

Exploring How Social Media Impacts Adolescents' and Young Adults' Body Image

[Name withheld by author request]

Paper submitted in partial fulfillment of the requirements for the degree of

Master of Counselling
in the
Division of Arts and Sciences

City University of Seattle
2022

This paper is accepted as conforming to the required standard
July 2022

Dr. Caridad Bernardino
Research Supervisor
City University of Seattle

Dedication

I would like to dedicate this paper to my family and friends who have supported me throughout my entire school journey.

Abstract

This paper is a critical analysis that examines the current available research to understand how social media use impacts body image for adolescents and young adults. Previous research has established a link between social media use and mental health in addition to a connection between social media use and body image. The present study sought to extend these findings by examining what aspects of social media use impact body image. It included a total of 10 quantitative articles. Results from this review support a connection between negative body image and specific aspects of social media use, including social comparison, photos, and number of social media friends. Lastly, ethics, recommendations for practical application, and directions for future research is discussed.

Keywords: adolescent, young adult, social media use, body image, and mental health

Acknowledgements

I would like to thank my research supervisor, Dr. Caridad Bernardino, my secondary supervisor Dr. Alicia Spidel, and my peers who helped guide me. In addition, I would like to thank my family and friends for the tremendous support.

Table of Contents

Exploring How Social Media Impacts Adolescents’ and Young Adults’ Body Image	6
Research Problem	6
Justification	9
Research Question	10
Researcher’s Position	10
Theoretical Framework	12
Review of Related Literature	13
Social Media Use and Mental Health	14
Social Media Use and Body Image	16
Aspects of Social Media Use Linked to Negative Body Image	19
Methodology	23
Literature Search	23
Methodological Analysis.....	26
Research Paradigm/Role of Researchers	26
Participants.....	27
Sampling.....	27
Recruitment	29
Demographics	31
Data Collection	34
Data Analysis	48
Findings	54
Social Comparisons	55
Photos	59
Number of Friends.....	62
Ethical Considerations	63
Application to Clinical Practice	66
Recommendations for Future Research	69
Conclusion	70
References	72

Exploring How Social Media Impacts Adolescents' and Young Adults' Body Image

During the last dozen years, social media has changed the way the world communicates. Individuals from various geographical regions can now stay connected and those who have lost touch can reconnect. Personal experiences and world news can be shared as they happen, and individuals have been given platforms to talk about common interests and gain a sense of community. The social connection that occurs through social media use has been associated with positive social well-being and mental health (Bekalu et al., 2019). However, there is also a rapidly growing body of research that links social media use with decreased well-being and mental health (Woods & Scott, 2016). For instance, after completing a longitudinal study, Kelly et al. (2018) found that social media use is linked to depressive symptoms such as loneliness, poorer sleep, and lower self-esteem. Similarly, Aalbers et al. (2018) found that the more time participants spent passively using social media, the higher the levels of depressed mood, fatigue, and loneliness. In addition, Aalbers et al. (2018) found a link between higher levels of social media use and higher rates of hopelessness and concentration problems. Lastly, Woods and Scott (2016) found that nighttime social media use was linked to lower self-esteem, poorer sleep quality, and higher levels of anxiety and depression. Many other studies also support the negative impacts social media use has on individuals' mental health. Given the tremendous impact social media has on our lives, exploring how the various elements of social media use affect certain populations, especially adolescents and young adults, could provide valuable insights into how these elements relate to their overall health and quality of life.

Research Problem

For decades, researchers have studied mass media's role in individuals' dissatisfaction with their body image (Fardouly & Holland, 2018). Before social media, studies investigated the

impact of magazines, television, and advertisements on young individuals' mental health, especially for women (Kleemans et al., 2018). Many studies found that a relationship existed between exposure to society's body image ideals and negative body image (Kleemans et al., 2018). Like mass media from previous generations, social media exposes individuals to idealised body images. However, unlike traditional media, social media allows for individuals to comment, receive peer feedback, and create their own content (Gioia et al., 2020). In addition, social media is arguably more easily accessed than previous mass media and it has become common for individuals to photoshop, retouch, and manipulate their own photos (Harrison & Hefner, 2014). Individuals are, therefore, no longer just looking at unrealistic images of others, but also unrealistic images of themselves. As mass media continues to evolve in the form of social media, more research has started to specifically investigate the effects of social media.

There are various benefits to social media use, such as being able to communicate with a wide variety of people quickly. However, some social media users have exhibited problematic behaviour as they are unable to control their social media use, leading to negative emotional, social, and psychological effects (Kircaburun et al., 2020). With the increase in social media use, an increasing number of studies are being conducted to investigate the potential impact of social media (Fardouly & Holland, 2018). Since social media use is becoming increasingly difficult to avoid as it is now used for communication in settings such as school and work, research on this phenomenon is more important than ever (Ryding & Kuss, 2019).

In 2020, it was estimated that there were 3 billion social media users worldwide (Schonning, 2020). Social media use has become an integral aspect of daily life for people around the world (Fardouly & Holland, 2018). It can be defined as interacting with individuals through electronic platforms (Youssef et al., 2020). The most active users on these platforms are

adolescents aged 13 to 17 years old and young adults 18 to 24 years old (Youssef et al., 2020). Fardouly (2019) reported that 89-96% of adolescents from western countries use social media. Adolescents began spending more time on digital media starting in 2010 and they have been found to be spending approximately 3 hours per day on social media (Jarman et al., 2021; Twenge et al., 2019). This represents a dramatic increase from 45 minutes per day a decade ago (Ryding & Kuss, 2019).

At the same time with this increase in social media use, adolescents' mental health has become a major public health concern (Kelly et al., 2018). One of the major mental health concerns among adolescents is negative body image. Dissatisfaction with body image has been found to be both a physical health and mental health concern, as it is associated with negative psychological and physical health outcomes (Burnette et al., 2017). Social media use has been found to be associated with, and predictive of, individuals' concepts of their body images (Rodgers et al., 2020).

Worldwide, body image concerns related to weight and physical appearance have become more common, especially among women (Fardouly & Holland, 2018). Early adolescence is the time when these concerns start to arise, as the importance of peers and of physical appearance to self-worth increases significantly (Salomon & Brown, 2019). Physical appearance becomes a dominating aspect of personal identity at this time, and therefore, influences adolescents' self-perception (Walker et al., 2019). Early adolescents who are more satisfied with their body image are more likely to develop higher self-esteem as they transition into late adolescence (Gatti et al., 2014). Furthermore, adolescents who are dissatisfied with their body image can experience detrimental effects to their well-being (de Vries et al., 2018). For instance, studies have shown that lower body satisfaction is a risk factor for depressive symptoms, low self-esteem, lower

academic performance, and eating disorders (Fardouly & Holland, 2018; Maezono et al., 2019). In addition, during this period of early adolescence, identity formation is underway, leading to a heightened state of vulnerability to social influences (Fardouly, 2019). This increased vulnerability has several implications, including the magnification of the impact of social media (Fardouly, 2019). Therefore, with the rising social media use among adolescents and young adults, the link between social media and body image is becoming increasingly important (Twenge et al., 2019).

Various other studies corroborate the link between social media use and body image concept. For example, Ryding and Kuss (2020) conducted a systematic review of research, which investigated the influence of social media use on body image dissatisfaction. They found that appearance-focused and passive social media use were associated with greater body image dissatisfaction. This link will be explored more thoroughly in the next section of this paper as a substantial amount of research supports a link between social media use and body image concept. However, although research in this area is growing, there are only a few studies focusing on the specific aspects of social media use that impact adolescent and young adult users' body image. This literature review aims to fill this research gap.

Justification

As rates of social media use among adolescents increase, understanding the link between social media use and body image is becoming increasingly important. A better understanding of this link can help in several ways. The first is that adolescents, adults, therapists, parents, and society will better understand how social media use impacts mental health, specifically concept of body image. This knowledge will assist them in making an informed decision about their own social media use and help them to establish healthy social media practices (Woods & Scott,

2016). Additionally, it may lead society to consider the ramifications of other technology use. Furthermore, this could assist individuals in justifying their position against mandatory social media use at workplaces and schools. Secondly, this study will help therapists better understand the role social media plays in adolescents' mental health. The findings from this study may be able to assist therapists in prevention and intervention strategies. In addition, it may highlight the impact of internet and technology use on mental health practitioners' own mental health, as well as their clients'. The latter is especially important because social media use has been linked to body dysmorphic disorder, which is comorbid with eating disorders, which can, in turn, be deadly. Third, this study's findings could contribute to the development of policies on safe social media use and regulations on adolescent social media usage (Kelly et al., 2018). For instance, if the time social media is used is the aspect that is harmful to individuals, perhaps social media sites could install a time limit feature that parents or individuals can use to protect against harmful effects. Lastly, the link could help to advance the existing literature in the field and lead to further future research. For example, determining the link between social media use and body image concept may help in exploring links between social media use and other components of an individual's mental health.

Research Question

The purpose of this study is to explore how social media use impacts adolescents' and young adults' body image. Specifically, it is guided by the following research question: *What aspects of social media use impact adolescents' and young adults' body image?*

Researcher's Position

While conducting research, the researcher's life experience and values may have an impact on the study. Being aware of potential biases is one way to help promote objectivity.

While writing this paper, I was an active user of social media, and therefore have an opinion of social media based on my use. It is noteworthy that my social media use is below the average number of hours a typical individual spends on social media each day, and I subscribe to fewer social media sites than the average person. I have lower social media use as I believe social media use can negatively impact individuals' mental and physical health, as well as their in-person communication skills. However, I find social media can be a helpful platform for communication.

In addition to my own social media use, my opinion of social media is partly shaped by my experience as a counsellor. The population I work with most often as a counsellor is adolescents. As mentioned earlier, this is the population that has the highest rate of social media use. There are very few adolescents I see that do not use social media or are not impacted by it. I often hear of the negative impacts social media has had on adolescents' lives, such as bullying. This experience as a counsellor, in addition to my personal experience with social media use, has led me to be interested in the research topic of social media. I currently believe there should be stronger regulations, especially for youth, on social media use and more research on the topic could help to achieve this.

My personal experience and preconceived notions and beliefs could impact my understanding and interpretation of the results of this study. For instance, my beliefs could have subliminally impacted aspects such as the studies I choose to review. Acknowledging and maintaining awareness of my beliefs and motivations is the first step I have taken to prevent my beliefs from impacting the outcome of this research. In addition, throughout the research process, I engaged in constant reflection and periodically revisited my beliefs, values, and motivations.

This reminded me of the objective of my research and enabled me to focus and move in an appropriate direction.

Theoretical Framework

According to Kivunja (2018), a theoretical framework is a structure that summarizes the thoughts and theories of the experts in the field as they relate to a researcher's study in terms of the research question and the problem that is being investigated. It is the lens through which researchers examine and analyze their data, interpret their findings, and draw conclusions. For the purposes of this paper, I drew primarily from sociocultural theory, which stresses the role that social and cultural factors have in psychological development (Cherry, 2022).

Sociocultural theory of cognitive development was established largely based on the work of Lev Vygotsky (McLeod, 2020). The theory stressed that an important source of cognitive development for individuals is learning from the other individuals that surround them. Often, these have been older individuals, such as parents, grandparents, teachers, and coaches. However, now in the age of social media, adolescents and young adults spend less time on in-person interactions and more time on social media use (Twenge et al., 2019, 2021). Due to the increased time spent online, and the correspondingly decreased time spent on face-to-face interactions, today's culture among youth may be influenced by older generations substantially less than was the case just ten years ago. As a result, the culture they participate in could be dramatically different from that of their parents, or even from that of young people who spend less time using social media. Individuals have the option of various online groups with unique cultures. The youth may have more option in choosing the culture with which they would like to associate. If culture is, indeed, influenced less by older, wiser individuals today than in the past, youth may have fewer opportunities to benefit from the experience of their elders.

This paper explores one aspect of individuals' psychological development: body image. As a theoretical lens, sociocultural theory offers a basis for a deeper understanding of how individuals' body concepts are impacted by social media. Considering the heavy influence of social media on the life of adolescents, young adults, and the people with whom they socialize, sociocultural theory, with its emphasis on the importance of social and cultural factors in development (Cherry, 2020), was considered an appropriate framework through which to situate, analyze and make sense of the data in this research study.

Review of Related Literature

Social media is a relatively new area of research, as social media itself did not become popular until around 2005 (Twenge et al., 2021). Social media use can be defined as interacting with individuals through electronic platforms (Youssef et al., 2020). These electronic platforms include sites such as Facebook, Instagram, Pinterest, YouTube, Twitter, TikTok, and more. Considering that social media is a new topic of research, there is already a fair amount of existing literature on social media use, mental health, and body image. For the purposes of this paper, body image will be defined as an internal representation of one's own body (Borzekowski & Bayer, 2005; Walker et al., 2019). It can be considered a key aspect of one's mental health and can be influenced by psychological, biological, and social factors. It is also relevant to know that body image is highly related to one's self-esteem, identity, and self-concept. Therefore, low body image or body dissatisfaction can result in dissatisfaction with oneself (Borzekowski & Bayer, 2005). It is also noteworthy that, for the purposes of this paper, adolescence will be defined as a period in one's life between the ages of 12-18 years old (Jaworska & MacQueen, 2015), and young adulthood will be considered as a period between the ages of 18-25 years old (Higley, 2019). In this section of the paper, I discuss the links present between social media use, mental

health, and body image in existing literature, specifically links between social media use and mental health, social media use and body image, and finally the aspect(s) of social media use that impact body image.

Social Media Use and Mental Health

Although social media use is a relatively new phenomenon, there have been a good number of studies examining the link between social media use and mental health issues such as depression, loneliness, and stress. In their longitudinal study, Kelly et al. (2018) aimed to find out whether social media use is linked to depressive symptoms in adolescents. Data were gathered from a very large sample comprised of children from 19,244 families. This is a strength of the study because a large sample size makes it better representative of the population, thus bringing in more accurate results (Andrade, 2020). The researchers in this study found that social media use is linked to depressive symptoms such as loneliness, poorer sleep, low self-esteem, and poorer body image thus supporting the existence of a connection between social media use and mental health.

Like Kelly et al. (2018), Aalbers et al. (2018) completed a study with the aim of finding out if social media use was linked to higher levels of depressive symptoms, loneliness, and stress. Using a sample of 125 undergraduate psychology students, Aalbers et al. (2018) found that the more time participants spent passively using social media, the higher the levels of depressed mood, fatigue, and loneliness, which is consistent with the results of Kelly et al.'s (2018) study. In addition, Aalbers et al. (2018) found a link between higher levels of social media use and higher rates of hopelessness and concentration problems.

Unlike Kelly et al.'s (2018) study, a strength of Aalbers et al.'s (2018) study is that data was collected in real time; therefore, error from participants' memory was reduced. However,

data collection that occurs throughout the day can also be a weakness as participants may not have adequate time to complete the measures. Another weakness of Aalbers et al.'s (2018) study is that the participants were not representative of the general population as the sample used had a higher education level than the general population. In addition, the sample consisted of only psychology students and 91 females compared to only 41 males, which is most likely not representative of the university's population (Aalbers et al., 2018). Therefore, the findings would not be generalizable to the wider population.

A cross-sectional study by Youssef et al. (2020) explored the link between social media use disorder and loneliness. The sample size was adequate consisting of 456 Lebanese adults who were randomly selected. Like Aalbers et al. (2018) and Kelly et al. (2018), Youssef et al. (2020) found a relationship between higher levels of social media use and higher levels of loneliness. Youssef et al. (2020) also found that individuals that used the internet to meet new people had higher levels of loneliness than those that used the internet for homework and research. A strength of this study is that it took factors such as age, gender, and education into consideration. In addition, this study was representative of the population geographically as the random sample was selected from Lebanon's governorates at a proportionate rate. These factors make the results more generalizable. However, like Aalbers et al.'s (2018) study, Youssef et al.'s (2020) sample was not representative of the entire adult population: only 38.2% of the participants were male and 66.7% of the participants had a university education. This decreased the generalizability of the results. Lastly, stress, depression, and anxiety were found to contribute to loneliness (Youssef et al., 2020), thus, the results further supported the connection between social media use and mental health.

Fardouly et al. (2019) explored the associations between social media use and depressive symptoms, social anxiety, and body satisfaction. They recruited a sample size similar to that of Youssef et al.'s (2020) study, with a total of 528 male and female grade six students recruited from schools, sports clubs, and medical centers in Sydney, Australia. Fardouly et al. (2019) found that users of social media reported less body satisfaction and more eating pathology than non-users. They also found that there was no difference in depressive symptoms or social anxiety for social media users compared to non-users. These results were unlike those of Kelly et al.'s (2018) and Aalbers et al.'s (2018), as these earlier studies linked social media use to higher depressive symptoms. This discrepancy may be attributable to the younger population on which Fardouly et al.'s (2019) study was focused.

Overall, the studies by Kelly et al. (2018), Aalbers et al. (2018), Youssef et al. (2020), and Fardouly et al. (2019) that were presented above, substantiate a link between social media use and mental health. This relates to the main research question in this paper as a link between social media use and mental health is vital to understanding the importance and evolution of this paper's topic. Together, the studies noted various aspects of mental health that can be impacted by social media use. Since mental health is a broad topic, this paper focuses on just one specific aspect of mental health: body image. A review of studies investigating the link between social media use and body image is presented in the following subsection for a more in-depth understanding of how social media use impacts adolescents' and young adults' body image.

Social Media Use and Body Image

Many of the studies that have been conducted examined the impact of social media use on adolescents' and young adults' body image. Researchers have found that social media use is associated with a negative body image. Tiggemann and Miller (2010) explored whether internet

exposure was related to weight satisfaction and drive for thinness, and whether it is mediated by individuals internalizing thin ideals and making appearance comparisons. Included in internet appearance exposure is social networking site use which was very popular among the adolescent age group at the time of this study. The 156 female participants were 13 to 18 years of age and were from middle to high socioeconomic status families in South Australia. This was a weakness of the study as it lowered its generalizability by not including low-income families. Tiggemann and Miller (2010) found that exposure to the internet was associated with drive for thinness and weight dissatisfaction. Therefore, this study provides support for a connection between internet use, social networking site use, and body image concept.

Tiggemann and Slater (2014) aimed to investigate the impact of internet exposure on body image concerns. A total of 189 females between the ages of 10-12 years old were recruited from 8 Catholic schools in South Australia. Unlike Tiggemann and Miller (2010), Tiggemann and Slater's (2014) study included participants from all socioeconomic backgrounds which was a strength of the study as it made it more generalizable. The sample completed a 30-minute questionnaire and all collected data was based on self-report measures. This was a weakness of this study as it allows for recall and retrievability bias. Tiggemann and Slater's (2014) findings were as expected: internet exposure, specifically Myspace and Facebook, was associated with dieting, reduced body esteem, body surveillance, and internalization of the thin ideal. Therefore, like Tiggemann and Miller (2010), this study also supports a link between social media use and negative body image.

Griffiths et al. (2018) conducted a study that explored whether social media use is linked to body dissatisfaction, eating disorder symptoms, and thoughts about anabolic steroid use, among sexual minority men. They had a fairly large sample which consisted of 2,733 individuals

from Australia and New Zealand who almost exclusively identified as male and identified as belonging to a minority sexual orientation. Therefore, Griffiths et al.'s (2018) study had a much stronger sample size than the studies of Tiggemann and Miller (2010) and Tiggemann and Slater (2014), which helps to increase the accuracy of the results. Griffiths et al. (2018) found that the higher the social media use, the higher the body image concerns and eating disorder symptoms. It was also found that eating disorder symptoms and muscularity dissatisfaction were higher on image-centric social media platforms. Thus, consistent with the findings of Tiggemann and Slater (2014), the results of the studies by Tiggemann and Miller (2010), and Griffiths et al. (2018) supported a link between social media use and body image concerns.

Fardouly and Vartanian (2016) conducted an overview of current research on social media and body image. The researchers concluded that social media use is linked to body image concerns, which is the same finding the previous studies in this section reached. In addition, Fardouly and Vartanian (2016) found that the connection between social media and body image was particularly strong if the individuals were participating in certain social media activities, such as appearance comparisons. Fardouly and Vartanian's (2016) study was strengthened by the fact they reviewed a plurality of longitudinal studies, unlike any of the previous studies reviewed in this section. Additionally, this overview provided results for both males and females, strengthening the study and rendering it more generalizable to the population at large than the studies of Tiggemann and Slater (2014), Tiggemann and Miller (2010), and Griffiths et al. (2018), all of which focused either on females or males exclusively.

Lastly, Eckler et al. (2017) completed a study that investigated whether more time on Facebook was linked to higher body comparison and more attention to physical appearance. A total of 881 female college students participated after being recruited from a large public U.S.

Midwestern university. They found that time spent on Facebook was linked to a negative relationship with body image. Specifically, more time spent on Facebook led to more body and weight comparisons, more attention to physical appearance, and more negative body attitudes. Lastly, Eckler et al. (2017) found that for those women who wanted to lose weight, high Facebook use was related to more disordered eating symptoms. Like the previous studies discussed, this study produced results that suggest that social media use is connected to negative body image concept; in this case, college-aged women specifically.

Overall, this section supports the connection between social media use and negative body image. The studies of Tiggemann and Slater (2014), Tiggemann and Miller (2010), Griffiths et al. (2018), Fardouly and Vartanian (2016), and Eckler et al. (2017) support this finding and did so for a variety of populations. With the above studies showing that social media use is associated with a negative body image among adolescents and young adults, researchers went further to find out which aspects of social media use impact these population groups' body image.

Aspects of Social Media Use Linked to Negative Body Image

Lewallen and Behm-Morawitz (2016) conducted a study that explored the impact of fitness images on the social media site, Pinterest, on social comparison and how this may impact an individual's intentions to engage in extreme weight-loss behaviour. A total of 122 females between the ages of 18 and 64 years old were recruited. A strength of this study is that the sample included individuals from around the world; however, since the proportions of participants from each country and each race are most likely not reflective of the world population, this study does not have high generalizability. Lewallen and Behm-Morawitz's (2016) results showed that the number of fitness-focused pinboards a participant followed was

linked to appearance social comparison and intentions to engage in extreme weight-loss behaviours. They also found that endorsement of an ideal female body type significantly predicted Pinterest-influenced intentions to engage in extreme weight-loss behaviors. Therefore, this study demonstrates social media use as having an impact on body image concepts through social comparison.

De Vries et al. (2016) completed a longitudinal study that investigated whether more frequent social media use would predict increased body dissatisfaction and increased peer appearance-related feedback among adolescents. They also explored whether this peer appearance-related feedback would impact body dissatisfaction. This study had a strong sample size of 604 individuals aged 11 to 18 years old from the Netherlands. Like Lewallen and Behm-Morawitz (2016), the results of De Vries et al.'s (2016) study further supports the link between body image concept and social media use. In addition, this study suggested a causal direction in which high frequency social media use leads to increased body dissatisfaction. They also found that more frequent social media use predicted more frequent peer appearance-related feedback; however, this feedback did not predict body dissatisfaction. Therefore, this study supports the notion that specific aspects—in this case frequency of social media use—contributes to negative body image. This is different from the results of Lewallen and Behm-Morawitz (2016), who attributed social comparison as the social media use factor contributing to negative body image.

Butkowski et al. (2019) completed a study that investigated the relationship between women's investment in likes and comments on social media and their body image dissatisfaction which was assessed by symptomology-focused markers of body dissatisfaction, drive for thinness, and bulimia action tendencies. A total sample of 177 individuals aged 18 to 30 years old, with active Instagram accounts, and were recruited from Amazon's Mechanical Turk.

Butkowski et al. (2019) found that women's investment in likes and comments was positively related to body dissatisfaction and drive for thinness through the mediating factor of body surveillance. This result directly opposes the results of De Vries et al.'s (2016) study which showed that peer feedback did not lead to body dissatisfaction. However, De Vries et al. (2016) only explored peer appearance-related feedback, so perhaps future research needs to explore exactly what type of feedback leads to body dissatisfaction. Overall, Butkowski et al.'s (2019) results suggested a link between body image and social media use and that at least one social media factor in particular—investment in likes and comments—contributed to the link.

Ryding and Kuss (2020) conducted a systematic review of research, which investigated the influence of social media use on body image dissatisfaction and explored which factor of social media use may contribute to this body image dissatisfaction. A final sample of 40 studies was included in the literature review. Overall, Ryding and Kuss (2020) found that appearance-focused and passive social media use were associated with greater body image dissatisfaction. The findings are consistent with those of Lewallen and Behm-Morawitz (2016) who also found appearance-focused use, such as social media that focuses on images leads to body dissatisfaction. However, Ryding and Kuss (2020) also presented a finding unlike any discussed in this paper thus far, that suggested passive, as opposed to active social media use, is a factor that can lead to body dissatisfaction. In addition, Ryding and Kuss (2020) found that social media usage is a potential risk factor for the development of body dysmorphic disorder. Overall, like the previous studies in this section, the findings of Ryding and Kuss (2020) also reinforce a link between specific feature(s) of social media use—in this case appearance-focused and passive social media use—and negative body image.

Tiggemann and Anderberg (2020) investigated the impact of social media images on body image. There was a sample size of 305 female participants between the ages of 18 to 30 years old, which is the same age range Butkowski et al.'s (2019) study investigated. Researchers employed a three-group experimental design with measures taken at two time points. Therefore, strengths of this study are that a control group was used and the study was longitudinal.

Tiggemann and Anderberg (2020) found that participants who viewed ideal Instagram images prior to completing the survey had higher body dissatisfaction. They also found that individuals engaging in appearance comparison predicted an increase in body dissatisfaction for participants who viewed the ideal images. This is consistent with the findings of Lewallen and Behm-Morawitz (2016) that revealed that exposure to ideal images and social comparison led to negative body image. In addition, Tiggemann and Anderberg (2020) also found that individuals who viewed real, or real and ideal images together, had a decrease in body dissatisfaction. This is the first study presented in this paper that suggests a method of mitigating the impacts of social media use on negative body image. Once again, this study supports the existence of a connection between an aspect of social media use and negative body image.

In their article, De Valle et al. (2021) presented information from four meta-analyses that can inform the causality between social media and body image. They included sets of experimental studies that examined the effects of appearance-ideal social media images and accompanying contextual features on social media. In addition, there were 10 longitudinal studies on social media use and body image. Results showed social media has a negative impact on body image. The researchers also found that longitudinally, social media use has a very small negative correlation with body image. De Valle et al. (2021) further found that viewing appearance ideals led to immediate negative effects on body image and viewing appearance-

focused social media had a strong impact on body image dissatisfaction. These are consistent with the findings of Tiggemann and Anderberg (2020) and Lewallen and Behm-Morawitz (2016) which also showed that body image dissatisfaction is attributed to appearance-focused and ideal images.

The studies presented in this subsection supported the notion that aspects of social media use contribute to negative body image. The studies above suggest fitness-focused images, appearance social comparisons, frequency of social media use, peer appearance-related feedback, passive social media use, and viewing idealized images could be aspects of social media use that contribute to negative body image. Overall, the studies presented in this literature review helped provide background information on the research topic, which is relevant to the research question posed in this paper. The first four studies discussed in this section supported the connection between social media use and mental health; the following five studies provided evidence of a link between social media use and body image. The final six studies showed connections to various specific aspects of social media use that might contribute to body image dissatisfaction. Valuable information was drawn from these studies that helped in mapping out the direction and design of this research project. Most of the studies on social media use and body image involved participants within the 11-64 age range. This literature review is focused on studies with adolescents and young adults as participants, however not many studies are focused specifically on these two age groups. This literature review sought to address this research gap.

Methodology

Literature Search

A literature search for 10 appropriate primary qualitative, quantitative, and mixed-methods scholarly peer-reviewed articles that address the research question was conducted. This

involved exploring PsycINFO + PsycArticles and Psychology and Behavioral Sciences Collection databases, using the following key words: *adolescent, young adult, social media use, body image, and mental health*. The inclusion criteria for the core articles were that the articles are primary, peer-reviewed, written and published in English, and the participants are between the ages of 12-25 years old. Also, all articles that were not published in the last 10 years were excluded, as more recent information is more relevant. Furthermore, social media only became a cultural phenomenon within the last 12 years. In addition to the 10 core articles, various other articles were explored to provide further understanding and context. After the 10 articles were selected, they were assessed for scientific quality and were critically analysed in terms of the following methodological components: sampling, recruitment, participant demographics, data collection methods, and data analysis procedures. Applicable information from the core studies that is relevant to the research question was extracted. Table 1 shows the summarised information of the 10 articles selected for this review.

Table 1

Core Articles Reviewed

Author(s)	Title	Year of Publication	Name of Journal	Type of Study
Fardouly, J., Wilburger, B. & Vartanian, L.	Instagram Use and Young Women's Body Image Concerns and Self- Objectification: Testing Meditational Pathways	2018	New Media & Society	Quantitative
Gioia, F., Griffiths, M. D. & Boursier, V.	Adolescents' Body Shame and Social Networking Sites: The Mediating Effect of Body Image Control in Photos	2020	Sex Roles	Quantitative

Harrison, K. & Hefner, V.	Virtually Perfect: Image Retouching and Adolescent Body Image	2014	Media Psychology	Quantitative
Ho, S.S., Lee, E.W.J. & Liao, Y.	Social Network Sites, Friends and Celebrities: The Roles of Social Comparison and Celebrity Involvement in Adolescents' Body Image Dissatisfaction	2016	Social Media + Society	Quantitative
Kleemans, M., Daalmans, S., Carbaat, I., & Anschutz, D.	Picture Perfect: The Direct Effect of Manipulated Instagram Photos on Body Image in Adolescent Girls	2018	Media Psychology	Quantitative
McLean, S. A., Paxton, S. J., Wertheim, E.H. & Masters, J.	Photoshopping the Selfie: Self Photo Editing and Photo Investment are Associated with Body Dissatisfaction in Adolescent Girls	2015	International Journal of Eating Disorders	Quantitative
Meier, E.P & Gray, J.	Facebook Photo Activity Associated with Body image Disturbance in Adolescent Girls	2014	Cyberpsychology, Behaviour, and Social Networking	Quantitative
Scully, M., Swords, L., & Nixon, E.	Social Comparisons on Social Media: Online Appearance-Related Activity and Body Dissatisfaction in Adolescent Girls	2020	Irish Journal of Psychological Medicine	Quantitative
Tiggemann, M. & Slater, A.	Facebook and Body Image Concern in Adolescent Girls: A Prospective Study	2017	Journal of Eating Disorders	Quantitative
Veldhuis, J., Alleva, J.M., Bij de Vaate, A.J. D., Keijer, M. & Konijn, E.A.	Me, My Selfie and I: The Relations Between Selfie Behaviours, Body Image, Self-Objectification, and Self-Esteem in Young Women	2020	Psychology of Popular Media	Quantitative

Methodological Analysis

Research Paradigm/Role of Researchers

This section will discuss the positivist research paradigm and the role that positivist researchers take. A researcher's paradigm or philosophical worldview informs the method used in the study (Park et al., 2020). Positivism informed the quantitative method (Creswell & Creswell, 2018). It is based in the assumption that there is a single truth and that truth can be measured. The positivist paradigm is grounded on the scientific method of investigation. It emphasizes objectivity and focuses on explanation and prediction. In addition, positivists rely on deductive logic, which is reasoning from general to specific (Park et al., 2020). All the ten core studies in this paper employed quantitative research methods and this section will explain why.

Positivist researchers believe in objectivity, so researchers try to distance themselves from the study (Park et al., 2020). One way they can do this is by using surveys as they require less contact and communication between the researcher and participants. All the core articles this paper is exploring used surveys as the method of data collection. Additionally, Fardouly et al. (2018), Kleemans et al. (2018), and Veldhuis et al. (2020) studies administered the surveys online, which further increased objectivity by eliminating contact with the researcher(s). Minimizing contact with the researcher(s) can help to prevent social desirability and/or subject bias. McLean et al.'s (2015) study participants also completed the survey online, though they did so in a classroom with the researcher present. Contact with the researcher, therefore, was not entirely eliminated, thus, the study may not have been as objective as those whose participants completed online surveys in the absence of the researcher.

One of positivism's focuses is on explanation and prediction, therefore the roles of positivist researchers are to state appropriate research questions and/or create appropriate

hypotheses (Park et al., 2020). Fardouly et al. (2018) and Tiggemann and Slater (2017) stated their research questions. The use of research questions is often part of the positivist approach as such questions inquire about what the researcher desires to know; this prompts an explanation which, as stated above, is one of the focuses of positivism. Kleemans et al. (2018), Harrison and Hefner (2014), Gioia et al. (2020), Veldhuis et al. (2020), Scully et al. (2020), McLean et al. (2015), Meier and Gray (2014), and Ho et al. (2016) stated both research questions and hypotheses. The use of hypotheses further supports a positivist approach because research that provides a hypothesis takes a specific example from the data to support a general statement, and this constitutes deductive reasoning, an aspect of positivism.

Participants

Sampling. Most of the core articles examined in this paper used convenience sampling. Convenience sampling is a type of nonprobability sampling, where researchers recruit samples from places that are easy to access (Lavrakas, 2008). For example, Harrison and Hefner (2014), Gioia et al. (2020), Tiggemann and Slater (2017), Scully et al. (2020), McLean et al. (2015), Meier and Gray (2014), and Ho et al. (2016) recruited participants from middle and high schools. Harrison and Hefner (2014), Meier and Gray (2014), and Ho et al. (2016) studies' samples were gathered from a single school. The samples in the studies of Gioia et al. (2020), Tiggemann and Slater (2017), Scully et al. (2020), McLean et al. (2015), and Meier and Gray (2014) were from multiple schools, which was a strength of these studies as it increases the generalizability of the findings. Gioia et al.'s (2020) participants were from 5 different Italian high schools. Tiggemann and Slater's (2017) sample was sourced from 18 different schools across South Australia. This was a strength of the study as increasing the geographical diversity of the sample renders it more representative of the South Australian and Australian population, which in turn makes the study

results more generalizable. Scully et al.'s (2020) participants were from 3 different schools in Ireland including a single-sex school, a fee-paying school, and a school located in an urban area. McLean et al.'s (2015) sample was from a single-sex school and a co-educational public school in Melbourne, Australia. The diversity in the type of schools was a strength of these studies as it again helped to increase the generalizability of the results.

Fardouly et al. (2018) also used convenient sampling by recruiting using Amazon's Mechanical Turk, which is an online system that helps researchers find individuals appropriate for their studies. Some of the strengths of convenience sampling include cost effectiveness and efficiency. However, convenience sampling has several weaknesses: results from convenience samples are often hard to replicate; risk of sampling error and selection bias is high, and a particular population could be over-or-underrepresented (Anonymous, 2013). Due to these weaknesses, generalizability of studies that use convenience sampling is usually low.

Snowball sampling is another form of nonprobability sampling used by Kleemans et al. (2018) and Veldhuis et al. (2018) in their studies. In this method, a researcher recruits a few individuals deemed as appropriate participants who are then asked to help recruit more participants. Snowball sampling has many of the same strengths and weaknesses as convenience sampling: it is fast and inexpensive; however, it does not necessarily lead to results that are generalizable. Another strength of snowball sampling is it allows researchers to target specific populations and access individuals who may not normally participate in research (McCombes, 2022). In addition, snowball sampling usually requires fewer recruiters than other types of sampling, which makes it even more cost effective. A weakness of this method however, is it can cause bias of numerous types such as community bias, response bias, sampling bias, and selection bias. Usually, convenience and snowball sampling are used for qualitative studies, not

quantitative studies, because quantitative research is usually conducted to be generalizable (McCombes, 2022).

Sample size is another important factor to consider when assessing research. The studies discussed in this section appeared to have fairly strong sample sizes. Ho et al. (2016) had the largest sample with 1059 participants. McLean et al.'s (2015) study had the smallest sample size with 101 participants. Adequacy of sample size, however, cannot be determined merely by number. Scully et al.'s (2020) reported sample size was based on the 'rule of thumb' guidelines that propose a sample size of 200 should be reached in order to complete path analysis. The remaining studies in this section failed to mention if any power analysis was conducted. A power analysis should be conducted to determine the minimum sample size needed as it changes based on various factors of the study, including the population it is examining. Therefore, it cannot be determined whether the studies have the necessary sample size. It is possible the researchers failed to report the sample size due to publication space limitations. If the researchers failed to conduct a power analysis, it would be a weakness of their research as they cannot assure that the findings accurately describe the population.

Recruitment. There were several recruitment methods used in the core articles of this paper. First, as mentioned previously, Kleemans et al. (2018) and Veldhuis et al. (2020) used snowball sampling, therefore, recruitment occurred through direct connections. Kleemans et al. (2018) invited girls from their own network to participate and then asked them if they knew anyone else who met their criteria and would want to participate in the study. Part of Veldhuis et al.'s (2020) recruitment occurred through connections on Facebook as well as in person. The researchers asked individuals they previously knew on Facebook to participate. Some strengths of this direct type of recruitment are that it is easy, time efficient, takes little planning, and is inexpensive.

However, a major weakness of this method is that it could lead to selection bias, which is when error occurs due to the researchers' choice of participants. For example, the researchers may have chosen initial participants based on who they thought would confirm their hypothesis. Another weakness of this method is that individuals who have fewer friends or connections are normally underrepresented. Veldhuis et al. (2020) also recruited participants using flyers. The strengths and weaknesses of this method will be discussed later.

Like Veldhuis et al. (2020), Fardouly et al. (2018) also recruited online. Unlike Veldhuis et al. (2020), though, Fardouly et al. (2018) used an online recruitment service. The study used Amazon's Mechanical Turk, allowing researchers to recruit participants from all over the United States, making the sample more generalizable (Amazon Mechanical Turk, n.d.). However, this recruitment method also leaves room for selection bias, as only individuals who sign up to complete online studies are recruited.

The remainder of the studies recruited at schools, however, the specific way by which they did so varied (Gioia et al., 2020; Harrison & Hefner, 2014; Ho et al., 2016; McLean et al., 2015; Meier & Gray, 2014; Scully et al., 2020; Tiggemann & Slater, 2017). Gioia et al. (2020) asked school principals to recruit the student participants. The researchers did not disclose how the principals chose whom to invite to participate. A weakness of this method is selection bias. For example, the principal could have chosen students who are ahead in their work to participate. On the other hand, each principal could have chosen participants in a different way, which may help to reduce selection bias. Some strengths of this recruitment method are that it is time and cost effective as researchers only had to talk to the principals.

Harrison and Hefner (2014), Tiggemann and Slater (2017), Scully et al. (2020), McLean et al. (2015), Meier and Gray (2014), and Ho et al. (2016) recruited participants by sending

information and consent forms home for parents to complete. Some of the weaknesses of this method are that paper flyers or forms are relatively costly and not always time effective, efficient, or environmentally friendly. This is especially true for these studies as the researchers had to rely on the students giving their parents the flyers and bringing them back to the school. However, a strength of this method is it limits the workforce needed, as the researchers met with a class or principal instead of each participant individually.

Some participants in Harrison and Hefner (2014), Meier and Gray (2014), and Ho et al. (2016) were over the age of 18 so they could consent for themselves; therefore, they were recruited in class time via the same information and consent form. Meier and Gray (2014) also included an advertisement in the school's online newsletter. This was a more cost effective and environmentally friendly method of recruitment; however, it is unclear how many parents regularly read the online school newsletter. Using multiple modes to recruit was a strength of Meier and Gray (2014) and Veldhuis et al. (2020), as it potentially increased the variety of the sample as not all individuals respond to all types of requests. Lastly, Meier and Gray (2014), Harrison and Hefner (2014), and Veldhuis et al. (2020) provided an incentive to participate, such as a chance to win a gift card. Providing an incentive was a strength of these studies as it potentially motivated more individuals to participate.

Demographics. The population of interest in this paper includes individuals aged 12-25 years old, representing adolescents and young adults. All the chosen core articles involved participants within the range of ages on which this literature review is focused. Among the studies featured in this literature review, Fardouly et al. (2018) and Veldhuis et al. (2020) were outliers, having studied young adults aged 18-25. All other studies discussed studied primarily adolescents, between the ages of 12 and 19: Scully et al. (2020) included participants aged 12 to

17; Meier and Gray (2014) participants were aged 12 to 18; Ho et al. (2016) had an age range of 12 to 19; Gioia et al. (2020) was 13 to 19; lastly, Kleemans et al. (2018) and Harrison and Hefner (2014) involved individuals between 14 and 18. Meanwhile, Tiggemann and Slater (2017) and McLean et al. (2015) did not report age ranges, but had mean ages of 13.6 and 13.13, respectively. Clearly, these studies together represented the age range this paper is exploring.

The goal of this paper was to investigate both males and females. Harrison and Hefner (2014), Gioia et al. (2020), and Ho et al. (2016) met this goal, investigating both males and females. However, Fardouly et al. (2018), Kleemans et al. (2018), Veldhuis et al. (2020), Tiggemann and Slater (2017), Scully et al. (2020), McLean et al. (2015), and Meier and Gray (2014) only investigated females. Therefore, a strength of Harrison and Hefner (2014), Gioia et al. (2020), and Ho et al. (2016) studies is that they are more generalizable to the general population because they include both genders. In 2020, males made up 48.7% of the population of Italy. Gioia et al.'s (2020) study sample consisted of 55% female participants and 45% male participants. In Singapore, the female to male ratio in 2016 was roughly 51% female to 49% male (Government of Singapore, 2021). Ho et al.'s (2016) sample was only slightly off the gender proportions of the general population with a total of 567 males and 492 females. Therefore, gender representation was a strength in the studies of both Gioia et al. (2020) and Ho et al. (2016) which improved generalizability. Furthermore, in 2014 the U.S. population consisted of 48.9% males (Statista Research Department, 2021). Harrison and Hefner's (2014) study sample was 67% females and 33% males. Therefore, Harrison and Hefner's (2014) gender ratio was not very representative of the population, an obvious weakness as it impacted the generalizability of their findings.

Kleemans et al. (2018), Veldhuis et al. (2020), Tiggemann and Slater (2017), Scully et al. (2020), and McLean et al. (2015) studies did not report the ethnicity of the participants. Not reporting the ethnicity of the sample was a weakness of these studies as it is unclear how representative they are of the general population. Fardouly et al. (2018), Harrison and Hefner (2014), and Meier and Gray (2014) reported the ethnicity of the participants. The majority of participants were Caucasian. These studies also had participants that were African American, Asian, Hispanic American, and American Indian, however, these studies' samples were not proportionally representative of the general population in ethnical terms. This was a weakness of the studies as it lowered the generalizability of their findings. However, the fact that Fardouly et al. (2018), Harrison and Hefner (2014), and Meier and Gray (2014) reported ethnicity of participants was itself a strength as readers could consequently know the extent to which the findings were generalizable. McLean et al. (2015) provided information on how many of the participants were Australian born and how many participants' parents were Australian born. The study reported that 91% of participants were born in Australia, which is higher than the percentage of the general population born in Australia (Australian Bureau of Statistics, 2022). This lowers the generalizability of the sample to the general population in the country, therefore, this was a weakness of McLean et al.'s (2015) study.

A few of the studies reported the education level of the participants. Kleemans et al. (2018) reported the education level of their participants; the researchers considered it relevant since the participants in the study were from the Netherlands, where grade school children get divided into three education levels: low, middle, and pre-university. This information helped to explain the design of the Kleemans et al.'s (2018) study. Providing this information is a strength of the study as it helps the reader to understand the generalizability of the sample. Veldhuis et al.

(2020) also reported the level of education of the participants. This was particularly relevant as the sample was partly recruited from a higher education institution. A total of 69.8% of the sample have completed higher education. This lowers the generalizability of the sample as a much lower proportion of the general population has attended that level of education.

Additionally, Harrison and Hefner (2014) and Ho et al. (2016) reported the body mass index (BMI) of the samples. BMI was included to investigate if social media use impels an individual to strive towards a physical idealized body shape. The mean BMI for Harrison and Hefner's (2014) sample was 23.67, which the researchers reported as falling within the optimal health range. Harrison and Hefner (2014) also stated that the BMI of their sample was normally distributed. Ho et al. (2016) reported the BMI averages as 20.19 for females and 21.1 for males, which falls in the normal healthy range. Therefore, both studies' samples may have been overly representative of the optimal/normal health range, and under representative of the other categories of BMI. In addition, it is unclear whether the average 12-19-year-old or 14-18-year-old is found within the normal or optimal BMI range; therefore, the BMI may be a weakness as it is not necessarily representative of the general population.

Data Collection

Data collection occurred in person in either a school or designated room for the studies of Harrison and Hefner (2014), Gioia et al. (2020), Tiggemann and Slater (2017), Scully et al. (2020), McLean et al. (2015), Meier and Gray (2014), and Ho et al. (2016). In person data collection is advantageous as researchers have more control over the environment and know when data collection will be complete. However, a weakness of this method is that the researchers' presence may lead to bias. Fardouly et al. (2018), Kleemans et al. (2018), and Veldhuis et al. (2020) completed data collection online. Strengths of online surveys include

minimizing or eliminating contact with the researcher(s), which helps to reduce the Hawthorne effect and other biases, such as interviewer, social desirability, and subject bias. In addition, online surveys are completed in the participants' own time and space; therefore, they can be less expensive and more convenient for both the researchers and participants, respondent anonymity can be easier to maintain, and time restraint may be minimized. Conversely, a weakness of online data collection is that it may lead to the exclusion of certain participants, specifically those that do not have access to the technology or the know-how to use it. Additionally, the participants may not allot the appropriate amount of time to complete the survey, which may increase time restraints.

In addition to the setting in which the data collection occurred, the method used to collect data has an impact. All the studies presented in this section employed Likert scales to gather data. Strengths of this method include expediency, efficiency, and economy. Additionally, Likert scales allow for degrees of responses; Likert scales can also be administered both online and in person, and the results they generate are easy to analyze. However, there are also numerous weaknesses of this method, among which are that participants' true opinion might not be relayed, and that there is a risk of question-order bias, response bias, and extreme responding bias (Jovancic, 2021). In the remainder of this section, I explore the specific instruments the researchers used to collect data, and therefore, continue to explore strengths and weakness of Likert scales.

Beauty Ideal Measures. One of the data collection instruments used by Fardouly et al. (2018), Harrison and Hefner (2014), Tiggemann and Slater (2017), and McLean et al. (2015) was the Sociocultural Attitudes Towards Appearance Questionnaire (SATAQ; Thompson et al., 2004) or its subscales. Fardouly et al. (2018), Tiggemann and Slater (2017), and McLean et al.

(2015) used this questionnaire to measure the extent to which participants have internalized the beauty ideal portrayed within society. Harrison and Hefner (2014) used the questionnaire to measure acceptance of the media as a source of information about appearance, individuals' perceived pressure to conform to media ideals, and internalization of media-depicted ideals. Fardouly et al. (2018) and McLean et al. (2015) rated the questionnaire items on a 5-point scale, Harrison and Hefner (2014) used a 7-point scale, and Tiggemann and Slater (2017) did not state what Likert scale they used. It is unclear why there is a lack of consistency. Fardouly et al. (2018), McLean et al. (2015), and Harrison and Hefner (2014) used Likert scales that were shorter and therefore easier to use, and this can be counted among their strengths (Taherdoost, 2019). Harrison and Hefner (2014) most likely had the most accurate results as participants had more options to choose from and therefore, had the opportunity to be more specific (Taherdoost, 2019). In addition, validity is generally higher for Likert scales that are above 6 points; therefore, it is possible Harrison and Hefner (2014) study had higher validity than any other study presented so far in this section.

Harrison and Hefner (2014) reported that internal consistency estimated by Cronbach's alpha was 0.96. Tiggemann and Slater (2017) stated that the SATAQ demonstrated reliability and validity. Finally, McLean et al. (2015) used the updated 4th version of the SATAQ and reported it exhibited a stable scale structure and good convergent validity in the U.S. and for international college-age female samples. In addition, the researchers reported the test–retest reliability in the current subsample of participants for whom two assessments were available was adequate and Cronbach's alpha was 0.84. It therefore appears that the SATAQ was an appropriate instrument for the researchers of these studies to use.

Some studies used different instruments to assess internalization of beauty ideals. Specifically, Scully et al. (2020) used the Thin-Ideal Internalization Scale to measure levels of internalization of the thin ideal. Scully et al. (2020) employed a 5-point response scale for the 8 items. The researchers reported the internal consistency reliability was high with Cronbach's alpha being 0.90. Additionally, Meier and Gray (2014) used the 5-item Sociocultural Internalization of Appearance Questionnaire for Adolescents (Keery et al., 2004) to measure the degree to which individuals adopt the media-presented appearance ideals. Like Scully et al. (2020), Fardouly et al. (2018), McLean et al. (2015), and Meier and Gray (2014) also used a 5-point Likert scale which is easy to use and adequate, however, the researchers may have gathered more useful and valid information if they used a 6-or-7-point scale (Taherdoost, 2019). Meier and Gray (2014) reported Cronbach's alpha to be 0.919. Therefore, both Scully et al. (2020) and Meier and Gray (2014) appear to have chosen appropriate measures for their studies.

Body Satisfaction and Drive for Thinness Measures. Another data collection instrument used by some of the studies is the Eating Disorder Inventory (EDI; Garner et al., 1983). Fardouly et al. (2018), Veldhuis et al. (2020), Scully et al. (2020), McLean et al. (2015), and Ho et al. (2016) used the EDI to assess body dissatisfaction using the Body Dissatisfaction Subscale. Fardouly et al. (2018), Veldhuis et al. (2020), and Scully et al. (2020) used a 9-item subscale. McLean et al. (2015) used a 10-item subscale as they employed the EDI-3. Fardouly et al. (2018), Tiggemann and Slater (2017), Meier and Gray (2014), and Ho et al. (2016) also employed the EDI; however, it was used to assess drive for thinness using the Drive for Thinness subscale. A strength of this inventory is that it used reverse-coding relevant items which helps to prevent response bias. Fardouly et al. (2018), Scully et al. (2020), McLean et al. (2015), Meier and Gray (2014), and Ho et al. (2016) reported using a 6-point response scale. Strengths of the 6-

point Likert scale is that it is easy to use and is considered to have high reliability. Veldhuis et al. (2020) and Tiggemann and Slater (2017) did not report the size of the point scale they used. Not reporting this information is a weakness of the study as some Likert scales are stronger than others; therefore, the lack of information makes it difficult to determine the accuracy of the data (Taherdoost, 2019).

Scully et al. (2020) reported the Body Dissatisfaction subscale had acceptable internal consistency reliability with Cronbach's alpha being 0.83. McLean et al. (2015) reported that the subscale had adequate test-retest reliability in mixed-age samples. Additionally, the convergent and discriminant validity in nonclinical samples was adequate. McLean et al. (2015) also reported Cronbach's alpha was 0.92. Veldhuis et al. (2020) did not report any psychometric properties for the subscale which was a weakness of the study because it makes it difficult for the reader to determine its reliability and validity. Fardouly et al. (2018) reported that the internal consistency reliability was high for both subscales with Cronbach's alpha being 0.90. Ho et al. (2016) stated Cronbach's alpha was 0.89 for the Body Dissatisfaction Subscale and 0.91 for the Drive for Thinness subscale. Tiggemann and Slater (2017) reported the Drive for Thinness subscale was reliable and valid. Meier and Gray (2014) related Cronbach's alpha as 0.941 for the Drive for Thinness subscale. Therefore, it appears the Eating Disorder Inventory was also an appropriate measure to use for Fardouly et al. (2018), Tiggemann and Slater (2017), Scully et al. (2020), McLean et al. (2015), and Meier and Gray (2014). However, since Veldhuis et al. (2020) did not report any psychometric data, it is unclear if the measure was appropriate for their study's population.

Ho et al. (2016) used a different instrument to assess body dissatisfaction for males. The instrument was the Male Body Attitudes Scale. Specifically, they used the 10-item muscularity

and the 8-item body fat subscales. In addition, the 14-item Drive for Muscularity Scale was used to assess the participants drive to be muscular. This was the male equivalent to the Drive for Thinness subscale the females completed (Ho et al., 2016). Both these scales were completed using a 6-point Likert scale and therefore had some of the same strengths as those used by Fardouly et al. (2018), Scully et al. (2020), McLean et al. (2015), Meier and Gray (2014), and Ho et al. (2016). Both scales also had a Cronbach's alpha of 0.92. Based on this information, these scales were appropriate measures for the male participants in the study.

Kleemans et al. (2018) used an alternative instrument to measure body dissatisfaction. They employed the Body Image State Scale (Cash et al., 2002) to measure the participants' evaluation and affect about their physical appearance. The scale was administered with a 9-point Likert-type response scale; this was a strength of the study as 9-point scales help to maximize the detail of the participants response (Taherdoost, 2019). Kleemans et al. (2018) reported Cronbach's alpha was sufficient at 0.83. Similarly, Harrison and Hefner (2014) employed an instrument to measure physical self-esteem. The instrument was the 12-item Physical Self-Description Questionnaire (Marsh et al., 1994). The researchers used a 6-point Likert response scale and included reverse-coded items. Both of these are strengths of the study as 6-point Likert scales are adequate and reverse-coded items help to prevent response bias. Harrison and Hefner (2014) reported a Cronbach's alpha of 0.94.

Reversely, Veldhuis et al. (2020) employed an instrument to measure body appreciation, so the researchers could also study the opposite of body dissatisfaction. Veldhuis et al. (2020) used the Body Appreciation Scale-2 (Alleva et al., 2016) to measure body appreciation which is a 10-item scale. The researchers reported that Cronbach's alpha is 0.92. In addition, Veldhuis et al. (2020) reported that the instrument has been reliable in the past as previous consistency

estimates are 0.96-0.97. Therefore, Harrison and Hefner (2014), Veldhuis et al. (2020), and Kleemans et al. (2018) chose suitable instruments.

Body Surveillance Measure. Harrison and Hefner (2014), Gioia et al. (2020), Veldhuis et al. (2020), and Tiggemann and Slater (2017) utilized the Objectified Body Consciousness Scale (OBCS; Lindberg et al., 2006). Harrison and Hefner (2014) and Tiggemann and Slater (2017) administered the whole scale to assess body surveillance. More specifically, Tiggemann and Slater (2017) administered the Youth version and Harrison and Hefner (2014) administered the original scale. Gioia et al. (2020) used the eight-item Body Shame subscale (Dakanalis et al. 2015) of the Italian version of the OBCS to assess the extent individuals feel shame about their bodies and appearance. Veldhuis et al. (2020) employed the 4-item Body Surveillance Subscale of the OBCS for Preadolescent and Adolescent Youth to evaluate body surveillance. Harrison and Hefner (2014) and Gioia et al. (2020) used 7-point Likert scales to rate the items which is a strength of the studies because 7-point Likert scales are reported to have good reliability, validity, and convey the maximum amount of useful information (Taherdoost, 2019). Veldhuis et al. (2020) and Tiggemann and Slater (2017) did not report what Likert scale they used, therefore this is a potential weakness of these studies as not all Likert scales are equally reliable (Taherdoost, 2019).

Gioia et al. (2020) reported a good Cronbach's alpha for the Body Shame subscale at 0.79. Veldhuis et al. (2020) stated that previous internal consistency across sex and different samples varied from 0.79 and 0.89. Harrison and Hefner (2014) did not report on the psychometric properties of the scale; however, Tiggemann and Slater (2017) investigated a similar age range as Harrison and Hefner (2014) and reported that the reliability and validity of OBCS was good, like all the other scales in their study. Overall, from the data presented it

appears the OBCS was a suitable instrument to use, however, Harrison and Hefner (2014) should have reported psychometric measures to strengthen their study and help to convey generalizability to the reader.

Self-Concept Measures. Veldhuis et al. (2020) and Scully et al. (2020) employed the Rosenberg Self-Esteem Scale (Rosenberg, 1965) to assess self-esteem. Both studies administered all 10-items of the scale. Scully et al. (2020) used a 5-point Likert response scale which as discussed before is an appropriate size of Likert scale (Taherdoost, 2019). Veldhuis et al. (2020) did not report the Likert response scale used, therefore, once again this is a potential weakness of this study. Veldhuis et al. (2020) reported Cronbach's alpha to be 0.83 for this scale. Scully et al. (2020) stated Cronbach's alpha was 0.78 and the internal consistency reliability for this scale was acceptable. Therefore, based on the data presented this appears to have been an appropriate measure for both Veldhuis et al. (2020) and Scully et al. (2020).

Meier and Gray (2014) used two different instruments to measure aspects of self-concept. The first instrument was the Body-Esteem Scale for Adolescents and Adults (Mendelson et al., 2001) which was used to assess females' opinions in relation to their body and weight. The scale consisted of 8-items which were measured using a 4-point Likert scale. Meier and Gray (2014) reported Cronbach's alpha to be 0.935. Meier and Gray's (2014) second instrument was the Self-Objectification Questionnaire (SOQ; Noll and Fredrickson, 1998) which Fardouly et al. (2018) also used. Fardouly et al. (2018) used the instrument to measure the extent to which participants view their body in terms of competence, which was non-objectified on the SOQ, or appearance, which was objectified on the SOQ. Meier and Gray (2014) administered the instrument to determine the extent to which different body attributes impact the participants' physical self-concept. Both studies' participants completed 10 items using a 10-point scale. The 10-point

Likert scale has higher validity and reliability and conveys more useful information than the 4-point Likert scale Meier and Gray (2014) used for the Body-Esteem Scale. Fardouly et al. (2018) reported that the scale has good construct validity. Meier and Gray (2014) provided no psychometric information. Based on the psychometric information provided it appears this was an appropriate scale for Fardouly et al. (2018). Meier and Gray's (2014) sample was different from that of Fardouly et al. (2018). Moreover, Meier and Gray (2014) did not provide adequate information to determine if the scale was suitable.

Social Comparison Measures. Four studies used instruments to measure how often individuals compare themselves to others. The first study was Kleemans et al. (2018) which used the Iowa–Netherlands Comparison Orientation Measure (Gibbons & Buunk, 1999) to assess social comparison. The scale consists of 11-items and included reverse-coded items, which as mentioned previously is a strength as it helps to prevent response bias. The researchers excluded one of the 11 items. The scale had a Cronbach's alpha of 0.87. The first study was by Fardouly et al. (2018) who used the instrument to measure individuals' tendency to compare their appearance to others. Fardouly et al. (2018) used the Upward and Downward Appearance Comparison Scale (O'Brien et al., 2009). This is an 18-item scale and the researchers reported the Cronbach's alpha was 0.95. The third was Meier and Gray's (2014) study which employed the Physical Comparison Scale to measure the tendency to compare one's own appearance to that of others. Meier and Gray (2014) used a 4-item version because a negatively worded, reverse-coded item was removed since previous studies with adolescent samples indicated it improved reliability to an acceptable level. The researchers reported Cronbach's alpha on this adjusted scale was 0.803. All three studies (Kleemans et al., 2018; Fardouly et al., 2018; Meier & Gray, 2014) measured with a 5-point Likert scale.

Ho et al. (2016) used the Physical Appearance Comparison Scale (Thompson et al., 1991) to measure social comparisons with both friends and celebrities. Participants answered four items that were adapted to focus on friends and a second version was adapted to focus on celebrities. The scale was rated with a 7-point Likert scale. For the friend adapted version, the scales for females and males had Cronbach's alphas of 0.88 and 0.89 respectively. For the celebrity adapted version, the scale for females had a Cronbach's alpha of 0.89 while that for males was 0.92. Therefore, it appears all social comparison measures were appropriately chosen for each study. Lastly, Fardouly et al. (2018) administered two questions to assess how often the participants compared themselves to others on Instagram. Both used 5-point Likert scales to provide response options. As discussed above, the 5-and-7-point Likert scales used in this section are a strength of the studies as they are easy for the participants to use and have high reliability (Taherdoost, 2019). McLean et al.'s (2015) study provided no psychometric information on these questions; therefore, it is unclear if these measures were fitting for the study.

Celebrity Involvement Measures. Ho et al. (2016) was the only study that assessed celebrity involvement. The Celebrity Attitude Scale was used to assess participants' celebrity involvement. Participants completed 22-items using a 7-point scale. Cronbach's alpha was reported to be 0.96 for both males and females. Based on the reported Cronbach's alpha, this instrument appears appropriate for both male and female participants in this study.

Eating Behavior Measure. McLean et al.'s (2015) study used the 10-item Dutch Eating Behavior Questionnaire Restraint subscale to measure dietary restraint. Items were measured on a 5-point scale. McLean et al. (2015) reported good test-retest reliability was found for adolescent females; this is a strength of the study as adolescent females is the population this

study was examining. Cronbach's alpha was stated to be 0.94. In addition, the scale scores have demonstrated adequate convergent validity for college-aged females. However, since this is not the population this study is exploring it is unclear if the validity assessment is applicable to McLean et al.'s (2015) study. Therefore, this was a weakness of this study and further assessment should have been done to determine if this is an appropriate measure to use.

Internet and Social Media Use Measures. The Italian version of the Generalized Problematic Internet Use Scale (Caplan, 2010) was utilized by Gioia et al. (2020) to measure the degree of generalised problematic internet use. The scale has a total of 15 items that were each responded to on a 7-point Likert scale. Gioia et al. (2020) found Cronbach's alpha to be 0.88. Meier and Gray (2014) employed the Facebook Questionnaire which was created by the authors to assess the frequency of user activity on various parts of Facebook. Participants responded to 24 items using a 5-point Likert scale. Cronbach's alpha was 0.874 for the total questionnaire. Therefore, both instruments were appropriate choices for the studies that employed them.

Scully et al. (2020) used the Photo Subscale that was created by Meier and Gray (2014) and was composed of 8 items. The Photo Subscale was supposed to assess how often individuals using Facebook engage in appearance-related activities. The researchers' employed a 5-point Likert scale. Scully et al. (2020) found the internal consistency reliability for the study was acceptable, as Cronbach's alpha was 0.82 hence, this subscale was suitable to use for this study.

McLean et al. (2015) also created an instrument, the Social Media and Digital Communications Scale designed to assess social media and online engagement. The scale had 8 yes or no items. McLean et al. (2015) stated no Cronbach's alpha was calculated as it is inappropriate for an index measure. Therefore, the researchers did not provide any psychometric

information, which is a weakness of the study as the reader cannot assess the effectiveness or appropriateness of the measure.

Furthermore, McLean et al. (2015) calculated the number of hours of digital media exposure each participant had per day. To do this, they used a 6-item version of a media use questionnaire. The participants were able to impute any number for their response. This was a strength of this instrument as it did not limit the participants' response and allowed them to be as accurate as possible. The test-retest reliability and construct validity were reported to be adequate for the study's adolescent sample. In addition, Cronbach's alpha was reported to be 0.72, which is an indicator that the adapted measure has acceptable internal consistency. With its psychometric properties, the questionnaire is an appropriate measure for the study.

Additionally, a couple of studies used questions that were not part of instruments. Fardouly et al. (2018) administered two questions which were used to measure Instagram usage. Ho et al. (2016) asked participants to disclose the number of hours they spent per day on social media use in the last week. No psychometric information was reported for either of these studies and therefore the appropriateness of these questions is challenging to determine. Ho et al. (2016) also administered questions that required the participants to rate their level of attention to the internet in terms of various aspects. Cronbach's alpha was reported to be 0.71 for females and 0.67 for males. Similar questions were then used to assess attention to the television regarding various aspects (Ho et al., 2016). For these questions Cronbach's alpha was 0.70 for both females and males. Lastly, similar questions were used once again to explore the participants level of attention to magazines in relation to specific aspects. Ho et al. (2016) reported Cronbach's alpha to be 0.81 for females and 0.84 for males. It appears the three sets of similar questions were appropriate for the study based on the Cronbach's alphas provided.

Photo and Selfie Engagement Measures. Two studies employed instruments to assess photo and selfie engagement (Gioia et al., 2020; Veldhuis et al., 2020). Gioia et al. (2020) employed the Body Image Control in Photos-Revised (Pelosi et al., 2014). The researchers used a shortened version of this instrument to assess adolescents' photo management and control online and offline. The participants of the study completed 16 items which corresponded to 5 different factors. Items were rated with a 5-point Likert scale. Gioia et al. (2020) reported Cronbach's alpha to be very good at 0.82 for the overall scale.

Veldhuis et al. (2020) used an adjusted version of the Photo Subscale to investigate selfie related activities. The researchers added an extra item to the scale on sharing selfies therefore there was a total of 9 items administered. Veldhuis et al. (2020) reported the Cronbach alpha to be 0.74. Veldhuis et al. (2020) also administered an adjusted version of the Photo-Selection Scale (Siibak, 2009). The instrument was adjusted to assess the reasons why participants selected the selfies they posted on social media. The scale consisted of a total of 15-items. Veldhuis et al. (2020) reported Cronbach's alpha to be 0.88. Based on the Cronbach's alphas provided, the instruments used by the researchers of the studies in this subsection were appropriate.

McLean et al. (2015) constructed an instrument to assess the practices of sharing and taking digital images online. One of the researchers of the study developed the item pool and the other researchers in the study reviewed it for face validity and clarity. There were items that were omitted and revised by consensus. It appears this measure was appropriate for the study; however, the instrument should have been tested to have specific psychometric information.

A few studies used questions that were not part of instruments to assess selfie and photo engagement. Veldhuis et al. (2020) also administered a few items that did not belong to an existing instrument. Veldhuis et al. (2020) administered 3-items to assess how often participants

used photo-editing to improve appearance before posting selfies. Cronbach's alpha was reported to be 0.63 for these three items. Veldhuis et al. (2020) also administered 4-items to assess if participants are posting selfies for certain reasons. For these items Cronbach's alpha was stated to be 0.96. Based on Cronbach's alpha, it appears the set of 3-items fell short for internal consistency for Veldhuis et al.'s (2020) study; however, the 4-items measure was suitable for the study.

Harrison and Hefner (2014) used a single 7-point question to have participants rate photos for attractiveness. Fardouly et al. (2018) also used a single question to determine how often participants are viewing fitspiration images on Instagram. A 5-point Likert scale was used for the response. No psychometric data was provided for this single item, so the appropriateness of its usage is unclear.

McLean et al. (2015) administered various sets of questions that were independent of instruments. First, two questions were included in the survey to determine the frequency of taking selfies alone and selfies with others. Responses were gathered using an 8-point scale. The internal consistency was 0.86 for these two items. To assess photo manipulation, McLean et al. (2015) administered 10-items on a 5-point Likert scale. Cronbach's alpha was reported to be 0.85. McLean et al. (2015) also used two questions to assess the frequency of sharing photos through social media. The participants once again answered on a 5-point scale, which is a strength of these studies as it is considered to have high reliability and is easy for participants to use. Spearman-Brown's coefficient was reported to be 0.82. Lastly, McLean et al. (2015) employed 8-items to assess the effort participants used in choosing the photos they post on social media. The items were presented along a visual analogue scale that was from 0-100. Cronbach's

alpha was reported to be 0.85. Based on the psychometric information McLean et al. (2015) reported, these single items were appropriate for the study.

Demographic Information. Demographic information was collected by all the studies in this section. The inclusion of demographic information in these studies improves their quality, as it communicates the population of which the sample is representative. Kleemans et al.'s (2018) study was the only study that did not report what demographic information was collected. All studies collected age and gender. Additionally, depending on the study, participants were asked ethnicity, height, weight, if they had social media, what social media they have, education level, daily internet use, country of birth, and parent's country of birth.

Data Analysis

Statistical analysis focuses on two forms of statistics: descriptive and inferential (Sutanapong & Louangrath, 2015). Descriptive statistics describe the data and are used before formal inferences are made. Mean, mode, and median are common forms of descriptive statistics. Inferential statistics is when sample descriptive statistics are used to make inferences about the population (Sutanapong & Louangrath, 2015). Confidence interval, t-critical value, and z-equation are some forms of inferential statistics. In this section, I critically examine the statistics used by the researchers of the core studies chosen for this literature review and discuss how they impacted their findings.

Descriptive Statistics.

General Descriptive Statistics. Descriptive statistics are used to report demographic information and participants' opinions. All the 10 core articles provided descriptive statistics relating to information on their populations, such as age and sex. Kleemans et al. (2018), Harrison and Hefner (2014), and Meier and Gray (2014) also provided further descriptive

statistics such as body mass index, ratings of objectified body consciousness and physical self-esteem, along with information about participants' evaluations of photos. In addition, Gioia et al. (2020), Fardouly et al. (2018), Meier and Gray (2014), Scully et al. (2020), Veldhuis et al. (2020), and Kleemans et al. (2018) made use of means and standard deviations of the variables before they proceeded to test their hypotheses.

One-Way Pearson's Correlations. Meier and Gray (2014) ran one-way Pearson's correlations on all main variables in their study. Pearson's correlations are used to determine if a positive or negative correlation exists, and if so, the extent of the correlation (Nettleton, 2014). Meier and Gray's (2014) testing controlled for BMI since there is a known association between adolescent body dissatisfaction and BMI. The one-way Pearson's correlations were used to test Meier and Gray's (2014) two hypotheses. Their first hypothesis speculated that a greater amount of time spent on Facebook would correlate with lower weight satisfaction and greater thin ideal internationalization, appearance comparison, self-objectification, and drive for thinness. The second postulated that a higher level of Facebook appearance exposure, as measured by time spent using photo-related features relative to total time spent on Facebook, would correlate with lower weight satisfaction and greater thin ideal internationalization, appearance comparison, self-objectification, and drive for thinness.

Inferential Statistics

T-tests. T-tests are an inferential statistic used to determine if there is a significant difference between two mean groups before hypotheses are tested (Hayes, 2022). T-tests were completed by Gioia et al. (2020), Fardouly et al. (2018), Meier and Gray (2014), Scully et al. (2020), and Kleemans et al. (2018) prior to hypotheses testing.

Hierarchical Multiple Regression Analyses. Tiggemann and Slater (2017), Ho et al. (2016), and Mclean et al. (2015) used hierarchical regression analyses, which is generally employed to determine if certain variables can explain a statistically significant amount of variance in the dependent variable (University of Virginia Library, 2016). Tiggemann and Slater (2017) completed several hierarchical multiple regression analyses to test the temporal precedence of Facebook use to body image concern. In every regression the time 1 measure of body image concern was entered in step 1 and the proposed predictor was entered in step 2. The outcome variable was the time 2 body image concern. Since the aim of Tiggemann & Slater (2017) was to present a prospective analysis of Facebook use and body image concern in adolescent girls, the longitudinal design of the study enabled them to examine whether Facebook use occurred prior to body image concerns. The use of hierarchical regression analyses enabled them to test the temporal precedence of Facebook use and body image concerns as well as the possibility of a reverse causation.

Ho et al. (2016) posed two hypotheses that were tested with separate hierarchical linear regression analyses for males and females using Statistical Package for the Social Sciences (SPSS) 20 software. Their first hypothesis was that social comparison with friends on social networking sites would be positively linked with body image dissatisfaction and the drive to be thin or drive to be muscular. Their second hypothesis was that social comparison with celebrities by way of social networking sites would be similarly linked with body image dissatisfaction and the drive to be thin or drive to be muscular (Ho et al., 2016). The first blocks of the regression analyses were filled with the two controls: age and BMI. The second block was filled with variables pertaining to attention to mass media and the internet. The remaining blocks were simultaneously filled with the variables hypothesized in the study: social comparison with

friends on social networking sites, social comparison with celebrities on social networking sites, celebrity involvement, and whether these are positively associated with body image dissatisfaction, and drive to be thin and drive for muscular (Ho et al., 2016). Therefore, the statistical procedures that were followed showed that they were in line with the study's purpose.

Lastly, Mclean et al. (2015) used separate hierarchical linear regressions with subsamples of participants that were categorized as photo sharers and non-photo shares. Separate regressions were used to examine the amount of variance in the overvaluation of shape and weight, dietary restraint, and body dissatisfaction attributable to independent variables. Since the aim of Mclean et al.'s (2015) study was to examine the relationships between social media activities and body dissatisfaction, overvaluation of shape and weight, and dietary restraint, the separate hierarchical linear regressions were an appropriate procedure. Indeed, the authors of all three studies used hierarchical regression analysis, which was an appropriate procedure to analyze their data as it enabled them to test their hypotheses and address their research question.

Analysis of Variance and Covariance. Analysis of variance (ANOVA) is a statistical test which informs whether there are any statistical differences between the means of three or more independent groups (Bevans, 2022). This is used for studies in which the dependent variable is continuous, and all the independent variables are categorical (Sutanapong & Louangrath, 2015). Fardouly et al. (2018) used the ANOVA procedure, more specifically a repeated-measures analysis of variance to examine the appearance comparisons to specific target groups such as celebrities, acquaintances, and strangers on Instagram, which was one of the aims of the study.

Analysis of covariance (ANCOVA) is a blend of ANOVA and regression (Glen, 2022). Like ANOVA, ANCOVA allows each independent variable to be evaluated one at a time. However, the independent variables are not all categorical like in ANOVA; instead, some are

continuous (Sutanapong & Louangrath, 2015). ANCOVA is usually used when various baseline groups exist (Glen, 2022). Kleemans et al. (2018) and Harrison and Hefner (2014) both used ANCOVA. Kleemans et al. (2018) conducted a one-way analysis of covariance to test their hypotheses at the alpha 0.05. They hypothesized that exposure to manipulated Instagram photos, rather than unretouched images would lead to lower body satisfaction in adolescent girls, and that the negative effect of exposure to such manipulated images would be stronger for girls with higher social comparison tendency. The dependent variable for the ANCOVA was body image. The level of education was the covariate and Instagram photo manipulation and tendency to make social comparisons were between-subjects factors. The study's first and second hypotheses were supported by the results of the analysis.

Harrison and Hefner (2014) employed separate analyses of covariance (ANCOVA) to address the hypotheses and research questions for objectified body consciousness and physical self-esteem. They hypothesized that adolescents exposed to retouched images would manifest greater objectified body consciousness and lower physical self-esteem than those who (a) were exposed to no images, and (b) were exposed to un-retouched images (Harrison & Hefner, 2014). Their first research question contemplated whether adolescents made aware of photo manipulation would experience different levels of objectified body consciousness and physical self-esteem than those adolescents exposed to the same images but not aware that they had been altered. The second research question concerned whether sociocultural attitudes toward appearance might moderate the effect of exposure through retouched and retouched aware images on the levels of objectified body consciousness and physical self-esteem in adolescents. Race, BMI, and age were the covariates for each ANCOVA (Harrison & Hefner, 2014). Gender was a de facto moderator and the SATAQ-3 score was the moderator for the second research

question. The main-effect variables were the experimental condition. All these two- and three-way interactions were tested for evidence of moderation. The ANCOVA results answered the research questions; however, both hypotheses were rejected (Harrison & Hefner, 2014). Overall, the results of the ANOVAs and ANCOVAs answered the research questions and therefore the methods were appropriately employed for each of the three studies.

Structural Equation Modeling. Two studies employed structural equation modeling which is a technique that is used to analyze structural relationships. It is a combination of multiple regression analyses, which was just discussed, and factor analysis (Statistics Solutions, 2022). Gioia et al. (2020) used path analysis within structural equation modelling to test the study's first hypothesis which predicted that body shame would be positively associated with problematic social networking (SNS) and body image control in photos would significantly mediate this relationship. Since normality is an important assumption in SEM, maximum likelihood estimation robust to non-normality was used because of the deviation from normal distribution. To test the second hypothesis which predicted that body shame would directly and indirectly affect problematic social networking through body image control in photos, a mediation model was created and then tested using structural equation modeling. Modifications of the model resulted in a significant improvement of the model fit.

Veldhuis et al. (2020) also used structural equation modeling to test their hypothesis which states that a depressed body image, lower levels of body appreciation, elevated levels of self-objectification, and lower self-esteem, would precede higher engagement in selfie behaviors. To measure the latent variables and their proposed relations, maximum likelihood estimation was used. A reverse model was also tested with selfie behaviours affecting body image, self-objectification, and self-esteem. The estimation of the proposed model showed a fairly good fit

while the reversed model showed slightly poorer fit measures. With assumptions of SEM considered before building the model and fit indexes were checked, the use of this model was appropriate and relevant to justify the acceptance or rejection of the proposed hypotheses.

Multiple Mediation Analysis. Fardouly et al. (2018) employed multiple mediation analysis to determine if any of the comparison targets were potential mediators of the association between Instagram usage and self-objectification. Celebrities were found to be a significant mediator; however, acquaintances and strangers were not. Therefore, this procedure helped to answer one of the three research questions Fardouly et al. (2018) posed: Do appearance comparisons to specific target groups on Instagram or the internalization of beauty ideals, mediate any relationship between Instagram use and self-objectification?

Overall, the researchers of the ten core articles chose procedures that were appropriate in terms of addressing their research questions. The results of the procedures facilitated confirmation or repudiation of their hypothesis.

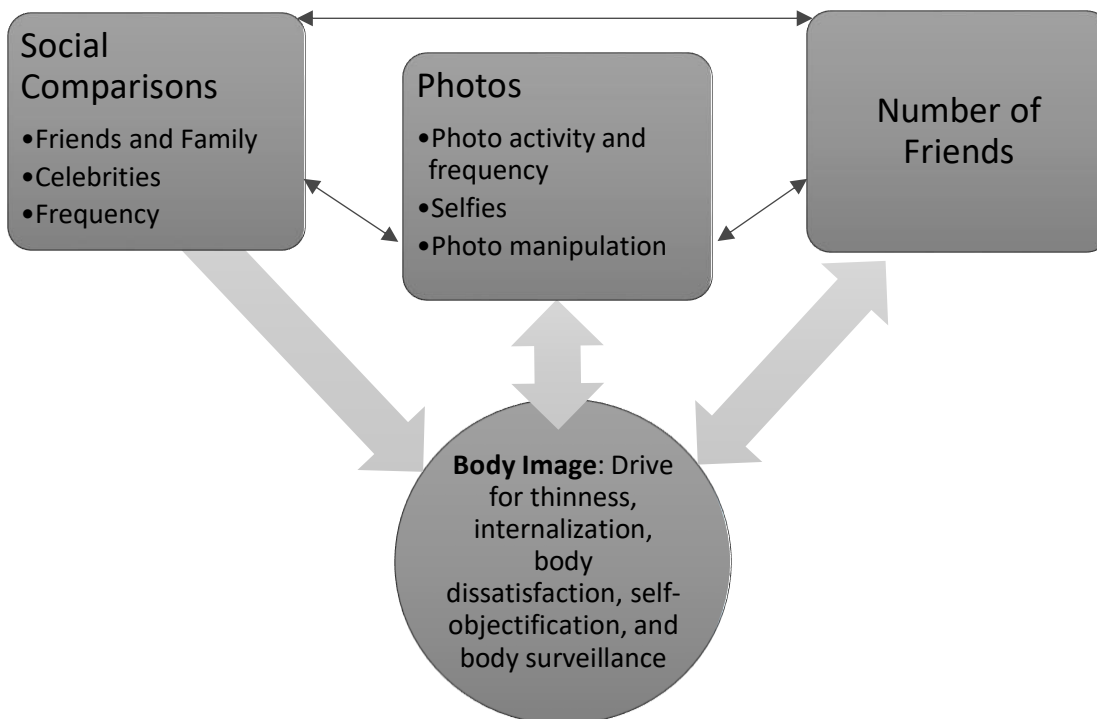
Findings

Previous studies have shown that social media use can have impacts on mental health. It is also known that it is not social media use in general that impacts body image (Fardouly et al., 2018; Meier & Gray, 2014), but rather specific aspects of social media use that have an effect. Therefore, the aim of this study was to investigate which aspects of social media use impact adolescents' and young adults' body image. The 10 core studies of this paper reported numerous aspects of social media use as being linked to adolescents' and young adults' body image. I noticed that these aspects could be categorized into three themes: social comparisons, photos, and number of friends on social media. Additionally, the themes of social comparisons and photos each include three subthemes. The findings of this paper are presented according to these

themes. The figure below shows the three general aspects of social media use and their impacts on body image.

Figure 1

General Aspects of Social Media Use and Their Impacts on Body Image



Note. This figure demonstrates the links between body image and aspects of social media use, as well as the potential links between the general aspects of social media use.

Social Comparisons

The first theme that was identified among the results was social comparisons, which is when an individual compares their life or an aspect of their life to that of another. Almost half of the studies attributed body image concerns to participation in social comparisons on social media. For instance, Kleemans et al. (2018) reported that girls who have a higher tendency to compare themselves to others have lower body image—specifically, lower body satisfaction—

than those who have a lower social comparison tendency. Similarly, Veldhuis et al. (2020) reported individuals who compare themselves to others' images may be more likely to experience body concerns. This finding is consistent with the results of the studies of Tiggemann and Miller (2020), Lewallen and Behm-Morawitz (2016), Fardouly and Vartanian (2016), and Eckler et al. (2017) which indicated that appearance comparisons have an impact on body image. There is, therefore, reasonable support for social comparison as an aspect of social media that leads to negative body image. The studies of Fardouly et al. (2018), Scully et al. (2020), and Ho et al. (2016) supported similar but more specific findings that will be discussed in the following subtheme sections.

Friends and Family

Fardouly et al. (2018), Scully et al. (2020), and Ho et al. (2016) investigated specific social comparisons. Friends is one of the social comparison groups that impact body image. Ho et al.'s (2016) study found that social comparison with friends on social media leads to body image dissatisfaction, drive to be thin for females, and drive to be muscular for males. Scully et al. (2020) found similar results: Individuals rated their bodies less favorably after comparing themselves with close friends. Therefore, both Ho et al. (2016) and Scully et al. (2020) supported a link between social comparison to friends and negative body image. Conversely, Fardouly et al. (2018) found that friends were the group that participants were most likely to compare themselves to, but that this comparison did not lead to body dissatisfaction or impact body image. Therefore, Fardouly et al.'s (2018) findings contradicted those of Scully et al. (2020) and Ho et al. (2016). One possible explanation for this discrepancy is the age difference in the populations studied. Fardouly et al.'s (2018) study investigated 18–25-year-olds, whereas Scully et al. (2020) and Ho et al. (2016) explored a younger population of 12-19-year-olds. Friends are

especially important during the adolescent years, so peers generally have more influence during these years. Therefore, during this time it may feel more important to fit in and look like their peer group than it does during young adulthood. An alternative explanation is that certain cultures value friends differently, as Fardouly et al.'s (2018) sample was Australian and Scully et al.'s (2020) and Ho et al.'s (2016) were from Ireland and Singapore. In her article in *The Irish Times*, O'Connell (2009) reports the results of a study conducted across five second-level schools around Dublin, Ireland. The study revealed that friends and siblings have a greater influence on teens' body images than do celebrities, which contradicts Scully et al.'s (2020) findings. O'Connell (2009) explains that the researcher who conducted the study claims that media was the teens' source of ideal images but that these were played out in the bodies of those they met in their day-to-day lives.

Celebrities

Celebrities constituted another group which Fardouly et al. (2018), Scully et al. (2020), and Ho et al. (2016) investigated to learn the impact of social comparison on participants' body images. Fardouly et al. (2018) found an association between female participants comparing themselves to celebrities, and self-objectification. Similarly, Ho et al.'s (2016) study supported a link between female social comparison with celebrities on social media and female drive for thinness. However, Ho et al. (2016) did not find the same for males; comparison to celebrities on social media was not significantly linked to body image dissatisfaction or drive to be muscular. Scully et al. (2020) and Ho et al. (2016) both found that social comparison to celebrities on social media was correlated with body image dissatisfaction in young females. Scully et al. (2020) reported that individuals rated their bodies least favorably when comparing themselves to celebrities, whereas Ho et al. (2016) found that comparison to peers had a stronger relationship

to body image dissatisfaction and drive to be thin than comparison to celebrities. Therefore, both Scully et al. (2020) and Ho et al. (2016) agreed that comparisons to friends and celebrities was linked to negative body image, however, the studies' findings diverge as to which comparison group leads to a more negative body image. The findings of Fardouly and Vartanian (2016), Scully et al. (2020), and Ho et al. (2016) provide evidence that social comparison with celebrities contributes to negative body image. This finding could be expected as it is likely that many celebrities not only spend more time taking care of their appearance than the average person, but also have the financial means to purchase cosmetic procedures and products that a large portion of the general population cannot afford. Additionally, it is noteworthy that Scully et al. (2020) explored a third group that was not considered by the other studies. Scully et al. (2020) found that social comparison to distal peers along with celebrities was correlated with body image dissatisfaction in young females. Lastly, another reason body image could be more negative when comparing oneself to celebrities and even distal peers is because individuals do not see celebrities and acquaintances as regularly as friends. Therefore, perhaps celebrities and distal peers' images on social media appear realistic, as individuals can more easily detect filters and edits on the pictures of individuals they see regularly.

Frequency

Fardouly et al. (2018) and Scully et al. (2020) also discussed frequency as factors of social comparison. Scully et al. (2020) and Fardouly et al. (2018) found that participants most often compared themselves to celebrities and friends. Scully et al. (2020) reported that out of any comparison group, friends and celebrities impact body image the most. As reported above, Fardouly et al. (2018) found an association between negative body image and participants' comparisons to celebrities, however, Fardouly et al. (2018) found no significant connection

between body image and comparison to friends. Therefore, there does not appear to be consistency in frequency of comparison as being a factor that leads to negative body image. Once again, perhaps the inconsistency is due to age as Fardouly et al. (2018) study's sample was adolescents and Scully et al. (2020) study's sample was young adults. However, the discrepancy may also be due to the social media platforms considered by each study, as Fardouly et al. (2018) exclusively examined Instagram, while Scully et al. (2020) explored a plurality of platforms. Some social media sites emphasize contact and communication with celebrities more than others so perhaps the difference in results is due to the type of social media being examined. Overall, the findings of Fardouly et al. (2018), Kleemans et al. (2018), Scully et al. (2020), and Ho et al. (2016) add evidence that social comparison is an aspect of social media use that negatively impacts female adolescents' and young adults' body images.

Photos

The second theme that emerged from the findings is photos. The majority of the core studies in this paper have findings related to this theme within which several subthemes such as photo activity and frequency, selfies, and photo manipulation were identified. In this section, I discuss the findings that relate to this theme and its subthemes.

Photo Activity and Frequency

Photo activity and frequency were found to impact body image. Meier and Gray (2014) stated it was not the total time spent on social media but rather the time spent on photo activity that was associated with greater thin ideal internalization, weight dissatisfaction, self-objectification, and drive for thinness. Additionally, it appears this relationship is bidirectional as adolescents with higher thin ideal internalisation and body dissatisfaction have a higher frequency photo interaction on social media. Gioia et al.'s (2020) findings also supported Meier

and Gray's (2014) findings, which revealed that individuals' interaction with their pictures prior to posting them on social media was highly associated with body image concerns. Tiggemann and Anderberg's (2020) results further supported this finding for the 18- to 30-year-old population. Furthermore, Fardouly et al.'s (2018) study which found that viewing fitspiration photos—photos of physically fit individuals—was linked to negative body image and thus provided additional support for the findings of Meier and Gray (2014) and Gioia et al. (2020). Specifically, the frequency with which an individual views fitspiration photos is correlated with body image dissatisfaction and drive for thinness. Lewallen and Behm-Morawitz's (2016) study, specifically support Fardouly et al.'s (2018) findings as their results showed that fitness images can have a negative impact on body image. In addition, Fardouly et al. (2018) and Meier and Gray (2014) found that one of the results of image viewing on social media was the body image aspect of drive for thinness.

Selfies

Selfies or self-photos are photos that individuals take of themselves. Selfies are often taken with smartphone or digital camera and shared on social media sites (Merriam-Webster, n.d.). Gioia et al. (2020) and Mclean et al. (2015) found that investment in self-photos is linked to body image concerns. More specifically, Gioia et al. (2020) found that investment in self-photos is linked to body shame and self-objectification. On the other hand, Mclean et al. (2015) found that self-photo investment was associated with greater overvaluation of shape and weight, and body dissatisfaction. In addition, Mclean et al. (2015) found that female's high regularity of sharing self-photos was linked to the same body image concerns. In contrast, Veldhuis et al.'s (2020) findings indicated that higher engagement in selfie behaviours was not linked to negative body image, self-esteem, or self-objectification. Rather, higher engagement with selfie selection

and deliberate selfie posting were associated with body appreciation. In addition, Veldhuis et al. (2020) also found the reverse to be true: individuals with more negative body image, lower self-esteem, and self-objectification are more likely to participate in selfie-behaviours. One explanation for this discrepancy between the findings of Veldhuis et al. (2020), and those of Gioia et al. (2020) and Mclean et al. (2015) could once again be age, as Veldhuis et al. (2020) explored the young adult population, while Gioia et al. (2020) and Mclean et al. (2015) were more focused on the adolescent population. These divergent findings might be caused by differences in frequency of social media use and the type of social media use between adolescents and young adults (Youssef et al., 2020).

Photo Manipulation

Photo manipulation is another aspect of social media self-photo related activities that was found to be associated with body-related and eating concerns. Ho et al. (2016) stated that the manipulation of images is connected to social comparison and therefore associated with higher body image dissatisfaction, and drive to be thin or muscular. Harrison and Hefner's (2014) study results partially supported Ho et al.'s (2016) findings. Harrison and Hefner's (2014) study investigated the impact of photo retouching on body image and found that retouching images did not impact body consciousness or decrease physical self-esteem. However, if the participant was aware that the photos were retouched, physical self-esteem was lower and objectified body consciousness was higher. Therefore, the retouched-aware condition had similar findings to that of Ho et al.'s (2016) study. Kleemans et al.'s (2018) findings also partially supported those of Harrison and Hefner (2014) and Ho et al. (2016). Kleemans et al. (2018) found that exposure to manipulated Instagram photos predicted lower body satisfaction, though only for girls who had a high tendency to make social comparisons. The body image of females that had a lower tendency

to make social comparisons was not significantly impacted by the manipulated photos. This finding connects the themes of social comparisons and photo manipulation together. Overall, Ho et al. (2016), Harrison and Hefner (2014), and Gioia et al. (2020) support the notion that photo manipulation can negatively impact some females' body concerns under certain conditions. Reversely, McLean et al. (2015) and Gioia et al. (2020) found that young females that have high levels of body image concerns or dissatisfaction are more likely to engage in photo manipulation and control activities.

Number of Friends

The third theme that came to light in the findings was number of friends. Tiggemann and Slater (2017) is the only study that had results that relate to this theme. Tiggemann and Slater (2017) found that number of Facebook friends was positively correlated with body surveillance, drive for thinness, and internalization. These findings were found to hold true over time, as it was a longitudinal study. Number of Facebook friends, therefore, is also a predictive factor for drive for thinness and internalization. In addition, Tiggemann and Slater (2017) found the reverse was also true: internalization and body surveillance predict an increased number of friends. No other study attributed body image concerns to number of Facebook friends. One explanation for the connection between number of friends and body image may be that popular individuals—those that have more Facebook friends—more heavily value, and therefore internalize, society's beauty standards, such as thinness. Furthermore, an increased number of Facebook friends brings more opportunities for multiple social comparisons most likely with idealized images and this has been shown to be associated with body image concerns. (Tiggemann & Slater, 2017).

Overall, this review found that it is not social media use in general, but rather specific aspects of social media use that are linked to negative body image. These aspects can be categorized into the themes: social comparisons, photo activity, and number of friends on social media. The impacts these types of social media use have on body image include increased self-objectification, lower body satisfaction, drive to be thin for females, drive to be muscular for males, greater thin ideal internalization, higher weight dissatisfaction, more eating concerns, and higher body surveillance.

Ethical Considerations

In this section, I outline the principles and standards concerning the conduct of research involving humans that are applicable to the 10 core studies and discuss whether the researchers complied with them. The Tri-Council Policy Statement: Ethical Conduct for Research Involving Humans (TCPS 2) was created by the government of Canada to regulate research (Canadian Institutes of Health Research [CIHR] et al., 2018). The Canadian Code of Ethics for Psychologists also provides guidelines on ethical practice for all members of the Canadian Psychological Association, whether they are practitioners or researchers. TCPS 2 outlines three main principles, which include respect for persons, concern for welfare, and justice. (Canadian Institutes of Health Research et al., 2018). The Canadian Code of Ethics for Psychologists (Canadian Psychological Association [CPA], 2017) has four main principles: respect for the dignity of persons, responsible caring, integrity in relationships, and responsibility to society. There is a considerable overlap between these codes, so I refer to both in my discussion of their application to the set of core studies in this review whenever it is applicable.

Respect for Persons

Both codes (CIHR et al., 2018; CPA, 2017) carry the principle of respect for persons which has two main components: autonomy and consent. To fulfill this principle, researchers must gather informed consent from or for all participants (CIHR et al., 2018; CPA, 2017). Fardouly et al. (2018), Kleemans et al. (2018), Harrison and Hefner (2014), Veldhuis et al. (2020), Tiggemann and Slater (2017), Scully et al. (2020), Mclean et al. (2015), Meier and Gray (2014), and Ho et al. (2016) received informed consent from all participants over the age of 18 and from the parents of any participant under the age of 18. In addition, Harrison and Hefner (2014), Tiggemann and Slater (2017), Scully et al. (2020), and Mclean et al. (2015) gathered assent from the participants under the age of 18 years old. This was a strength of these studies as it helped to ensure autonomy and voluntary participation for individuals under the age of 18. In addition, Kleemans et al. (2018) and Gioia et al. (2020) specified that participation was voluntary, a clear strength of each study. Gioia et al. (2020) did not report if informed consent was received or not, which was a weakness of this study. The final aspect of this principle is commitment to accountability (CIHR et al., 2018). To observe this aspect, researchers should get approval from an ethics board or committee. All studies in this paper stated they received approval from a university ethics board or committee prior to beginning research.

Concern for Welfare

The second principle is concern for welfare (CIHR et al., 2018). This corresponds to the principle of responsible caring in the Canadian Code of Ethics for Psychologists (CAP, 2017). This encompasses reducing the risk of harm and maximizing the potential for benefits for research participants. How the researchers protect research participants' privacy and control of information about participants show application of this principle (CIHR et al., 2018; CPA, 2017). Kleemans et al. (2018) and Gioia et al. (2020) were the only two studies that stated information

would be treated confidentially. This is a strength of these two studies and a weakness of the other studies, as the information allows the reader to know ethical practices were followed. In addition, no study stated how they would protect the privacy or confidentiality of the information or participants, which could be a weakness of all the studies. However, as earlier stated, all 10 studies had the approval from ethics review boards so it can be safely assumed that the researchers complied with this ethical guideline.

Justice

The third principle is justice; this entails the obligation to treat individuals fairly and equitably (CIHR et al., 2018). To fulfill part of this principle, researchers are required to treat participants with respect (CIHR et al., 2018; CPA, 2017). Adolescents comprised the majority of the sample in many of the studies discussed herein. Since adolescents are a vulnerable population, extra precautions must be taken to ensure adherence to this principle. In addition, to meet the equitability portion of this principle, researchers must be careful not to discriminate during recruitment. All the exclusion criteria of the core studies were based on the research questions, and therefore were not discriminatory against certain populations. This was a strength of these studies as it made for more ethical research and results.

Conflicts of interest

Conflict of interest is another topic outlined in the TCPS 2 (CIHR et al., 2018). It is also an area related to the third principle, Integrity in Relationships in the Canadian Code of Ethics for Psychologists (2017) which provides that relationships should not be exploited to further personal, political or business interests. One area of potential conflict of interest is funding as it can exert pressure on researchers and institutions to produce certain results. Fardouly et al. (2018), Gioia et al. (2020), and Scully et al. (2020) stated that they did not receive financial

support for their studies. In addition, Gioia et al. (2020) and Mclean et al. (2015) reported that there was no conflict of interest in conducting their research. Having no financial conflicts of interest was a strength of these studies as it helps to minimize bias. Ho et al. (2016), and Harrison and Hefner (2014) reported having received a grant for the research. Disclosure of the grant indicated transparency on behalf of the researchers, however these grants could lead to the possibility of bias due to obligations of the grants. Lastly, Veldhuis et al. (2020) also offered a chance to win a gift voucher after completion of the study. This could lead to potential bias from participants or attract a particular population to participate, however, this does not necessarily violate ethical standards.

Application to Clinical Practice

The findings of this study show that various aspects of social media use negatively impact body image. These aspects include social comparisons, photo activities, and number of social media friends. Although the findings of this paper were based on adolescents and young adults, the impact of the findings extends beyond these populations. In this section, I explore the applications these findings could have at the personal, professional, and societal level.

Personal

Given the emphasis and reliance society places on social media, it is almost impossible to avoid all forms of social media (Bekalu et al., 2019). Social media impacts almost everyone at a personal level. As an individual who is aware of the negative impact social media can have, I value having the most accurate knowledge possible so that I can use social media in the healthiest, most responsible manner. The findings of this study have helped me to do so. For instance, social comparison is one of the problematic activities of social media (Kleemans et al., 2018). To minimize these impacts, I can avoid social media accounts that encourage making

comparisons, remove accounts when I notice I am comparing myself to others, and remove accounts that depict and promote unrealistic standards. Although social comparison has been shown to have negative impacts, clinically, it has also a potential positive side. Sometimes, this can be helpful to allow clients to investigate why they care about those aspects of social media that lead them to compare themselves to others which could then provide guidance for their values and goals. Social comparison theory (Festinger, 1954) suggests that humans compare themselves to others as a way of establishing a point of reference to evaluate themselves enabling them to set a level of aspiration that they can strive for. Thus, through social comparison along with the right motivation, social media users may find inspiration and guidance to help them achieve their goals. In addition, photo activity was also linked to negative body image, therefore, I have learned how to minimize my time with photo-based social media and to be aware of the impacts it can have (Fardouly et al., 2018; Gioia et al., 2020; Lewallen & Behm-Morawitz, 2016; Meier & Gray, 2014).

It is possible the findings of this paper may help laypeople make healthier, more informed choices, and possibly lead to more positive body image by implementing the same or similar strategies. Furthermore, since this study focused on adolescents and young adults, the findings could also help inform parents of the appropriate boundaries to set for their children's social media use.

Professional

The results of this paper highlight some of the struggles adolescents and young adults face due to social media use. With a deeper and more comprehensive understanding of the problem, professionals would be able to provide more effective and efficient services to clients. The findings will serve to inform professionals that regularly work with adolescents and young

adults, including educators, psychologists, and other mental health professionals in the development of interventions or strategies that could help mitigate the mental health impacts of social media use on adolescents and young adults especially in relation to body image. As a therapist, I have encountered many adolescents impacted by social media. In addition, I have also encountered individuals struggling with body image and/or eating disorders. Based on these findings, a part of my job as a counsellor working with young individuals struggling with body image will now include providing psychoeducation about social media use. In addition, negative body image can be a symptom of eating disorders (Fardouly & Holland, 2018; Maezono et al., 2019); therefore, this study's findings could be utilized by clinicians when helping individuals with eating disorders.

Society

Practical applications of these findings may also occur at a societal level. Many of the core studies presented in this paper suggest that their findings should be used to help create a media literacy program (Fardouly et al., 2018; Gioia et al., 2020; Ho et al., 2016; Scully et al., 2020; Tiggemann & Slater, 2017). In addition, Meier and Gray (2014) suggested that an educational program around body image should be created, and findings about the impact of social media use on body image should be included. Since social media use is widespread, it may be advantageous for schools to be the outlet through which media literacy programs are delivered. This would allow the information to be presented not only to the entire youth population, but also to their parents. The program could highlight some of the pros and cons of social media use on mental health, then teach ways of minimizing the negative impacts, such as enforcing time restraints and reducing or stopping certain social media activities. Lastly, the program could teach coping techniques and strategies for adolescents to implement on their own

if they are struggling with mental health. The techniques would be chosen based on the mental health concerns identified in the current research pertaining to social media use.

The findings of this study could also be used by policy makers to help protect adolescents' mental well-being. Policies that regulate social media may increase the mental well-being not only of adolescents, but of the population at large. The findings of this study support the notion that adolescents should spend less time on image-based social media activities, and therefore, could be helpful in supporting one of the policies suggested above.

Recommendations for Future Research

Given the findings and limitations of this paper, there are various directions future research can explore. First, this paper explored males and females between the ages of 12 to 25. However, the majority of the core studies used strictly female samples and many had primarily Caucasian populations. Therefore, future research should explore a more diverse population; specifically, the male population could be explored in greater depth, perhaps by way of studies that investigate males exclusively. In addition, this paper focused on adolescents and young adults, as those are the populations with the highest social media use. Previous research has explored adulthood, however, very few if any studies have investigated the impacts of social media on children under 12 years old or seniors over 65 years old. As social media use is constantly increasing, these are becoming increasingly important populations to explore.

Another option for future research could be to complete a different type of study. Of the 10 core studies, only one of them was longitudinal in nature. Information from long-term studies could be invaluable in depicting how social media use changes over the lifespan and how the impacts of social media use change over a lifespan. This research could also demonstrate whether social media use has long-term impacts, and whether any aspect of social media use is

predictive of mental health concerns. Additionally, the core studies presented in this paper were all correlational in nature; therefore, Fardouly et al. (2018), Mclean et al. (2015), and Meier and Gray (2014) suggested that experimental research should be completed so as to determine the direction of the relationship between social media use and negative aspects of body image.

Lastly, this paper explored various aspects of social media use and different social media platforms. Future research could explore the similarities and differences between various social media platforms and the impact each platform has on body image (Fardouly et al., 2018; Ho et al., 2016; Kleemans et al., 2018). Overall, social media is a relatively new area of research, thus there are many avenues that have yet to be explored.

Conclusion

With the increase of social media use among adolescents and young adults, a complete understanding of the impact of social media on mental well-being is becoming increasingly important. Previous literature indicated a connection between social media use and negative body image. The purpose of this study was to explore how social media use impacts adolescents' and young adults' body image. Specifically, it was guided by the following research question: *What aspects of social media use impact adolescents' and young adults' body image?* This literature review consisted of 10 quantitative studies that were primary, peer-reviewed, written and published in English, with participants between the ages of 12-25 years old.

Overall, this study found that it is not the general use of social media among adolescents and young adults that impacts body image, but rather certain aspects of social media use, including social comparisons, photo activities, and the number of social media friends an individual has. In addition, it was found that body image can also impact the use of social media. Findings from this study could raise greater awareness on the negative impacts of social media

use among adolescents and young adults which could lead towards the development of enhanced media literacy programs as well as effective interventions to address mental health issues associated with certain aspects of social media use. Future research should include more diverse populations, be longitudinal and experimental in nature, and investigate the impacts of other social media platforms.

References

- Aalbers, G., McNally, R. J., Heeren, A., de Wit, S., & Fried, E. I. (2019). Social media and depression symptoms: A network perspective. *Journal of Experimental Psychology: General*, *148*(8), 1454-1462. <http://dx.doi.org/10.1037/xge0000528>
- Alleva, J. M., Martijn, C., Veldhuis, J., & Tylka, T. L. (2016). A Dutch translation and validation of the Body Appreciation Scale-2: An investigation with female university students in the Netherlands. *Body Image*, *19*, 44–48. <http://dx.doi.org/10.1016/j.bodyim.2016.08.008>
- Amazon Mechanical Turk (n.d.). Amazon Mechanical Turk. <https://www.mturk.com>
- Andrade, C. (2020). The limitations of online surveys. *Indian Journal of Psychological Medicine*, *42*(6), 575-576. <http://dx.doi.org/10.1177/0253717620957496>
- Anonymous (2013, September 16). Convenience Sampling Defined: Pros and Cons. <https://connect.verint.com/b/customer-engagement/posts/convenience-samples-pros-and-cons>.
- Australian Bureau of Statistics (2022, April 26). Australia's population by country of birth: Statistics on Australia's estimated resident population by country of birth. <https://www.abs.gov.au/statistics/people/population/australias-population-country-birth/latest-release>
- Bevans, R. (2022, May 6). One-way ANOVA: When and how to use it (with examples). <https://www.scribbr.com/statistics/one-way-anova/>
- Borzekowski, D. L. G., & Bayer, A. M. (2005). Body image and media use among adolescents. *Adolescent Medicine Clinics*, 289-313. <https://doi.org/10.1016/j.admecli.2005.02.010>
- Burnette, C. B., Kwitowski, M. A., & Mazzeo, S. E. (2017). “I don’t need people to tell me I’m pretty on social media:” A qualitative study of social media and body image in early

adolescent girls. *Body Image*, 23, 114-125.

<http://dx.doi.org/10.1016/j.bodyim.2017.09.001>

Butkowski, C. P., Dixon, T. L., & Weeks, K. (2019). Body surveillance on Instagram: Examining the role of selfie feedback investment in young adult women's body image concerns. *Sex Roles*, 81, 385-397. <https://doi.org/10.1007/s11199-018-0993-6>

Canadian Institutes of Health Research, Natural Sciences and Engineering Research Council of Canada, & Social Sciences and Humanities Research Council of Canada (2018). Tri-council policy statement: Ethical conduct for research involving humans.

Canadian Psychological Association (2017). *Canadian code of ethics for psychologists* (4th Ed.). https://cpa.ca/docs/File/Ethics/CPA_Code_2017_4thEd.pdf

Caplan, S. E. (2010). Theory and measurement of generalized problematic internet use: A two-step approach. *Computers in Human Behavior*, 26(5), 1089–1097. <https://doi.org/10.1016/j.chb.2010.03.012>.

Cash, T., Fleming, E. C., Alindogan, J., Steadman, L., & Whitehead, A. (2002). Beyond body image as a trait: The development and validation of the body image states scale. *Eating Disorders*, 10, 103–113. <http://dx.doi.org/10.1080/10640260290081678>

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods approaches* (5th ed.). SAGE Publications.

Dakanalis, A., Carrà, G., Calogero, R., Fida, R., Clerici, M., Zanetti, M. A., & Riva, G. (2015). The developmental effects of media-ideal internalization and self-objectification processes on adolescents' negative body-feelings, dietary restraint, and binge eating. *European Child & Adolescent Psychiatry*, 24(8), 997–1010. <https://doi.org/10.1007/s00787-014-0649-1>.

- De Valle, M. K., Gallego-Garcia, M., Williamson, P., & Wade, T. A. (2021). Social media, body image, and the question of causation: Meta-analyses of experimental and longitudinal evidence. *Body Image, 39*, 276-292. <https://doi.org/10.1016/j.bodyim.2021.10.001>
- De Vries, D. A., Peter, J., & de Graaf, H. (2016). Adolescents' social network site use, peer appearance-related feedback, and body dissatisfaction: Testing a mediation model. *Journal of Youth and Adolescence, 25*, 211-224.
- De Vries, D. A., Vossen, H. G. M., & van der Kolk, P. (2018). Social media and body dissatisfaction: Investigating the attenuating role of positive parent-adolescent relationships. *Journal of Youth and Adolescence, 48*, 527-536.
<https://doi.org/10.1007/s10964-018-0956-9>
- Eckler, P., Kalyango, Y., & Paasch, E. (2017). Facebook use and negative body image among U.S. college women. *Women Health, 57*(2), 249-267.
<https://doi.org/10.1080/03630242.2016.1159268>
- Fardouly, J., & Holland, E. (2018). Social media is not real life: The effect of attaching disclaimer-type labels to idealized social media images on women's body image and mood. *New Media & Society, 20*(11), 4311-4328.
<https://doi.org/10.1177/1461444818771083>
- Fardouly, J., Magson, N. R., Rapee, R. M., Johnco, C. J., & Oar, E. L. (2019). The use of social media by Australian preadolescents and its links with mental health. *Journal of Clinical Psychology, 76*(7), 1304-1326. <https://doi.org/10.1002/jclp.22936>
- Fardouly, J., & Vartanian, L. R. (2016). Social media and body image concerns: Current research and future directions. *Current Opinion in Psychology, 9*, 1-5.
<http://dx.doi.org/10.1016/j.copsyc.2015.09.005>

- Fardouly, J., Willburger, B. K., & Vartanian, L. R. (2018). Instagram use and young women's body image concerns and self-objectification: Testing mediational pathways. *New Media & Society, 20*(4), 1380-1395. <https://doi.org/10.1177/14614444817694499>
- Festinger, L. (1954). A theory of social comparison processes. *Human Relations, 7*(2), 117-140. <https://doi.org/10.1177/001872675400700202>
- Garner, D. M., Olmstead, M. P., & Polivy, J. (1983). Development and validation of a multidimensional eating disorder inventory for anorexia nervosa and bulimia. *International Journal of Eating Disorders, 2*, 15–34.
- Gatti, E., Ionio, C., Traficante, D., & Confalonieri, E. (2014). “I like my body; therefore, I like myself”: How body image influences self-esteem—A cross-sectional study on Italian adolescents. *Europe's Journal of Psychology, 10*(2), 301-317.
- Gibbons, F. X., & Buunk, B. P. (1999). Individual differences in social comparison: Development of a scale of social comparison orientation. *Journal of Personality and Social Psychology, 76*(1), 129–142. <http://dx.doi.org/10.1037/0022-3514.76.1.129>
- Gioia, F., Griffiths, M. D., & Boursier, V. (2020). Adolescents' body shame and social networking sites: The mediating effect of body image control in photos. *Sex Roles, 83*, 773-785. <https://doi.org/10.1007/s11199-020-01142-0>
- Glen, S. (2022, May 14). ANCOVA: Analysis of covariance. <https://www.statisticshowto.com/ancova>
- Government of Singapore (2021). Singapore's Demographic: Sex Ratio - Males to Females. Ministry of Social and Family Development. <https://www.msf.gov.sg/research-and-data/Research-and-Statistics/Pages/Singapore-Demographic-Sex-Ratio-Males-to-Females.aspx>

- Griffiths, S., Murray, S. B., Krug, I., & McLean, S. A. (2018). The contribution of social media to body dissatisfaction, eating disorder symptoms, and anabolic steroid use among sexual minority men. *Cyberpsychology, Behavior, and Social Networking*, *21*(3), 149-156. <https://doi.org/10.1089/cyber.2017.0375>
- Harrison, K., & Hefner, V. (2014). Virtually perfect: Image retouching and adolescent body image. *Media Psychology*, *17*, 134-153. <https://doi.org/10.1080/15213269.2013.770354>
- Hayes, A. (2022, March 12). T-test. <https://www.investopedia.com/terms/t/t-test.asp>
- Higley, E. (2019). Defining young adulthood. *Qualifying Manuscripts*, *17*.
- Ho, S. S., Lee, E. W. J., & Liao, Y. (2016). Social network sites, friends, and celebrities: The roles of social comparison and celebrity involvement in adolescents' body image dissatisfaction. *Social Media and Society*, 1-11. <https://doi.org/10.1177/2056305116664216>
- Jarman, H. K., Marques, M. D., McLean, S. A., Slater, A., & Paxton, S. J. (2021). Motivations for social media use: Associations with social media engagement and body satisfaction and well-being among adolescents. *Journal of Youth and Adolescence*, *50*, 2279-2293. <https://doi.org/10.1007/s10964-020-01390-z>
- Jaworska, N., & MacQueen, G. (2015). Adolescence as a unique developmental period. *Journal of Psychiatry Neuroscience*, *40*(5), 291-293. <https://doi.org/10.1503/jpn.150268>
- Jovancic, N. (2021, July 4). 5 Types of Bias in Research and How to Make Your Surveys Bias-Free. <https://www.leadquizzes.com/blog/types-of-bias-in-research/>
- Keery, H., Shroff, H., Thompson, J. K., et al. (2004). The Sociocultural Internalization of Appearance Questionnaire—Adolescents (SIAQ—A): Psychometric analysis and normative data for three countries. *Eating & Weight Disorders*, *9*, 56–61.

- Kelly, Y., Zilanawala, A., Booker, C., & Sacker, A. (2018). Social media use and adolescent mental health: Findings from the UK millennium cohort study. *EClinicalMedicine*, 6, 59-68. <https://doi.org/10.1016/j.eclinm.2018.12.005>
- Kircaburun, K., Griffiths, M. D., & Billieux, J. (2020). Childhood emotional maltreatment and problematic social media use among adolescents: The mediating role of body image dissatisfaction. *International Journal of Mental Health and Addiction*, 18, 1536-1547. <https://doi.org/10.1007/s11469-019-0054-6>
- Kivunja, C. (2018). Distinguishing between theory, theoretical framework, and conceptual framework: A systematic review of lessons from the field. *International Journal of Higher Education*, 7(6), 44-53. <https://doi.org/10.5430/ijhe.v7n6p44>
- Kleemans, M., Daalmans, S. Carbaat, I., & Anschutz, D. (2018). Picture perfect: The direct effect of manipulated Instagram photos on body image in adolescent girls. *Media Psychology*, 21(10), 93-110. <https://doi.org/10.1080/15213269.2016.1257392>
- Lavrakas, P. J. (2008). Convenience Sampling. *Encyclopedia of Survey Research Methods*. <https://dx.doi.org/10.4135/9781412963947.n105>
- Lewallen, J., & Behm-Morawitz, E. (2016). Pinterest or thinterest?: Social comparison and body image on social media. *Social Media and Society*, 1-9. <https://doi.org/10.1177/2056305116640559>
- Lindberg, S. M., Hyde, J. S., & McKinley, N. M. (2006). A measure of objectified body consciousness for preadolescent and adolescent youth. *Psychology of Women Quarterly*, 30, 65-76. <http://dx.doi.org/10.1111/j.1471-6402.2006.00263.x>
- Maezono, J., Hamada, S., Sillanmaki, L., Kaneko, H., Ogura, M., Lempinen, L., & Sourander, A. (2019). Cross-cultural, population-based study on adolescent body image and eating

- distress in Japan and Finland. *Scandinavian Journal of Psychology*, *60*, 67-76.
<https://doi.org/10.1111/sjop.12485>
- Marsh, H. W., Richards, G. E., Johnson, S., Roche, L., & Tremayne, P. (1994). Physical Self-Description Questionnaire: Psychometric properties and a multitrait-multimethod analysis of relations to existing instruments. *Sport and Exercise Psychology*, *16*, 270–305.
- McCombes, S. (2022, May 3). Sampling methods: Types and techniques explained.
<https://www.scribbr.com/methodology/sampling-methods/>.
- McLean, S. A., Paxton, S. J., Wertheim, E. H., & Masters, J. (2015). Photoshopping the selfie: Self photo editing and photo investment are associated with body dissatisfaction in adolescent girls. *International Journal of Eating Disorders*, *48*, 1132-1140.
<https://doi.org/10.1002/eat.22449>
- Meier, E. P., & Gray, J. (2014). Facebook photo activity associated with body image disturbance in adolescent girls. *Cyberpsychology, Behavior, and Social Networking*, *17*(4), 199-206.
<https://doi.org/10.1089/cyber.2013.0305>
- Mendelson, B. K., Mendelson, M. J., White, D. R. (2001). Body esteem scale for adolescents and adults. *Journal Personality Assessment*, *76*, 90–106.
- Merriam-Webster. (n.d.). Selfie. In *Merriam-Webster.com dictionary*. Retrieved June 12, 2022, from <https://www.merriam-webster.com/dictionary/selfie>
- Nettleton, D. (2014). Selection of Variables and Factor Derivation. *Commercial Data Mining*.
<https://www.sciencedirect.com/topics/computer-science/pearson-correlation>
- Noll, S. M., & Fredrickson, B. L. (1998). A mediational model linking self-objectification, body shame, and disordered eating. *Psychology of Women Quarterly*, *22*, 623–636.

- O'Brien, K. S., Caputi, P., Minto, R., et al. (2009). Upward and downward physical appearance comparisons: Development of scales and examination of predictive qualities. *Body Image, 6*, 201–206.
- O'Connell, C. (2009, March 17). Friends influence body image. *The Irish Times*.
<https://www.irishtimes.com/news/health/friends-influence-body-image-1.724472>
- Park, Y. S., Konge, L., & Artino, A. R. (2020). The positivism paradigm of research. *Academic Medicine, 95*(5), 690-694. <https://doi.org/10.1097/acm.0000000000003093>
- Pelosi, A., Zorzi, G., & Corsano, P. (2014). The “Body Image Control in Photos Questionnaire” (BICP). *BPA-Applied Psychology Bulletin (Bollettino di Psicologia Applicata), 62*(269), 42–52.
- Rodgers, R. F., Slater, A., Gordon, C. S., McLean, S. A., Jarman, H. K., & Paxton, S. J. (2020). A biopsychosocial model of social media use and body image concerns, disordered eating, and muscle-building behaviors among adolescent girls and boys. *Journal of Youth and Adolescence, 49*, 399-409. <https://doi.org/10.1007/s10964-019-01190-0>
- Rosenberg, M. (1965). *Society and the adolescent self-image*. Princeton, NJ: Princeton University Press. <http://dx.doi.org/10.1515/9781400876136>
- Ryding, F. C., & Kuss, D. J. (2019). The use of social networking sites, body image dissatisfaction, and body dysmorphic disorder: A systematic review of psychological research. *Psychology of Popular Media, 9*(4), 412-435.
<http://dx.doi.org/10.1037/ppm0000264>
- Salomon, I., & Brown, C. S. (2019). The selfie generation: Examining the relationship between social media use and early adolescent body image. *Journal of Early Adolescence, 39*(4), 539-560. <https://doi.org/10.1177/0272431618770809>

- Schonning, V., Hjetland, G. J., Aaro, L. E., & Skogen, J. C. (2020). Social media use and mental health and well-being among adolescents – A scoping review. *Frontiers in Psychology, 11*(1949). <https://doi.org/10.3389/fpsyg.2020.01949>
- Scully, M., Swords, L., & Nixon, E. (2020). Social comparisons on social media: Online appearance-related activity and body dissatisfaction in adolescent girls. *Irish Journal of Psychological Medicine, 1-12*. <https://doi.org/10.1017/ipm.2020.93>
- Siibak, A. (2009). Constructing the self through the photo selection - visual impression management on social networking websites. *Cyberpsychology: Journal of Psychosocial Research of Cyberspace, 3, 1*.
- Statista Research Department (2021, September 10). Total population in the United States by gender from 2010 to 2025 (in millions). <https://www.statista.com/statistics/737923/us-population-by-gender/>
- Statistics Solutions (2022). Structural Equation Modeling. <https://www.statisticssolutions.com/free-resources/directory-of-statistical-analyses/structural-equation-modeling/>
- Sutanapong, C., & Louangrath, P. I. (2015). Descriptive and inferential statistics. *International Journal of Research Methodology, 1*(1), 22-35.
- Taherdoost, H. (2019). What Is the Best Response Scale for Survey and Questionnaire Design; Review of Different Lengths of Rating Scale / Attitude Scale / Likert Scale. *International Journal of Academic Research in Management, 8*(1), 1-10.
- Thompson, J. K., Heinberg, L. J., Tantleff, S. (1991). The Physical Appearance Comparison Scale (PACS). *The Behavior Therapist, 14*(174).

- Thompson, J. K., van den Berg, P., Roehrig, M., et al. (2004). The sociocultural attitudes towards appearance scale-3 (SATAQ-3): Development and validation. *International Journal of Eating Disorders*, 35, 293–304.
- Tiggemann, M., & Anderberg, I. (2020). Social media is not real: The effect of ‘Instagram vs reality’ images on women’s social comparison and body image. *New Media & Society*, 22(12), 2183-2199. <https://doi.org/10.1177/1461444819888720>
- Tiggemann, M., & Miller, J. (2010). The internet and adolescent girls’ weight satisfaction and drive for thinness. *Sex Roles*, 63, 79-90. <https://doi.org/10.1007/s11199-010-9789-z>
- Tiggemann, M., & Slater, A. (2014). NetTweens: The internet and body image concerns in preteenage girls. *Journal of Early Adolescence*, 34(5), 606-620. <https://doi.org/10.1177/0272431613501083>
- Tiggemann, M., & Slater, A. (2017). Facebook and body image concern in adolescent girls: A prospective study. *International Journal of Eating Disorders*, 50(1), 80-83. <http://dx.doi.org/10.1002/eat.22640>
- Twenge, J. M., Haidt, J., Blake, A. B., McAllister, C., Lemon, H., & Le Roy, A. (2021). Worldwide increases in adolescent loneliness. *Journal of Adolescence*. <https://doi.org/10.1016/j.adolescence.2021.06.006>
- Twenge, J. M., Spitzberg, B. H., & Campbell, W. K. (2019). Less in-person social interaction with peers among U.S. adolescents in the 21st century and links to loneliness. *Journal of Social and Personal Relationships*, 36(6), 1892-1913. <https://doi.org/10.1177/0265407519836170>
- University of Virginia Library (2016). Hierarchical Linear Regression. Research Data Services and Sciences. <https://data.library.virginia.edu/hierarchical-linear-regression/>

- Veldhuis, J., Alleva, J. M., Bij de Vaate, A. J. D., Keijer, M., & Konijn, E. A. (2020). Me, my selfie, and I: The relations between selfie behaviours, body image, self-objectification, and self-esteem in young women. *American Psychological Association*, *9*(1), 3-13. <http://dx.doi.org/10.1037/ppm0000206>
- Walker, C. E., Krumhuber, E. G., Dayan, S., & Furnham, A. (2019). Effect of social media use on desire for cosmetic surgery among young women. *Current Psychology*, *40*, 3355-3364. <https://doi.org/10.1007/s12144-019-00282-1>
- Woods, H. C., & Scott, H. (2016). #Sleepyteens: Social media use in adolescence is associated with poor sleep quality, anxiety, depression and low self-esteem. *Journal of Adolescence*, *21*, 41-49. <http://dx.doi.org/10.1016/j.adolescence.2016.05.008>
- Youssef, L., Hallit, R., Kheir, N., Obeid, S., & Hallit, S. (2020). Social media use disorder and loneliness: Any association between the two? Results of a cross-sectional study among Lebanese adults. *BMC Psychology*, *8*(50). <https://doi.org/10.1186/s40359-020-00421-5>