81$, male $\beta = -.16$, $p = .16$). There were also no significant indirect effects of non-visually-oriented social network site use on body image through internalization of appearance ideals (indirect effects: female $\beta = .12$, $p = .30$, male $\beta = .02$, $p = .83$), or total effects of non-visually-oriented social network site use on body image (total effects: female $\beta = .09$, $p = .58$, male $\beta = -.14$, $p = .31$). See Table 12 for direct effects and Table 13 for indirect and total effects.

In hypothesis 3, it was stated that females would use social network sites more often than males. *T*-tests were conducted to test for differences between groups (i.e., gender) with regard to daily social network site use and monthly social network site use. Tests showed that there were no statistically significant differences, between males and females, when it came to daily, $t(92) = -0.9$, $p = .37$, or monthly, $t(92) = -0.74$, $p = .46$, social network site use (female daily = 13.44, male daily = 12; female monthly = 37.76, male monthly = 36.13). Thus, hypothesis 3 was not supported.

It should be noted, however, that several statistically significant gender-based differences were found with regard to specific site use. Results from the *t*-tests showed that females reported using Facebook more than males on a monthly basis, $t(92) = -2.04$,

$p < .05$. Conversely, males reported using YouTube more than females on both a daily, $t(92) = 2.2, p < .05$, and monthly, $t(92) = 2.63, p < .05$, basis. No other significant gender-based differences were found. See Tables 2 and 3 for daily and monthly social network site use.

Hypothesis 4, which stated that the relationship between social network site use and body image would be stronger for females than males, was analyzed by looking at the direct paths (for both males and females) and total effects from daily social network site use to body image and from monthly social network site use to body image (see *Figure 2*). When looking to see if the relationship was stronger for females, several things were considered: 1) whether the paths were significant; 2) if the paths were significant, at what level were they significant; and 3) the absolute values of the standardized beta coefficients. All the aforementioned offer points of potential comparison since paths can either be significant or non-significant, paths can be significant at different levels, based upon p values (e.g., you can have significance at the .05, .01, and .001 level), and standardized beta coefficients have standard deviations as their units which allow for them to be compared. As was previously stated when discussing the first hypothesis, the paths between social network site use (both daily and monthly) and body image did not show significance for either females or males, which indicated the absence of any significant direct effects of social network site use on body image for either gender (direct paths: female daily $\beta = .08, p = .51$, female monthly $\beta = -.02, p = .87$, male daily $\beta = -.11, p = .46$, male monthly $\beta = .2, p = .22$). Further, there were also no significant total effects for females or males (total effects: female daily = .07, $p = .68$, female monthly = -.02, $p = .89$, male daily = .00, $p = .99$, male monthly = -

.01, $p = .96$). When looking at the standardized beta coefficients for the paths between daily social network site use and body image and monthly social network site use and body image for females and males, the female coefficients had lower absolute values than the male coefficients. Altogether, these results indicated that females did not have a statistically stronger relationship between social network site use and body image than males. Therefore, hypothesis 4 was not supported.

Hypothesis 5 posited that the relationship between social network site use and body image would be stronger for those who endorse a higher degree of internalization of appearance ideals. This hypothesis was analyzed by examining the indirect effects of both daily social network site use and monthly social network site use on body image through internalization of appearance ideals. Additionally, the direct paths from daily social network site use to body image and daily social network site use to internalization of appearance ideals were analyzed as were the direct paths from monthly social network site use to body image and monthly social network site use to internalization of appearance ideals. Lastly, the direct paths of internalization of appearance ideals to body image were analyzed (see *Figure 2*). While the indirect effects of both daily social network site use and monthly social network site use on body image through internalization of appearance ideals were integral to hypothesis 5, it was necessary to analyze all the paths mentioned to fully understand the relationships among these variables.

As was examined in hypothesis 4, the paths from females' daily social network site use to body image and females' monthly social network site use to body image were not significant (direct paths: daily $\beta = .08$, $p = .51$, monthly $\beta = -.02$, $p = .87$). For

females, the paths from daily social network site use to internalization and from monthly social network site use to internalization were also not significant (direct paths: daily $\beta = .02, p = .93$, monthly $\beta = .00, p = .98$). Since there were no significant indirect effects of social network site use on body image through internalization of appearance ideals for females (indirect effects: daily $\beta = -.01, p = .93$, monthly $\beta = -.00, p = .98$), hypothesis 5 was not supported. However, the path from internalization to body image was significant ($\beta = -.70, p < .001$), with females who endorsed a higher degree of internalization also endorsing having poorer body image.

For males, the paths from daily social network site use to body image and monthly social network site use to body image were not significant (direct paths: daily $\beta = -.11, p = .46$, monthly $\beta = .2, p = .22$). The path from daily social network site use to internalization was not significant ($\beta = -.23, p = .27$) and the path from monthly social network site use to internalization was approaching (but not reaching) significance ($\beta = .41, p = .05$). As was previously discussed, relationships approaching significance, such as the one between males' monthly social network site use and internalization, may actually be significant with a larger sample size as the smaller sample size in this study likely impacted overall power. There were no significant indirect effects of social network site use on body image through internalization of appearance ideals for males (indirect effects: daily $\beta = .12, p = .29$, monthly $\beta = -.21, p = .09$). Therefore, hypothesis 5 was not supported. Again, however, the path from internalization to body image was significant ($\beta = -.51, p < .001$), with males who endorsed a higher degree of internalization also endorsing having poorer body image.

After examining the model results, which included the standardized beta coefficients and effects (direct, indirect, and total), it was determined that the hypotheses of this study were not supported by the findings. This might be due to a combination of factors including measurement error (i.e., the way in which social network site use was measured), the difficulty that exists with trying to study the dynamic and ever-changing field of social media, and the fact that much of the research base, from which hypotheses were drawn, lacked studies which involved males and adolescent participants.

Other Findings

In examining the model results, several significant relationships were found that were not directly related to the hypotheses (see *Figures 2 and 4*). In *Model 1*, there was a relationship found between parental education (variable name in model: highested) and body image for both males and females (female $\beta = .21, p < .05$, male $\beta = .27, p < .05$); this relationship was also found in *Model 2* for males but not for females (female $\beta = .19, p = .06$, male $\beta = .29, p < .01$). Still, it should be noted that the relationship between females' parental education and body image was approaching significance and thus may actually be significant with a larger sample size since this study's smaller sample size likely impacted overall power. In all the aforementioned cases, those who endorsed a higher level of parental education also endorsing having more positive body image. A *t*-test was conducted to test for differences between groups (i.e., gender) with regard to parental education; the test showed that there was a statistically significant difference when it came parental education, $t(92) = 2.0, p < .05$, with males reporting higher levels of parent education (male parent ed average = 5.59, female parent ed average = 4.93).

In both *Model 1* and *Model 2*, there were several other significant relationships found only for males. In both models, there was a relationship between parental education and internalization of appearance ideals (Model 1: $\beta = -.30, p = < .05$, Model 2: $\beta = -.30, p = < .05$). Males who endorsed a higher level of parental education also endorsed lower levels of internalization. Additionally, in both models there was a relationship between BMI and body image (Model 1: $\beta = -.41, p = < .01$, Model 2: $\beta = -.36, p = < .01$). Males who reported a higher BMI reported poorer body image. Lastly, in *Model 2* there was a relationship found between BMI and internalization of appearance ideals ($\beta = .28, p = < .05$). Males who reported a higher BMI also endorsed higher levels of internalization. A *t*-test revealed that males' and females' reported BMI did not differ in a statistically significant manner, $t(92) = -.03, p = .98$; thus, males did not report significantly higher/lower BMI's than females. See Table 1 for male and female BMI.

Since *t*-testing was useful in determining that there was a statistically significant difference in parental education for males and females and no statistically significant differences in reported BMI for males and females, further *t*-tests were conducted. To better understand male and female responding with regard to internalization of appearance ideals and body image, *t*-tests were conducted for males' and females' BESAA subscale responses, BESAA total scores, and SIAQ-A internalization scores. Results revealed no statistically significant gender differences on the BESAA attribution subscale, $t(92) = -.86, p = .39$, weight subscale, $t(92) = -.09, p = .93$, appearance subscale, $t(92) = -.46, p = .65$, total score, $t(92) = -.45, p = .66$, or on the SIAQ-A, $t(92) = .55, p = .58$.

Chapter V: Discussion

One of the most new and popular forms of media in recent years is social network sites. To date, there are hundreds of social network sites, many of which boast millions of users, and they remain a popular form of media among male and female tweens, teens, college students, and adults alike (Common Sense Media, 2015b). The use of these sites has been linked to several health-related variables, including poorer body image (Holland & Tiggemann, 2017; Tiggemann & Slater, 2013; de Vries, Peter, Graaf & Nikken, 2016). This study analyzed the relationship between social network sites and body image, while taking into account gender and sociocultural internalization of appearance ideals. This was one of the few studies to examine this relationship in both male and female adolescents. Further, this study looked at use across various social network sites and examined visually-oriented (photo-focused) site use and non-visually-oriented (non-photo-focused) site use separately. Across the models analyzed, several relationships of interest were found, which will be discussed below.

Structural equation modeling (SEM) was utilized to analyze the data from this study and unlike other forms of data analysis which analyze variables in isolation, SEM allows for the testing of complex patterns of relationships among the variables of interest. Therefore, SEM can estimate the variance explained in the dependent variable (in this case, body image) by the multiple independent variables included in the model while also including disturbances, to control for influences that are unaccounted for by pathways in the model (Keith, 2014).

While completing data analysis and subsequent model analysis, a difficulty in trying to measure social network site use became evident. Preliminary analyses did not

yield strong statistical results for the social network site use measures. Factor analysis indicated that the grouping of the visually-oriented and non-visually-oriented sites lacked reliability and validity and the sites were not as dichotomous as originally anticipated. Further, factor analysis indicated that the overall monthly and daily social network site use measures, from which the visually and non-visually-oriented sites were parceled for analysis, also lacked reliability and validity, though the daily use measure was found to have slightly stronger statistics than the monthly use measure. Beyond this, there were several other issues with the social media measures worth discussing.

Since there is not always a consensus on which sites are considered visually-oriented and non-visually-oriented, there was a degree of difficulty involved in creating this distinction for the purposes of this study. This lack of consensus can be partially attributed to the fact that many sites include both visually-based and non-visually based features, options, or components. For example, on Facebook, there are non-visually based features including sharing stories, videos, and posts; creating groups and events; and sharing pages and event information; but there are also visually based features including sharing pictures. Still other sites utilize different types of visual features, options, or components; for example, YouTube is a social network site that predominantly utilizes videos as its platform, which is different from other sites that predominantly utilize photos as their platform. For the purposes of this study, visually-oriented social network sites were considered to be those whose primary method of conveying news and information is through pictures, while non-visually-oriented sites were considered to be those whose primary method of conveying news and information is through videos, articles, or text.

Per the data, 11 of the 94 participants reported that they use social network sites for 24 or more hours a day. Based upon participant responses, the average female daily social network site use was 13.44 hours and the average male daily social network site use was 12 hours, which would indicate adolescents are spending roughly half their day, on average, interacting with social network sites. While it is possible for adolescents to be using social networks for this amount of time and for 24 or more hours a day (e.g., if using more than one site at a time or using more than one device to access a social network at a time), a large scale study from 2015 found that the average daily usage of social media among adolescents was around one hour and 11 minutes (Common Sense Media, 2015b). As Anderson and Jiang (2018) found, more teenagers are reporting being online constantly and/or going online several times a day. Therefore, while social network use may have risen significantly since 2015, it is also possible that adolescents struggle with being mindful of how much time is passing while they are interacting with social network sites and/or have a difficult time accurately summing the amount of time they spent on sites per day. It is also possible that some participants misinterpreted the instructions/directions on the daily social network site use measure and did not report their typical daily use but rather some other interpretation of their use (e.g., their use across the past few days, their typical weekly use, the most time they can remember spending on specific sites on a daily basis).

Several of the sites included in the social network site use measures (i.e., Twitter, Tumblr, Flickr, and Pinterest) were used or interacted with significantly less than other sites such as Facebook, Snapchat, and Instagram. This then raised the question of whether certain sites should have been excluded from analysis. Analyses were conducted

to determine if excluding the lesser-used sites from analysis would be a better fit for the data. What was found, however, was that excluding sites from analysis resulted in weaker goodness of fit statistics. Therefore, no sites were excluded from analysis.

As was previously described, the social network site use (i.e., social media) measures were created after researching, exploring, and consulting the commonly used indices for measuring time spent on social networking sites as well as their subsequent limitations (Galica et al., 2017; Olufadi, 2016; Vannucci, Flannery & Ohannessian, 2017; Woods & Scott, 2016) and gaining input/insight from a university communications professor who had experience researching social media and had previously collected data from an undergraduate population regarding daily/weekly social media use (N. Schlegel, personal communication, May 8, 2018). In creating the measures for this study, it was important to try to improve upon previous measures and accurately reflect current usage among adolescents; this is why the measures in this study included nine of the most widely used sites among adolescents, a wider range of possible responses (e.g., responses ranged from 0 hours to 10 hours or more), and took into account the multidimensionality of social network site use by looking at use in terms of time spent on the sites and frequency of use of the sites. A self-report format was utilized, as previous research studies that had included a self-report format for data collection had not reported serious statistical limitations.

Despite creating the social network site use measures after taking into account previous research, theory, and logic and seeking to address issues in previous measures and improve upon them, the statistical analyses did not show these measures to be strong. While it is important to analyze and understand the results that came from this study, it is

equally important to keep in mind that previous research supports the hypotheses of this study. Although the hypotheses could not be supported by the results, this is believed to be largely due to the social media measures used, and thus the hypotheses may actually be accurate. This necessitates that results be interpreted with caution, given the lack of strong statistical underpinnings with one of the main measures used in the study.

Overarching Findings

This study found that neither daily nor monthly social network site use were directly related to body image for either male or female adolescents. When examining social network site use in terms of visually-oriented and non-visually-oriented use, however, more visually-oriented use was found to directly relate to more positive body image for male adolescents as male participants who endorsed more visually-oriented social network site use also reported more positive body image. For both male and female adolescents, greater internalization of appearance ideals was significantly related to poorer body image. There was also a relationship found between parental education and body image for both males and females. In looking at males, specifically, there were also relationships found between parental education and internalization, BMI and body image, and BMI and internalization.

Findings Related to Hypotheses

Neither hypothesis one nor two were supported by the findings of this study, as greater social media usage was not found to be related to more negative body image when considering monthly or daily use, nor was greater usage of visually-oriented social network sites found to be related to more negative body image. As was previously stated, male participants who endorsed more visually-oriented social network site use actually

reported more *positive* body image. It is unknown at this time whether male participants who reported higher visually-oriented social network site use already had better body image or if using visually-oriented sites more improved their body image. These findings are inconsistent with earlier research findings which found that social media photo-related activities and greater use of certain visually-oriented social network sites (e.g., Instagram) was related to worse body image (Cohen, Newton-John, & Slater, 2017; McLean, Paxton, Wertheim, & Masters, 2015; Tiggemann & Zaccardo, 2015). There has been other research, however, which has examined the use of visually-oriented social network sites (e.g., Instagram) and not found a significant relationship between usage and body dissatisfaction (Ruotsi, 2017; Slater, Varsani, & Diedrichs 2017). Of the aforementioned studies, only the Ruotsi (2017) study included male participants in the research. The results of this study suggest that males may be interacting with visually-oriented social media differently than females; for example, males may be more likely to view, seek, and/or share body or appearance positive content than females and/or may be spending more time with content that makes them feel confident about themselves and their body.

While these findings suggest that social network site use is not having as detrimental effects on body image for either gender as predicted, there remains the problem and challenges related to how social network site use was measured. Further, since this study found differences between males and females, it makes sense to include males in future studies. In future studies, it will be helpful to find out more about males' social media use in terms of how they are interacting with sites, including the type of

content they are seeking out, searching for, viewing, sharing, as well as posting, and the features of the sites that they utilize most often.

Hypothesis three was not supported by the findings, as results showed that there were no statistically significant differences between males and females when it came to daily or monthly social network site use. This may be due in part to the ever-increasing percentage of adolescents who have a smartphone, which allows them easy fingertip access to social network sites. In 2015, 67% of teenagers had their own smartphone, whereas by 2018 the percentage had risen to 95%; by 2018, 45% of teenagers were also reporting being online almost constantly and 44% were reporting going online several times a day (Anderson & Jiang, 2018). It is likely that both male and female adolescents are using social network sites more now than a few years ago, and in some cases, universal use has become so normalized and common that gender-based differences with regard to time spent on social network sites are no longer detectible. While there were no differences in total social network site use, there were gender-based differences when it came to specific site use. Females were found to use Facebook significantly more than males, on a monthly basis, while males were found to use YouTube significantly more than females, on both a daily and monthly basis. This suggests that while males and females are spending similar amounts of time interacting with social network sites as a whole, there are some gender-based differences with regard to site preference and use. It seems that certain sites (or perhaps features of certain sites) are more attractive to one gender than the other and thus finding gender differences might be dependent upon which sites are included and examined.

Hypothesis four did not have support, based upon the results, as there were no significant gender differences found with regard to the relationship between social network site use and body image. Limitations with regard to the social network use measures and how social network site use was conceptualized in this study have already been discussed. When considering the variable of body image, previous research has found that women demonstrated a more negative body image than men, were more concerned with appearance, weight, and dieting, and had a greater number of body image concerns (Gettelman & Thompson, 1993; Lowery et al., 2005). This study, however, did not reveal significant gender differences with regard to body image.

To better understand the aforementioned, the nature of the participants was considered further. Given that the participants in this study were from rural areas, the research base comparing body image in urban and rural populations was consulted. While the majority of the studies that focused on rural vs. urban body image have typically been conducted outside of the United States and thus do not involve American participants, the findings have suggested that there might be differences in body image based upon place of residence. Jackson, Rashed, and Saad-Eldin (2003) conducted a study involving Egyptian female adolescents; Craike, Young, Symons, Pain, Harvey, Eime, and Payne (2016) conducted a study with Australian female adolescents; and Swami, Kannan, and Furnham (2012) conducted a study which involved Malaysian women. All three studies found significant rural-urban differences when it came to body image with rural females reporting more positive body image than urban females. Considering this, it is possible that the female participants in this study reported more

positive body image than what might be expected, and this may be due in part to their place of residence (i.e., a rural area).

Hypothesis five was also not supported by the data, as internalization did not factor into the relationship between social network site use and body image as predicted. Internalization was not found to be a statistically significant mediating variable in the relationship between social network site use and body image. This could be due in part to the fact that no significant relationship was found between social network site use and body image, in this study; however, it might also be that for adolescents, internalization is more impacted and influenced by factors other than social network site use. That being said, the relationship between males' monthly social network site use and internalization of appearance ideals was approaching significance ($\beta = .41, p = .05$) which indicates a potential connection between social network site use and internalization, at least for males, that is worth exploring in further research. Additionally, results did reveal a significant relationship between internalization of appearance ideals and body image for both males and females. This is in line with previous research that found internalized appearance ideals to be a significant predictor of body dissatisfaction for both males and females (Bessenoff & Snow, 2006; Dittmar & Howard, 2004; Jones, Vigfusdottir, & Lee, 2004; Lawler & Nixon, 2011; Morry & Staska, 2001). These findings suggest that internalization is significantly related to the way in which youth perceive their body.

Other Findings of Interest

For both males and females, parents' education level was related to body image. For males, this relationship was present in both models, and for females, this was seen in *Model 1*. For both males and females, a higher parental education level was linked to

better body image. While there is not much research that specifically examines how parental education influences body image, the available research does show that parenting impacts factors related to body image, such as physical activity, healthy eating and exercise choices (Kelly et al., 2005; Savage, DiNallo, & Downs, 2009). Further, it has been found that youth who perceive low parental communication and caring are more likely to experience body dissatisfaction and that parents' weight related talk, dieting, and weight-teasing are associated with youth body dissatisfaction and unhealthy weight control behaviors (Ackard et al., 2006; Neumark-Sztainer et al., 2010). It can be deduced that the more education the participants' parents had, the greater understanding and awareness they might have had about their own body esteem, confidence, and image as well as their children's. Thus, more educated parents may spend a greater amount of time engaging in conversations about healthy/adaptive body and wellness practices with each other and with their children; they might also foster a body positive culture and environment at home. Further, parents' education level was used as a measure of SES in this study and some of the research which has explored the relationship between SES and body image has found that higher SES was associated with greater satisfaction and pride in one's body, higher self-esteem, and lower rates of pathological weight control behaviors such as binge eating and vomiting (Story et al., 1995; van den Berg, Mond, Eisenberg, Ackard, & Neumark-Sztainer, 2010).

There was a relationship found between parents' education level and internalization of appearance ideals for males, across both models. A higher parent education level was linked to less internalization for male participants. As was previously described, *t*-testing revealed that there was a significant difference between

males' and females' parental education level, with males having a higher parental education level. Perhaps having more highly educated parent(s) contributed to male adolescents having a better understanding of the body ideal images and messages perpetuated by society/media; this understanding may have resulted in them being more likely to consider realistic appearance and body standards over heavily edited/manipulated or unhealthy standards. It is also possible that males' internalization is more heavily influenced by their parents than by other factors. For example, males might be more affected by their parents' opinions and attitudes towards appearance, image, and body ideals than by other societal and environmental factors that could influence their internalization.

A relationship between BMI and body image was found for male participants across both models, where males who reported a higher BMI reported poorer body image. Noteworthy, earlier research found that BMI predicted body dissatisfaction for both males and females, including adolescent males and females (Barker & Galambos, 2003; Jones et al., 2004; Paxton et. al., 1991; Paxton et al., 2006; Presnell et al., 2004). As has been previously discussed, *t*-testing in the current study determined that there were no statistically significant differences in reported BMI, BESAA subscales, or total BESAA score for males and females. When trying to understand why females in this study did not conform to the majority of previous research, several ideas arise. Perhaps the females included in this study have been exposed to and/or bought into the body positive movement (e.g., health at every size) that has increasingly been a part of conversation and social media platforms, positively impacting the way in which they view their size, weight, and body. It may also be the case that having a higher BMI (i.e.,

being heavier relative to height) was more normalized within the female population studied as a result of being exposed to and around peers (both male and female) who also had a higher BMI; in turn, this exposure to and normalization of higher BMI's (i.e., heavier body types) may have resulted in females feeling more confident about their bodies since their bodies did not differ significantly from their peers.

Finally, in *Model 2*, there was a relationship found between BMI and internalization for males, wherein males who reported a higher BMI also endorsed higher levels of internalization. There is not much literature which focuses on the relationship between BMI and internalization in males, and previous research that has included adolescent males and females (grades 7-10) found that BMI was linked to internalization for females but not for males (Jones, Vigfusdottir, & Lee, 2004). It may again be the case that the females included in this study have been exposed to and/or bought into the body positive movement and/or that having a higher BMI was more normalized within this female population, resulting in females with higher BMI's being no more prone to internalize the thin-ideal or slim body types than females with lower BMI's.

Limitations

The sample size for this study was modest, with 94 total participants. There remains no consensus in the field regarding what constitutes an appropriate sample size for SEM. As was previously described, the use of an A-priori sample size calculator (i.e., power calculator) for Structural Equation Models revealed a recommended sample size of 87 participants or more (Free Statistics Calculators, 2020) in order to detect effects for the models in this study. Though there were 94 total participants, males and females were analyzed separately and sample sizes were 39 and 55, respectively. While

comparative analyses (described in the results section) found that analyzing males and females separately did not significantly alter the path results nor create a worse goodness of fit for the model, results must still be interpreted with caution. Therefore, while it will be helpful to have the results of this study to inform further research and offer a snapshot of adolescents' social network use, internalization, and body image, the sample size of this study negatively impacted overall power and the conclusiveness of the results.

Further, all of the participants were from one of two school districts, both of which are located in rural areas of western New York State, and the majority of the sample was homogenous with regard to race/ethnicity, with 93.6% of participants self-identifying as being White. Thus, this study did not include a diverse sample in regard to race and ethnicity, and results would therefore be less generalizable to areas with more racial and ethnic diversity. The participants of this study also came from highly educated households, with 26.6% of the participants reporting having at least one parent with a master's degree. In 2017, the proportion of children between the ages of 6-18 with parents who had a bachelor's degree or higher was 38% among fathers and 36% among mothers (Child Trends, 2019) whereas 46.8% of the participants in the current study had at least one parent with a bachelor's degree or higher. This would also limit generalizability. As was previously stated, based upon the combined free and reduced lunch eligibility within the two school districts (50%), the National School Lunch Program considers these two districts to be mid-low poverty (National Center for Education Statistics, 2019). Seeing as both districts are considered to be mid-low poverty schools and the majority of youth in low-income families have parents with lower levels of education, per the National Center for Children in Poverty (Douglas-Hall & Chau,

2007), it appears likely that participants in this study came from more highly educated households than would be considered typical for their districts and thus may not be representative.

The average BMI for 14, 15, 17, and 18-year-old males was above the 85th percentile and thus in the overweight percentile range and the same was true for 14, 17, and 18-year-old females. Taken together, participants were on the higher end of the growth chart. Previous research has shown that obesity/severe obesity increased with lower level of urbanization (Ogden, Fryar, & Hales, 2018; Williamson et al., 2009) and that more than 55 percent of the global rise in obesity comes from rural areas (Brink, 2019). Therefore, while participants may be more representative of adolescents located in rural areas, results would likely not be as generalizable to youth (adolescents) who fall within the average BMI range and/or who live in more urban areas.

Future Research

This study provided both descriptive and correlational information regarding the relationship between social network site use, internalization of appearance ideals, and body image; however, further research is needed to clarify the impacts and effects this newer form of social media (i.e., social network sites) may or may not have on the body image of the adolescents who use and interact with it. Future research can seek to look at, and measure, social network site usage differently, given the described limitations with regard to the social network site use measures not having strong reliability and validity. This study, specifically, could be redone with a more reliable and valid social network site use measure. The results of factor analysis indicated that the daily social network site use measure had slightly stronger statistics than the monthly social network

site use measure. This may be the case because participants were better able to recall their typical daily social network use compared to their use over the past month. It might also be the case that participants had an easier time conceptualizing, and thus choosing between, the options offered in the daily use scale (e.g, 1 hour, 2 hours, 3 hours) than the options offered in the monthly use scale (e.g, less than once per month, less than once per week, once per week). Therefore, in replicating this study it would be beneficial to try to improve upon the daily use measure and omit the monthly use measure. To improve upon the daily use measure, it would be helpful to ensure that the directions are clear, concise, and conveyed to participants. It might also be useful to have participants add up their total time spent on social network sites per day in order to increase overall awareness and accuracy of reporting. Including only the most popular social network sites, per the most recent research, might also aid in accuracy of reporting as participants would then only be recalling their use across several (e.g., 3-5) sites.

This study could also be redone with an altogether different social media measure format. For example, a real-time assessment of social network use could be achieved by having participants complete a survey at the end of every day or at several points throughout the day. This survey could be sent to their email or as a text and they could record their social network site use and specific types of site engagement (e.g., posting, scrolling, searching). To better understand their use, this data could be collected across several days, similar to the Jelenchick et al. (2013) study. In recent years, apps have begun to emerge that track social network site usage, in terms of time spent on the sites. Having participants download an app that could do this, such as the app *AntiSocial*, could

also be a potential source of data as app tracking removes issues related to participant memory and honesty with reporting (Campbell, 2017).

In reexamining the difference between visually-oriented social network sites and non-visually-oriented social network sites, it might be advantageous to include a more stringent categorization when differentiating between visually-oriented sites and non-visually-oriented sites and/or to take the most widely used visually-oriented site and most widely used non-visually-oriented site (based upon participant responses) and compare just the two sites. This would eliminate the difficulty that was found with the measures, specifically that factor analysis did not support the convergence on a single factor with regard to either visually-oriented sites or non-visually-oriented sites.

It is also important to note that frequency of use is only one aspect of engagement with social media and thus there are other ways to understand, measure, and analyze social media engagement. With a vast majority of teens now having access to a smartphone and a growing share of teens describing their internet use as near-constant (Anderson & Jiang, 2018), the narrative shifts away from how much time is being spent on social network sites and towards the types of activities adolescents are engaging in/with, on the specific sites. Therefore, social media use could be analyzed more in terms of site-specific activities or types of engagement. Considering the site Instagram, for example, it could be assessed or measured whether someone is spending their time editing and posing a photo, scrolling through their feed, looking at a specific page(s), interacting with specific content (e.g., fitspiration, thinspiration, health at every size, pro-ana) or searching for specific content (e.g., people, places, brands). Considering the length of time participants have been using and interacting with social network sites, how

individuals are accessing and interacting with social network sites (e.g., phone, laptop/computer, tablet, or a combination of these devices), and when (i.e., time of day) individuals are accessing and interacting with social network sites may also prove helpful. Given that the landscape of social network sites is constantly changing and evolving, with new sites emerging frequently, sites shutting down or changing their features, and specific sites taking off in terms of popularity, it will also be necessary to understand which sites remain active (vs shut down) and what new sites have emerged and are being used by this age group.

Though this study did not find gender to have a moderating effect on the variables of interest, further research to assess adolescent gender-based differences would be beneficial, as much of the research base on internalization and body image has focused on college-age students, particularly females. Further, since social network site use was found to significantly relate to body image for male participants, with male participants who endorsed more visually-oriented social network site use reporting more positive body image, it will be helpful to more thoroughly try to explore this relationship. More descriptive and qualitative research, in the form of interviews or focus groups with participants, might also help with this by offering a more in-depth understanding of the thoughts, feelings, behaviors, and effects associated with social network site use, internalization of appearance ideals, and body image.

Implications

The participants in this research study were male and female adolescents in 9th-12th grades. At this age, youth are growing and developing physically, cognitively, socially, emotionally, and academically, and for those involved in education and

academia, it is important to recognize how a preventative approach could benefit this age group. Given that internalization of appearance ideals was found to be significantly related to body image for both male and female adolescents, it would benefit adolescents to know what internalization is; what types of activities, conversations, and experiences contribute to it; and how to reframe negative/maladaptive ideals and cognitions into something more healthy and realistic. Moreover, helping adolescents to develop adaptive strategies to combat negative thoughts and feelings about themselves could be helpful in this regard. Lastly, helping youth navigate media and recognize how a portion of what they are seeing and experiencing is unrealistic content and visuals that have been altered or edited, and are thus not genuine or authentic, could help combat internalization and subsequent poorer body image.

As was previously discussed, this study did not find evidence for the stated hypotheses, for reasons which may include the following: measurement error (i.e., the way in which social network site use was measured), the difficulty that exists with trying to study social media as it presents a dynamic and ever-changing landscape, and the fact that much of the existing research base has not focused on adolescent participants, specifically males. That being said, there remains reason to believe that some of the hypothesized relationships might be found in future research.

With the use of a more reliable/valid social media measure, significant relationships between social network site use and body image and visually-oriented social network site use and body image might be found as previous research has shown: 1) a positive relationship between social network site use and body image concerns and dissatisfaction (de Vries et al., 2016; Holland & Tiggemann, 2017; Tiggemann and

Slater, 2013), and 2) a positive relationship between visually-oriented social network site use and body image concerns and dissatisfaction (Cohen et al., 2017; McLean et al., 2015; Tiggemann & Zaccardo, 2015). Given these findings, it is likely that the same would hold true for adolescents and males.

Lastly, the relationship between males' monthly social network site use and internalization of appearance ideals was approaching significance; therefore, it is possible that future research which utilizes a more reliable/valid measure of social media might find a significant relationship between these variables. Given the strength of the relationship found between internalization and body image, it is highly possible that future research will find a similar relationship between these variables.

Summary

This study examined the relationship between social network site use and body image, while taking into account gender and sociocultural internalization of appearance ideals, and including parents' education level (a measure of SES) and BMI as controls. Preliminary analyses indicated that the social media measures lacked reliability and validity, thus results should be interpreted with this in mind. Several statistically significant relationships were found. Regarding the demographic variables and other variables of interest in the study, there was a relationship found between parental education and body image for both males and females. For male participants, there were also relationships found between parental education and internalization, BMI and body image, and BMI and internalization. Results did not support a relationship between social network site use and body image in the hypothesized fashion; social network site use was found to significantly relate to body image for male participants only, with male

participants who endorsed more visually-oriented social network site use reporting more positive body image. For both male and female participants, it was found that internalization of appearance ideals was significantly related to body image, with participants who endorsed greater internalization of appearance ideals reporting more negative body image. Further research on this newer form of media is necessary to better understand how it impacts users' body image and the variety of other related effects it may have (e.g., with regard to physical activity, eating attitudes, other dimensions of body image), some of which may vary when taking into account demographic factors such as age, gender, race, SES, and BMI. This research highlights the importance of raising awareness regarding the ways in which appearance ideals are perpetuated by society and media and how these ideals impact the way in which individuals view and feel about their body. It will be important for those who work closely with adolescents to help in shifting the narrative towards body size and shape positivity and inclusivity.

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Table 1

Participants' Demographics

	Frequency Mean (for BMI)	Percent SD (for BMI)
Gender		
Male	39	41.5
Female	55	58.5
Age		
14	19	20.2
15	12	12.8
16	12	12.8
17	41	43.6
18	10	10.6
Grade		
9 th	24	25.5
10 th	8	8.5
11 th	12	12.8
12 th	50	53.2
Race		
White	88	93.6
Black	1	1.1
American Indian	1	1.1
Other	4	4.3
Parents' Education Level		
Less than 8 th Grade	0	0
Some High School	3	3.2
High School Diploma	14	14.9
Some College	19	20.2
Associate Degree	14	14.9
Bachelor's Degree	16	17.0
Master's Degree	25	26.6
Doctorate, Professional Degree	3	3.2
BMI		
Overall Male	24.98	5.57
14-year-olds	24.14	3.28
15-year-olds	25.25	7.95
16-year-olds	20.74	2.15

	Frequency Mean (for BMI)	Percent SD (for BMI)
17-year-olds	26.38	5.82
18-year-olds	27.96	8.60
Overall Female	25.02	6.03
14-year-olds	26.24	7.23
15-year-olds	21.69	3.30
16-year-olds	21.23	2.86
17-year-olds	26.31	6.44
18-year-olds	25.87	5.90

Table 2

Daily Social Network Site Use Responses

	Mean	Range	SD
Facebook	1.27	0-6	1.48
Snapchat*	3.78	0-11	2.83
Instagram*	2.61	0-11	2.23
Twitter	0.50	0-6	1.10
Tumblr	0.06	0-2	0.29
Google+	0.96	0-9	1.73
Flickr*	0.01	0-1	0.10
Youtube	3.30	0-11	2.45
Pinterest*	0.36	0-6	0.83
Other**	0.09	0-4	0.52
Total Visual Use	6.76	0-22	4.69
Total Nonvisual Use	6.09	1-24	4.16
Total Use	12.84	1-46	7.59
Female Total Use	13.44	1-46	8.15
Male Total Use	12.00	2-30	6.73

Note. Numbers represent number of hours per day spent engaging with the social network site; *Visually-oriented sites; **Variable not included in analysis

Table 3

Monthly Social Network Site Use Responses

	Mean	Range	SD
Facebook	4.18	1-12	2.82
Snapchat*	9.02	1-12	3.33
Instagram*	7.12	1-12	3.12
Twitter	2.43	1-12	2.63
Tumblr	1.27	1-7	1.03
Google+	3.47	1-12	3.17
Flickr*	1.03	1-3	0.23
Youtube	6.60	1-12	2.77
Pinterest*	1.98	1-12	2.07
Other**	0.29	0-8	1.40
Total Visual Use	19.15	4-32	6.36
Total Nonvisual Use	17.94	6-36	6.03
Total Use	37.09	10-65	10.49
Female Total Use	37.76	10-65	10.42
Male Total Use	36.13	10-65	10.65

Note. Numbers represent scaled amount of time per month spent engaging with the social network site; *Visually-oriented sites; **Variable not included in analysis

Table 4

SLAQ-A Item Responses

	Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree
Q1. I would like my body to look like the bodies of people in the media.	27.7	16.0	31.9	20.2	4.3
Q2. Looking at images in the media makes me want to change the way I look	31.9	25.5	17.0	18.1	7.4
Q3. Seeing images in the media makes me want to lose or gain weight.	39.4	18.1	18.1	16.0	8.5
Q4. Seeing images in the media makes me want to change my appearance.	37.2	16.0	18.1	22.3	6.4
Q5. I would like my appearance to be like the appearance of people in the media.	41.5	12.8	26.6	13.8	5.3

Note. Numbers represent the percentages of participants who selected each response

Table 5

SLAQ-A Responses

	Mean	Range	SD
Q1. I would like my body to look like the bodies of people in the media.	2.57	1.00-5.00	1.21
Q2. Looking at images in the media makes me want to change the way I look	2.44	1.00-5.00	1.31
Q3. Seeing images in the media makes me want to lose or gain weight.	2.36	1.00-5.00	1.37
Q4. Seeing images in the media makes me want to change my appearance.	2.45	1.00-5.00	1.36
Q5. I would like my appearance to be like the appearance of people in the media.	2.29	1.00-5.00	1.28
Total Score	12.11	5.00-25.00	5.99
Female Total Score	11.82	5.00-25.00	5.78
Male Total Score	12.51	5.00-25.00	6.33

Table 6

BESAA Scores

	Mean	Range	SD
Attribution Subscale	8.67	0.00-19.00	3.68
Weight Subscale	20.52	2.00-32.00	7.48
Appearance Subscale	26.34	0.00-40.00	8.76
Total Score	55.53	4.00-88.0	17.53
Female Total Score	56.22	11.00-85.00	16.53
Male Total Score	54.56	4.00-88.00	19.03

Table 7

Factor Results

	Factor 1	Factor 2	Factor 3	Factor 4
SNS M	Snapchat Instagram Twitter	Facebook Pinterest	Flickr YouTube Google Tumblr	
SNS D	Facebook Snapchat Instagram	Tumblr Flickr	Google+ YouTube	Pinterest Twitter
Visual M	Snapchat Instagram	Flickr Pinterest		
Visual D	Snapchat Instagram	Flickr Pinterest		
Nonvis. M	Twitter Tumblr	Google+ YouTube Facebook		
Nonvis. D	Twitter Tumblr	Google+ YouTube	Facebook	

Note. SNS M = Social Network Monthly Use; SNS D = Social Network Daily Use; Visual M = Monthly Visually-Oriented Social Network Use; Visual D = Daily Visually-Oriented Social Network Use; Nonvis M = Monthly Non-Visually-Oriented Social Network Use; Nonvis. D = Daily Non-Visually-Oriented Social Network Use

Table 8

Correlation Matrix for Model 1

	Gender	Par. Ed.	BMI	SNS M	SNS D	SIAQ-A	Att.	Weight	App.
Gender	1.00								
Par. Ed.	-0.20	1.00							
BMI	0.00	-0.21*	1.00						
SNS M	0.08	-0.03	0.01	1.00					
SNS D	0.09	0.06	0.00	0.67***	1.00				
SIAQ-A	-0.06	-0.10	0.12	0.12	0.04	1.00			
Att.	0.09	0.24*	-0.29**	0.11	0.08	-0.25*	1.00		
Weight	0.01	0.23*	-0.47**	-0.01	-0.01	-0.55***	0.46***	1.00	
App.	0.05	0.30**	-0.27**	-0.02	0.03	-0.66***	0.55***	0.77***	1.00

Note. Par. Ed. = Parent Education; SNS M = Social Network Monthly Use; SNS D = Social Network Daily Use; Att. = Attribution Subscale of BESAA; Weight = Weight Subscale of the BESAA; App. = Appearance Subscale of the BESAA; * $p < .05$, ** $p < .01$, *** $p < .001$

Table 9

Correlation Matrix for Model 2

	Gender	Par. Ed.	BMI	Visual	Nonvis	SIAQ-A	Att.	Weight	App.
Gender	1.00								
Par. Ed.	-0.20	1.00							
BMI	0.00	-0.21*	1.00						
Visual♦	0.24*	-0.05	0.03	1.00					
Nonvis♦	-0.09	-0.03	-0.01	0.43***	1.00				
SIAQ-A	-0.06	-0.10	0.12	0.13	0.01	1.00			
Att.	0.09	0.24*	-0.29**	0.25*	-0.08	-0.25*	1.00		
Weight	0.01	0.23*	-0.47***	-0.01	-0.01	-0.55***	0.46***	1.00	
App.	0.05	0.30**	-0.27**	0.03	-0.01	-0.66***	0.55***	0.77***	1.00

Note. Par. Ed. = Parent Education; Visual = Visually-Oriented Social Network Use; Nonvis = Non-Visually-Oriented Social Network Use; Att. = Attribution Subscale of BESAA; Weight = Weight Subscale of the BESAA; App. = Appearance Subscale of the BESAA; ♦ = standardized scores; * $p < .05$, ** $p < .01$, *** $p < .001$

Table 10

Direct Effects for Model 1

Variable	Female Beta	Male Beta
Dep = Internalization		
BMI	-.00	.24
Par. Ed.	.01	-.30*
SNS D	.02	-.23
SNS M	.00	.41
Dep = Body Image		
BMI	-.18	-.41**
Par. Ed.	.21*	.27*
SNS D	.08	-.11
SNS M	-.02	.20
SIAQ-A	-.70***	-.51***

Note. Dep = Dependent Variable; Par. Ed. = Parent Education; SNS M = Social Network Monthly Use; SNS D = Social Network Daily Use; * $p < .05$, ** $p < .01$, *** $p < .001$

Table 11

Total and Indirect Effects for Model 1

Variable	Female	Male
Total Effects on Body Image		
SNS D	.07	.00
SNS M	-.02	-.01
SIAQ-A	-.70	-.51
Indirect effects of SNS D on Body Image		
Through internalization	-.01	.12
Indirect effects of SNS M on Body Image		
Through internalization	-.00	-.21

Note. SNS M = Social Network Monthly Use; SNS D = Social Network Daily Use; Internalization = internalization of appearance ideals; * $p < .05$, ** $p < .01$, *** $p < .001$

Table 12

Direct Effects for Model 2

Variable	Female Beta	Male Beta
Dep = Internalization		
BMI	-.01	.28*
Par. Ed.	.01	-.30*
Visual	.18	.23
Nonvis.	-.16	-.03
Dep = Body Image		
BMI	-.21	-.36**
Par. Ed.	.19	.29**
Visual	.09	.25*
Nonvis.	-.03	-.16
SIAQ-A	-.71***	-.51***

Note. Par. Ed. = Parent Education; Visual = Visually-Oriented Social Network Use; Nonvis = Non-Visually-Oriented Social Network Use; * $p < .05$, ** $p < .01$, *** $p < .001$

Table 13

Total and Indirect Effects for Model 2

Variable	Female	Male
Total Effects on Body Image		
Visual	-.04	.13
Nonvis.	.09	-.14
SIAQ-A	-.71	-.51
Indirect effects of Visual on Body Image		
Through internalization	-.13	-.12
Indirect effects of Nonvis. on Body Image		
Through internalization	.12	.02

Note. Visual = Visually-Oriented Social Network Use; Nonvis = Non-Visually-Oriented Social Network Use; Internalization = internalization of appearance ideals; * $p < .05$, ** $p < .01$, *** $p < .001$

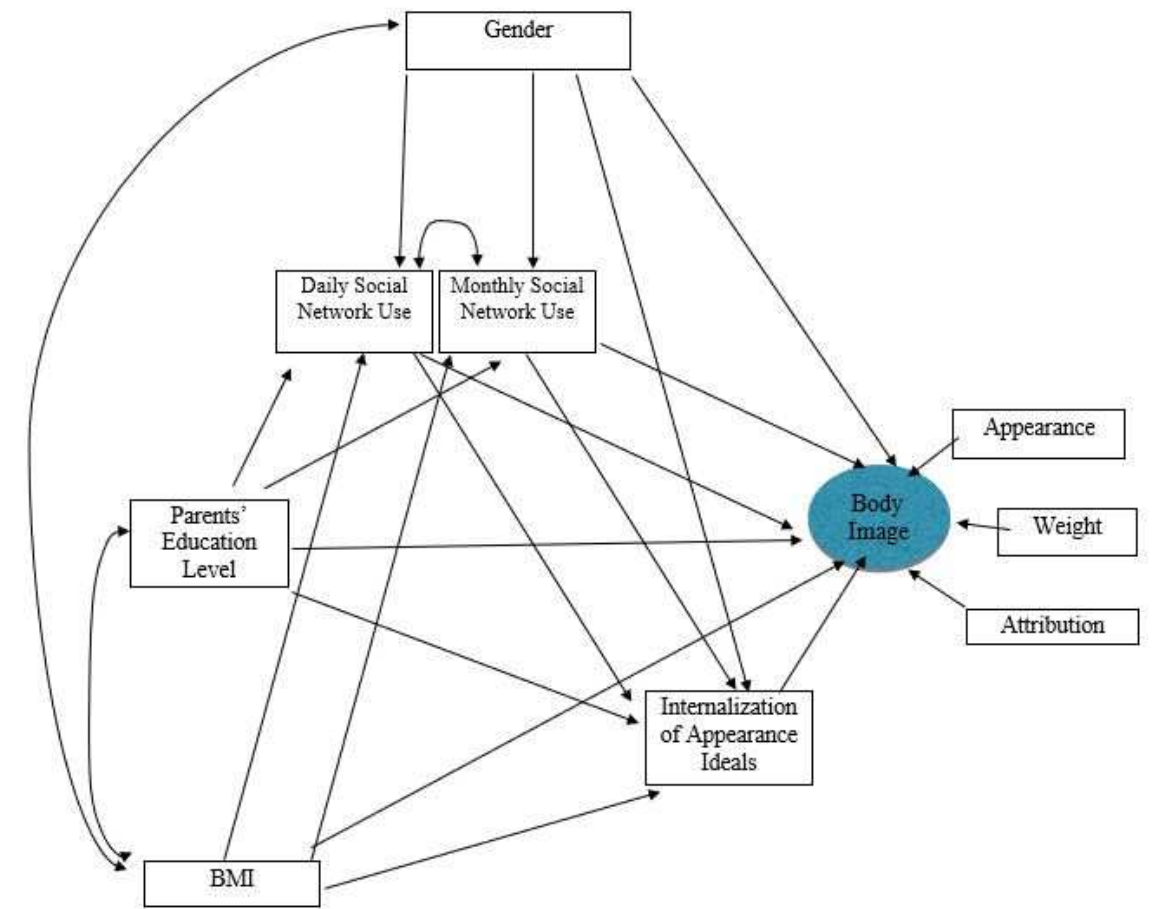


Figure 1. Planned Model 1: Daily and Monthly Social Network Site Use.

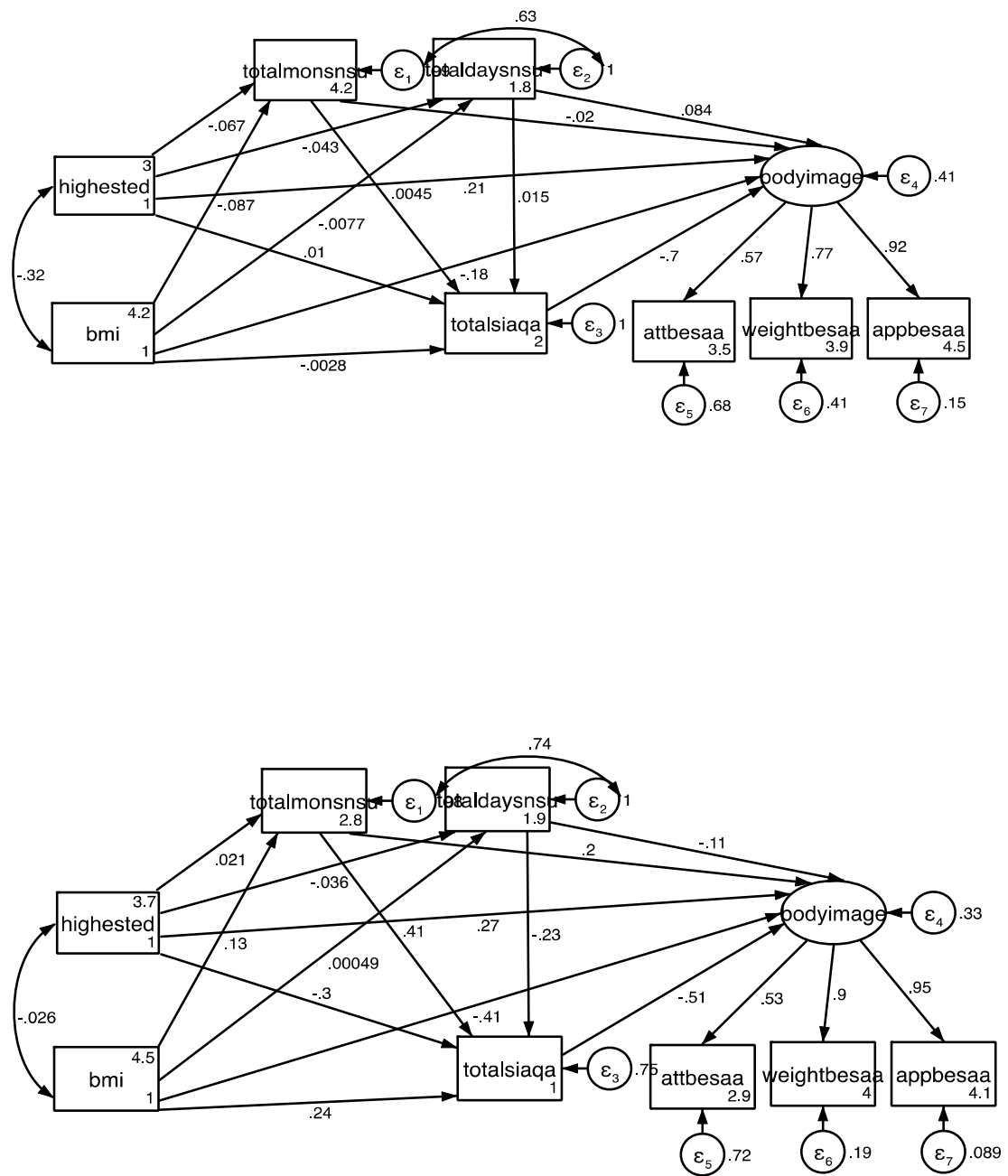


Figure 2. STATA SEM Model 1: Daily and Monthly Social Network Site Use.
 Note. Top = female model, bottom = male model

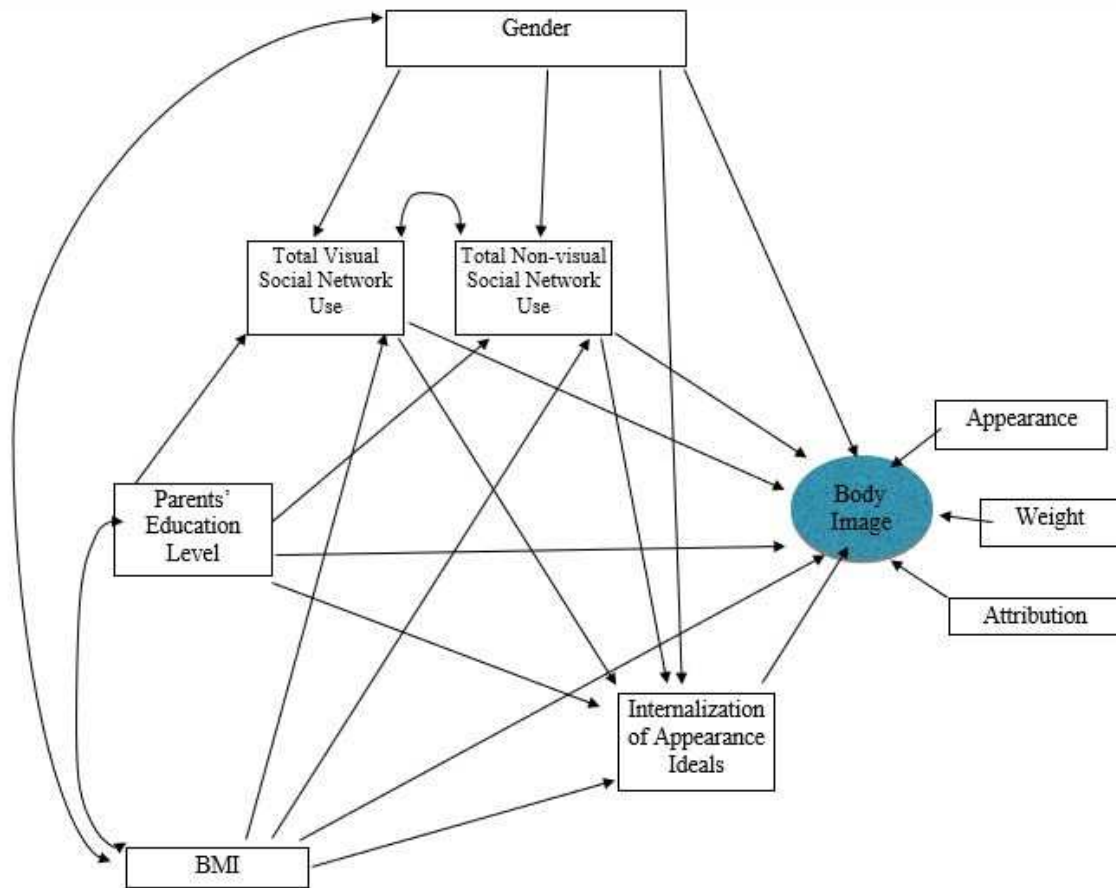


Figure 3. Planned Model 2: Visually and Non-Visually-Oriented Social Network Site Use.

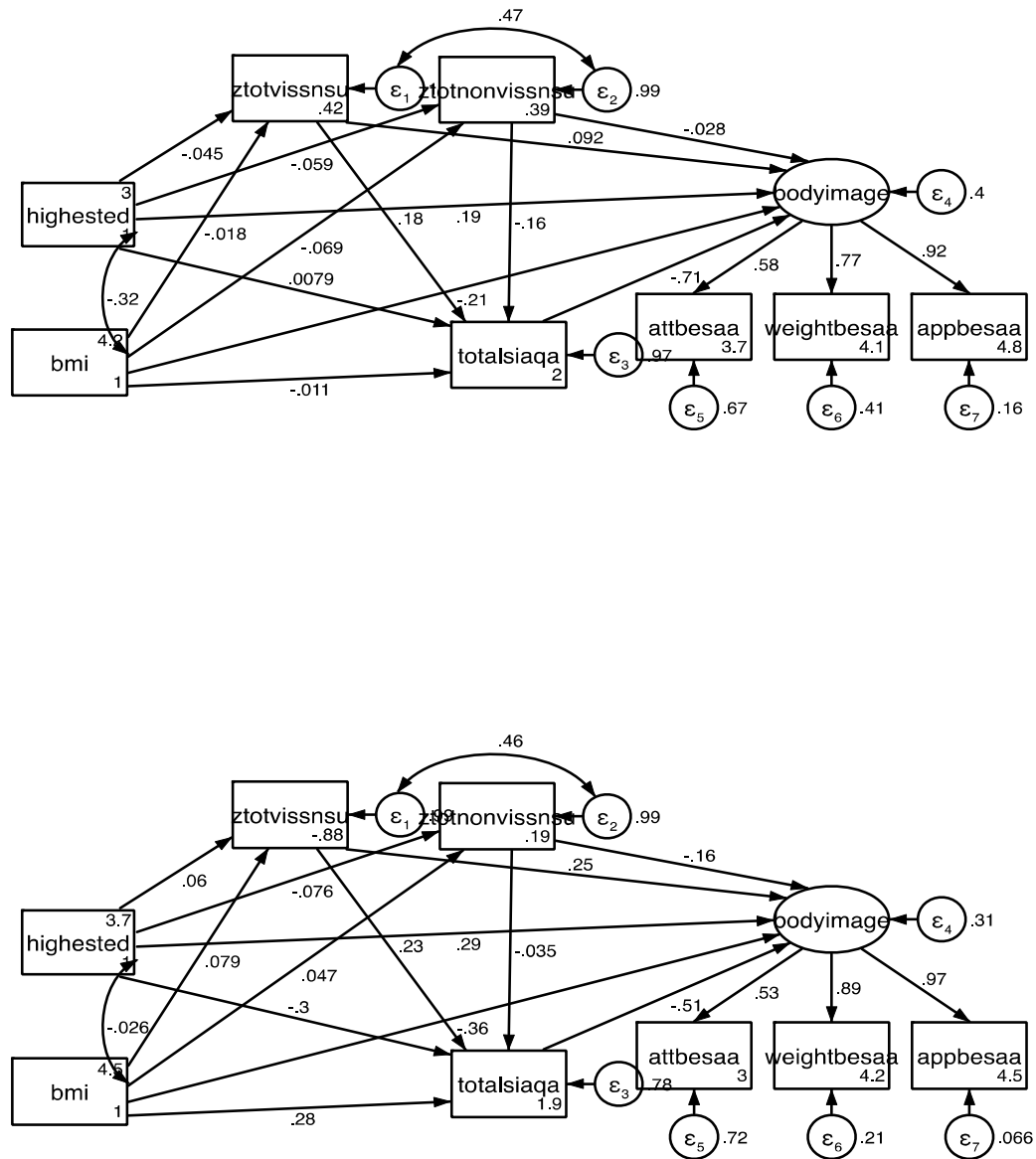


Figure 4. STATA SEM Model 2: Visually and Non-Visually-Oriented Social Network Site Use.

Note. Top = female model, bottom = male model

Appendix A

Spring 2018
ID # _____

Please read each question and write or circle the best answer to each question:

1. My gender is: Male Female Transgender
2. My age is: 13 14 15 16 17 18 19
3. My grade is: 9 10 11 12
4. My height is (please specify): _____
5. My weight is (please specify): _____ pounds
4. Do you receive free or reduced lunch? Yes No
5. Are you of Hispanic, Latino, or Spanish origin?
 - a. No, not of Hispanic, Latino, or Spanish origin
 - b. Yes, Mexican American, Chicano
 - c. Yes, Puerto Rican
 - d. Yes, Cuban
 - e. Yes, another Hispanic, Latino, or Spanish origin (please specify): _____
6. My race/ethnic identity is (Circle all that apply):
 - a. White
 - b. Black or African American
 - c. Asian
 - d. American Indian/Alaska Native
 - e. Native Hawaiian or Other Pacific Islander
 - f. Other (please specify): _____
7. My biological parents are:
 - a. Married
 - b. Divorced
 - c. Separated
 - d. Never married
 - e. Never married but living together
 - f. Widowed
8. I live with my:
 - a. Mother and Father
 - b. Mother only
 - c. Father only
 - d. Mother and Stepfather
 - e. Father and Stepmother
 - f. Grandparent(s)
 - g. Other relative: _____
 - h. Other: _____
9. My mom's highest education level is:
 - a. Less than 8th grade
 - b. Some high school
 - c. High school diploma
 - d. Some college
 - e. Associate degree
 - f. Bachelor's degree
 - g. Master's degree
 - h. Doctorate or other professional degree (JD, MD)

10. My dad's highest education level is:

- | | |
|------------------------------------|--|
| a. Less than 8 th grade | e. Associate degree |
| b. Some high school | f. Bachelor's degree |
| c. High school diploma | g. Master's degree |
| d. Some college | h. Doctorate or other professional degree (JD, MD) |

Social Networking Site Usage

[illegible]

Appendix C

Sociocultural Internalization of Appearance Questionnaire- Adolescents (SIAQ-A)

The following items are designed to measure attitudes people have toward themselves and their appearance. There are no right or wrong answers. Please respond to all of the items. Use your first impression and do not spend too much time on individual items in responding.

Respond to each of the items using the scale below to describe your degree of agreement with each item. When you see the word **media** in the following items, know that **media** refers to television, movies, magazines, and internet.

Statement:	Definitely Disagree	Mostly Disagree	Neither Agree nor Disagree	Mostly Agree	Definitely Agree
1. I would like my body to look like the bodies of people in the media.	1	2	3	4	5
2. Looking at images in the media makes me want to change the way I look.	1	2	3	4	5
3. Seeing images in the media makes me want to lose or gain weight.	1	2	3	4	5
4. Seeing images in the media makes me want to change my appearance.	1	2	3	4	5
5. I would like my appearance to be like the appearance of people in the media.	1	2	3	4	5

Appendix D

Dear Parent or Caregiver:

This letter provides information about a research study that will be conducted in your child's school by investigators from Alfred University (AU). We are interested in learning more about the connections between teenagers' use of social media and their emotional well-being, interest and engagement with school, and social relationships. This letter provides information about the study we will conduct to determine these relationships.

- ✓ Who We Are: The research team is led by Rachel A. Roth, Ph.D., an assistant professor in the School Psychology program at AU. We are planning the study in cooperation with the school psychologist of your child's school.
- ✓ Why We are Requesting Your Child's Participation: Your child is being asked to participate in this project because he or she is a teenager in a local high school. We are interested in better understanding how social media use in the teenage years relates to their emotional well-being.
- ✓ Why Your Child Should Participate: Your child's participation will help us better understand the potential positive and negative impacts of social media use on teenagers, which may be helpful in future work with teenagers. Please note neither you nor your child will be paid for your child's participation in this study. However, all students who return this parent permission form will receive an edible treat (such as a candy bar) and will be placed into a drawing for one of several \$20 gift cards to a local store or iTunes.
- ✓ What Participation Requires: Children with permission to participate in the study will be asked to complete several paper-and-pencil questionnaires on one occasion this school year. These surveys will ask about your child's thoughts, behaviors, and attitudes towards life, as well as current wellness and symptoms of emotional distress. Completion of surveys is expected to take your child about 30 minutes; we will administer the survey at your child's school, during regular school hours, to large groups of students during a class period. In total, participation during this study will take about 30-minutes of time for students.
- ✓ Please Note: Your decision to allow your child to participate in this research study must be completely voluntary. You or your child's decision to participate, not to participate, or to withdraw participation at any point during the study will no way affect your child's student status, his or her grades, or your relationship with your child's school, AU, or any other party.
- ✓ Confidentiality of Your Child's Responses: There is minimal risk to your child for participating in this research. Your child's privacy and research records will be kept confidential to the extent of the law. Authorized research personnel, AU's Human Subjects Committee and its staff, and other individuals acting on behalf of AU may inspect the records from this research project, but your child's individual responses will not be shared with school system personnel or anyone other than us and our research assistants. Your child's completed questionnaires will be assigned a code number to protect the confidentiality of his or her responses. Only we will have access to the locked file cabinet stored at AU that will

contain all records linking code numbers to participants' names. All records from the study will be destroyed five years after the study is completed. Please note that although your child's specific responses and comments will not be shared with school staff, if your child indicates that he or she intends to harm him or herself or someone else, or if your child's responses on specific surveys indicate extreme emotional distress, we will contact district mental health professionals to ensure your child's safety as well as the safety of others.

- ✓ What We'll Do With Your Child's Responses: We plan to use the information from this study to inform educators and psychologists about the links between social media use, interest and engagement with school, and social relationships. The results of this study may be published. However, the data obtained from your child will be combined with data from other people in the publication. The published results will not include your child's name or any other information that would in any way personally identify your child.
- ✓ Questions? If you have any questions about this research study, please contact Dr. Roth at (607) 871-2856 or email me (roth@alfred.edu). I may be reached via mail at 1 Saxon Drive, Alfred, NY 14802. If you have questions about your child's rights as a person who is taking part in a research study, you may contact Danielle Gagne, Ph.D., Chair of the Human Subjects Committee at AU at (607) 871-2213 or email her gagne@alfred.edu. She may be reached via mail at 1 Saxon Drive, Alfred, NY 14802.
- ✓ Want Your Child to Participate? To permit your child to participate in the study, please complete the attached consent form and have your child turn it in to his or her designated teacher. The second copy of this letter is yours to keep.

Sincerely,

Rachel A. Roth, Ph.D.
Assistant Professor of School Psychology
Alfred University

Consent for Child to Take Part in this Research Study

I freely give my permission to let my child take part in this study. I understand that this is research. I have received a copy of this letter and consent form for my records.

Printed name of child

Grade level of child

Signature of parent of child taking part
in the study

Printed name of parent

Date

Statement of Person Obtaining Informed Consent

I certify that participants have been provided with an informed consent form that has been approved by Alfred University's Human Subjects Committee and that explains the nature, demands, risks, and benefits involved in participating in this study. I further certify that a phone number has been provided in the event of additional questions.

Signature of person
obtaining consent

Printed name of person
obtaining consent

Date

Dear Student,

You are being asked to take part in a research study to determine the relationship between using social media and emotional well-being, interest in school, and social relationships. The goal of the study is to learn more about how social media use impacts teenagers. You are being asked to take part in this study because you are a teenager in a local high school. Your parent/guardian has already said it is okay for you to take part in this study.

To take part in this study, you will be asked to fill-out brief surveys now. These surveys will ask you questions about your thoughts, behaviors, and attitudes toward life. Your answers will stay private unless you are in danger, then we will have to get help to make sure you stay safe. If you decide to take part in the study you still have the right to change your mind later. No one will think badly of you if you decide to stop.

Student Assent to Take Part in this Research Study

I understand what the person running this study is asking me to do. I have thought about this and agree to take part in this study.

Name of person agreeing to take part in the study

Date

Signature of person agreeing to take part in the study

Researchers Use Only

Name of person providing information to child

Date

Signature of person providing information to child

Krysten A. Koktowski
kakokt11@gmail.com

Education

Bachelor of Science, Psychology Minor: Anthropology and Government St. Lawrence University (SLU), Canton, NY	May 2015
MA, School Psychology Alfred University, Alfred, NY	May 2017
Certificate of Advanced Study (CAS), School Psychology Alfred University, Alfred, NY	May 2019
PsyD, School Psychology Alfred University, Alfred, NY	August 2020

Certifications

New York State Certified School Psychologist
Nationally Certified School Psychologist

Professional Affiliations

New York Association of School Psychologists (NYASP)
National Association of School Psychologists (NASP)

Experience

Intake Coordinator and Navigation

Catholic Charities New Hampshire

- Conducted a variety of needs-based assessment to identify areas of concern
- Formulated individualized service plans to address a variety of needs, including those related to food, shelter, housing, mental health, physical health, family, legal, transportation, clothing, etc.
- Worked closely with other professionals including counselors, doctors, dentists, and case managers, to ensure client's needs were met
- Provided financial literacy, counseling, and fitness to clients
- Worked to connect clients with services they were eligible for (e.g., subsidized housing, food assistance, heating assistance, etc.)
- Worked to meet client's needs by consulting and collaborating with other social service agencies and government agencies

Psychologist Intern

Rural Vermont Consortium of the Precision Valley (RVCPV)

- Responsibilities within the Springfield School District include psychological assessment, consultation with school personnel, attending IEP/EPT, FBA/BIP, 504, crisis, and EST meetings, FBA/BIP, and academic intervention assistance
- Responsibilities within the Springfield Health Clinic include psychological assessment, consultation with school/hospital personnel, patient psychoeducation, and the provision of individual counseling services