

EXPLORING THE IMPACTS OF SOCIAL MEDIA USE ON YOUNG ADULTS' SELF-
ESTEEM AND PERCEIVED IMPACT ON PSYCHOLOGICAL DIAGNOSES
OR EMOTIONAL DISTURBANCE ELIGIBILITY

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The impacts of emerging adults' social media use have been shown as generally negative, especially in decreasing their self-esteem and self-concept and increasing anxiety, depression, and more. Although there is research on social media's impact on various communities of adolescents and young adults, limited research has focused on this effect for young adults with mental health diagnoses or served under IDEA's emotional disturbance eligibility criteria. Additionally, no research has studied this topic during the COVID-19 pandemic. Therefore, the purpose of the current study is to examine how various types of social media use impact young adults' self-esteem, including those who are psychologically vulnerable. Participants included 119 individuals, 18 to 19-years of age, with and without mental health diagnoses or Emotional Disturbance special education eligibility recruited utilizing social media pages and social media hashtags. Participating individuals answered demographic and social media use questions and completed the Rosenberg Self-Esteem Scale to provide information about self-esteem. Additionally, participants responded to questions regarding what role they feel social media use has had on their mental health, including contribution to or exacerbating their symptoms. Univariate statistics were run to control demographic factors and determine the percentage of participants who believe social media has negatively affected their mental health. Multiple regression analyzed if time spent on social media or specific social media platform or activities were predictive of participant self-esteem. Limitations and implications are discussed.

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By

Rebecca Lynn Atkinson

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Most people have heard the phrase, “It takes a village to raise a child.” I have decided that “It takes a village” undoubtedly applies to my journey. Without my “village,” this task would have been close to impossible.

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EXPLORING THE IMPACTS OF SOCIAL MEDIA USE ON YOUNG ADULTS' SELF-ESTEEM AND PERCEIVED IMPACT ON PSYCHOLOGICAL DIAGNOSES OR EMOTIONAL DISTURBANCE ELIGIBILITY

Introduction

Over the past several years, social networking sites and social media have rapidly gained popularity, especially among younger individuals (Simoncic et al., 2014). While social networking sites (SNS) and social media (SM) are often used interchangeably, SM is specifically a form of social networking. SNS include any internet or application-based site that has a public, or semi-public, profile page. This can consist of dating sites, fan sites, etc. (Techopedia, 2021). However, SM sites also include personal profiles and connections with the tools to easily share ideas, thoughts, and information through the building of virtual networks and communities (Dollarhide, 2021; Techopedia, 2021).

Since SM's inception, scholars from various fields have sought to better understand these sites and their practices, implications, culture, and meaning (Boyd et al., 2008). The Pew Research Center began tracking SM use in 2005. At the inception of their study, only 5% of Americans used one of the available SM networks (Smith & Anderson, 2018). However, by 2019, data indicated that 79% of the U.S. population utilized SM (Clement, 2020). Experts anticipate that the worldwide number of monthly active SM users will reach approximately 3.43 billion, around one-third of the Earth's population, by 2023 (Tankovska, 2021).

Social Media Platforms

There are numerous SM sites and applications, and developers are constantly creating more (Bump, 2021). Many years ago, virtual social networking began with online platforms such as early dating sites and American Online instant messenger (AIM). However, the first

recognizable SM site, SixDegrees, launched in 1997. This platform was the first that allowed users to create profiles, list their friends, and peruse their connections' friends list. Although this pioneer SM site attracted millions of users, it failed as a sustainable business and closed in 2000. The founder reported that the site was simply “ahead of its time” as users did not yet have extended networks of friends who were also online. Over time, more people became regular internet users, and new SM sites offered more services and reduced restrictions (Boyd et al., 2008).

Currently, Facebook is ranked as one of the most popular SM sites worldwide and is the first site to surpass one billion monthly active users (MAU) with 2.6 billion MAU worldwide. Approximately 74% of Facebook users report visiting the site daily, and about half login several times per day. Other leading SM sites include Instagram, with over one billion MAU, YouTube, Twitter, Pinterest, LinkedIn, and messaging applications, such as WhatsApp, Facebook Messenger, and WeChat (Pew Research Center, 2019; Tankovska, 2021).

Benefits

Social media has given its users the ability to discover what is happening in the world in real-time, connect with current contacts, stay in touch with long-distance friends, and access endless amounts of information. In many senses, SM has helped its users find common ground with others online, making the world seem more approachable (Dollarhide, 2021).

Used cautiously, SM can provide positive social networks, social support, and learning opportunities. It can also deliver a sense of connection for individuals dealing with complex issues, such as health concerns. For patients, and their families, struggling with chronic health problems, SM can be another avenue for helpful resources and a connection with others who share the same difficulties (Fox et al., 2013).

Risks

Unfortunately, the connection provided by SM does not necessarily reduce feelings of disconnect and loneliness. Although a large percentage of Americans use SM, a recent Cigna survey revealed that nearly half of Americans always or sometimes feel alone (46%) or left out (47%). Additionally, 43% consider themselves isolated from others, and one in five reports that they rarely or never feel there are good people to talk to (Otte, 2019).

Risks of SM use are plenty. In some ways, the dangers are not inherent to SM itself but related to how SM publicly amplifies the user's actions. Other risks relate to the overuse of technology when accessing SM, which can cause distraction from essential tasks and inadequate sleep, especially in younger users. Additionally, SM provides easy access to an overabundance of information, but there is no guarantee that it is accurate or unbiased (Radesky et al., 2015).

Young Adults

Young adults were among the earliest to embrace social media and continue to use these sites at high levels. They also tend to gravitate toward specific SM sites. Specifically, individuals ages 18 to 24 use Snapchat and Instagram at very high rates (73% and 75%, respectively) (Pew Research Center, 2019). Approximately 77% of Snapchat users ages 18 to 29 report using the application daily; 68% indicate checking the site multiple times per day. Similarly, 76% of Instagram users in this same age group log in daily, with 60% reporting that they visit the site several times per day (Pew Research Center, 2019).

When considering how SM might impact younger users, it is essential to recognize that the transition from childhood to adulthood is when young people develop their sense of self and individual identity, shaped by their experiences and interpersonal interactions over time. These interactions are increasingly occurring through SM, often in place of face-to-face interactions

(Srivastava & Bhardway, 2014). Many young adults even view their cell phones and the digital social connection it brings through SM as a substantial part of their identity and self-worth (Lee, 2014).

COVID-19

According to Hester (2020), the COVID-19 pandemic with its subsequent isolation and transition to virtual schooling has created additional uncertainties about what is healthy regarding screen time. With many people self-isolating to slow the spread of COVID-19, parents, children, and young adults may spend nearly all their waking hours together. Technology users admit that their screen time has increased since the pandemic's onset (Sultana et al., 2020). The situation can also lead to parents ignoring screen time guidelines for their children and increased stress in the family unit (Hester, 2020).

These concerns quickly prompted extensive research worldwide on the screen time increase and its associated health outcomes. Overall, the COVID-19 pandemic has led to a poorer emotional state and more sedentary lifestyle with decreased physical activity and increased screen time. This includes a significant increase in electronic devices, such as televisions, computers, and cell phones, and social media use during lockdown measures (Hu et al., 2020; Majumdar et al., 2020; Vall-Roqué et al., 2021). Additionally, research is finding that existing negative effects of social media use can be exacerbated during the pandemic (Vall-Roqué et al., 2021).

Literature Review

Impact of Social Media in Young Adults

The majority of current research indicates that Social Media use impacts psychological well-being in various ways, such as self-esteem issues, negative physical self-concept, suicidal

ideation and attempts, generally low life self-satisfaction, and exacerbating anxiety and depression (Sampasa-Kanyinga & Lewis, 2015; Frison & Eggermont, 2016; Cingel & Olsen, 2018; Cyr et al., 2015). Overall, research demonstrates that SM use also comes with the risk of several other concerns, including internet addiction and cyberbullying, which may be related to social/emotional problems (Brunborg et al., 2017; Kim et al., 2018; Rice et al., 2015).

Adolescents and young adults are at an even greater risk for SM use consequences due to a general decrease in life satisfaction, peer pressure, negative peer experiences, and an underdeveloped and reduced capacity for self-regulation during this phase of development (Frison & Eggermont, 2016; Guinta & John, 2018). These emerging adults also tend to disclose information on SM with less discretion and use the privacy settings less than adults (Christofides, 2012).

Addiction

Literature on SM use in young people frequently mentions addiction, and research on “addictive technological behaviors” has substantially increased over the past several years (Andreassen et al., 2016). While addiction is not limited to teenagers and young adults, this age group does tend to show greater dependence on SMs when compared to older users. They may also be more susceptible to pathological SM use and the associated adverse outcomes as they explore various facets of young adult life (Ho et al., 2017; Holmgren & Coyne, 2017).

General internet addiction can be predicted by overall time spent online, SM use, online gaming, chat room use, and the presence of anxiety and distress (Kuss et al., 2013; Yadav et al., 2013). Technology addiction can also be related to specific SM platforms. For example, research has shown that user interactions on Snapchat correlate with smartphone addiction, represented across all types of interface interaction. This was an important finding given the

widespread usage of Snapchat by young people (Noe et al., 2019).

Several studies have explored risk and protective factors for internet and SM addiction. Worsley et al. (2018) found that maltreatment in childhood, anxious attachment, and depressive symptoms are significantly associated with later problematic SM use in young adulthood. These young adults may overuse SM in an attempt to alleviate the long-lasting distress they feel from these childhood difficulties. Personality characteristics, such as extraversion and conscientiousness, can serve as protective factors for internet and SM addiction (Kuss et al., 2013).

The majority of research in this area focuses on addiction *to* SM (or the internet or cell phones), but some of the literature also explores relationships between SM use and other, more recognized, addictions. For example, the more time young adults spend on SM, the more frequently they engage in episodic heavy drinking (EHD). Similarly, time spent using the internet, in general, is associated with an increased likelihood of EHD, and this relationship is evident even after controlling for a range of demographic and individual characteristics (Brunborg et al., 2017).

The level and type of addiction related to SM use can depend on many factors. Research shows that “Creative Users” of technology (i.e., high use of Vine and Tumblr) have higher odds of using most substances and “Professional Users” (i.e., high use of LinkedIn) are more likely to use alcohol, cigarettes, and cigars. Individuals who visit SM sites less than the average user have higher odds of using other drugs, such as cocaine and heroin. Overall, the use and co-use of specific SM sites may influence the volume and nature of alcohol, tobacco, and other drug use (Ilakkuvan et al., 2018).

Cyberbullying

Experts describe cyberbullying as a potential consequence of electronic communication, and the “willful and repeated harm inflicted [on another] through the use of computers, cell phones, or other electronic devices.” Approximately 18% of boys and about one of four girls report at least one cyberbullying incident over the past year (Cenat et al., 2014; Kim et al., 2018; Rice et al., 2015).

Cyberbullying can occur through various behaviors, which can include any of the following: spreading rumors online, posting hurtful or threatening messages on SNS, stealing a person's information to break into their account, pretending to be someone else online to hurt another person, or taking unflattering pictures of a person and spreading them through text messages or online (stopbullying.gov, 2020). Several studies indicate that cyberbullying victimization (over and above other bullying experiences) contributes to low self-esteem, lower life satisfaction, and general psychological distress (Cenat et al., 2014; Frison et al., 2016; McConnell et al., 2017).

Emotional Functioning

Over the last several years, researchers have been studying how SM use impacts younger users. According to Twenge et al. (2018), adolescents/young adults (8th through 12th-grade) experienced a sharp decrease in psychological well-being (i.e., self-esteem, life satisfaction, and happiness) from 1991-2016. During this time, young people who engaged more on electronic communication and screens were less happy, less satisfied with their lives, and had lower self-esteem. Conversely, those who spent more time on non-screen and in-person social interaction reported healthier psychological well-being. Changes in activities, particularly those in new media screen activities, preceded the decrease in psychological well-being (Twenge et al., 2018).

Compared to young adults who spend less time per day (the lowest quartile) on SM, those in the highest quartile are significantly more likely to experience symptoms of depression. Additionally, young people involved in seven to 11 SM platforms, compared with zero to two SM platforms, have substantially higher odds of increased levels of depression and anxiety, even when controlling for the time spent on SM. (Lin et al., 2016; Primack et al., 2017).

Positive Impacts of Social Media Use

The literature on SM use in young adults is not wholly negative. For example, when working with homeless adolescents and young adults (13-24 years of age), Rice et al. (2012) found that face-to-face relationships with street-based peers were a risk factor for anxiety and depression, but contacting home-based friends through SM was a protective factor against depression.

Similarly, SM can be a protective measure against emotional difficulties, such as depression symptoms, but with several mediating factors. For example, Facebook use may protect against depression, particularly in females with high neuroticism levels. Facebook users also report substantially higher values of social support, life satisfaction, and subjective happiness (Simoncic et al., 2014). In some cases, young adults without a Facebook account show (marginally) significantly higher values of depression symptoms than Facebook users (Brailovskaia & Margraf, 2016).

Directionality

Much of the current research admits that determining the directionality of SM use and psychological maladjustment is a challenge. While studies within the literature review suggest that SM use can lead to emotional difficulties, the reverse directional relationship of these variables is also possible. For example, negative comparison on SM can adversely predict life

satisfaction, but life satisfaction can also negatively predict unfavorable comparison on SM. Additionally, experiencing a depressed mood correlates with broadcasting Instagram content later; individuals with a depressed mood are more likely to post images or videos on Instagram to enhance their appearance in the eyes of other SM users (Frison & Eggermont, 2016).

Furthermore, the relationship between SM use and psychological well-being may not be linear. Self-esteem can be curvilinearly related to active SM use, and varying levels of self-esteem are differentially associated with SM use. SM users with moderate self-esteem levels may be more likely to engage in active, text-based social contributions than those at opposing ends of the self-esteem spectrum (Cingel & Olsen, 2018).

Social Comparison

A term commonly used to describe social comparison on SM is “FOMO,” or fear of missing out. FOMO has been considered a mediator between personal characteristics or psychological needs and engagement with SNS. Research has shown that FOMO mediates adverse outcomes regarding maladaptive technology use. (Oberst et al., 2017).

In general, research has found that unfavorable comparison on Facebook relates to life satisfaction over time. Negative comparison on Facebook predicts life satisfaction negatively, and life satisfaction negatively predicts unfavorable comparison on Facebook (Frison & Eggermont, 2016). Studies have revealed that upward social comparison on SMs is a risk factor for depressive symptoms, but self-esteem partially mediates the relation between them (Liu et al., 2017).

Social Media and Individuals with Disabilities

The impact of SM use has become a growing area of research over the past several years. However, when looking to understand better how the activity affects individuals with disabilities,

available information is minimal. Existing studies tend to focus on technology to assist those with disabilities and barriers to using SM at a level comparable to non-disabled peers. Most studies focus solely on individuals with visual and hearing impairments (Inan et al., 2016; Libera & Jurbreg, 2017; Perisa et al., 2016; Whitney & Kolar, 2020; Ziegler & Schwanen, 2011).

While available studies primarily focus on barriers to SM use for individuals with disabilities, research has shown that they use SM similarly to their peers without disabilities. These individuals utilize SM to enhance their existing social ties, link with new connections, keep up with social information, and engage in learning, leisure, and income-generating activities (Alice, 2019; Asuncion et al., 2012; Hafiar et al., 2019; Libera & Jurberg, 2017; Libera & Jurberg, 2020).

The literature review suggests that SM use can adversely affect users' mental health. When considering SM's potential negative impacts, evidence showing that individuals with disabilities utilize SM at a level comparable to their non-disabled peers, and the limited research in this area, the need to study how SM impacts these individuals is clear. Overall, this represents a gap in the literature regarding how SM affects its users.

Current Direction of Research

Existing research is moving beyond examining general relationships between time on SM and psychological maladjustment. The focus now expands to understanding how and for whom SM use predicts emotional functioning. Researchers are currently focusing on better understanding what aspects of SM use negatively impact users, such as the most frequently used SM activity (i.e., passive versus active). For example, studies have found that passive use of SM, such as browsing friends' published information without engaging, is strongly related to depressed mood and can undermine subjective well-being (Ding et al., 2017; Frison &

Eggermont, 2017). This information was considered when planning the current study on young adults and SM use.

Theoretical Framework: Social Comparison Theory

Social Comparison Theory

According to Cherry (2019), there are three types of social comparison: upward, downward, and lateral social comparison. When comparing upward, individuals compare themselves to those they believe are better when looking for self-improvement inspiration. With downward comparison, the individual compares themselves to others they perceive as “worse off” than them. Lateral social comparison refers to comparing oneself to someone viewed as “equal” in various areas. Practically, people engage in upward social comparison when they want inspiration to improve and engage in downward social comparison to feel better about themselves (Cherry, 2019).

Social comparison is magnified by the virtually unlimited access to “similar others” on SM through current friends, friends from the past, work colleagues, friends of friends, etc. (Eckler et al., 2016). SMs also provide a wealth of information about others that individuals can use for social comparison. Those with a stronger propensity toward social comparison are more likely to spend more time on these sites and experience more flawed self-perception, lower self-esteem, and more negative affective balance when engaging in SM use (Vogel et al., 2015).

Research suggests that individuals who use SM, particularly Facebook, most often have lower self-esteem, mediated by greater exposure to upward social comparisons on SM. State self-esteem and relative self-evaluations can decrease after individuals view an SM account or status that contained upward comparison (e.g., high activity social network, health habits, etc.) compared to downward comparison information (Vogel et al., 2015).

These developing social skills can become a problem before adulthood when youth have a heightened sensitivity to socially relevant cues (which can interfere with long-term goals and overall well-being). Overall, young adults tend to act more irrationally when presented with emotionally charged social situations than younger children or adults (Casey & Caudle, 2013).

Social Comparison Theory Tenets and Hypotheses

The social comparison theory's tenets include various hypotheses and corollaries, or the results to these hypotheses. Derivations may accompany these hypotheses based on the results of the research. The purpose of these hypotheses is to apply the social comparison theory to better understand the investigated phenomenon.

Hypothesis I

Hypothesis I states that there is a drive to evaluate his opinions and abilities in the human organism.

Hypothesis II

The second hypothesis focuses on the extent that if objective, non-social means are not available, people evaluate their opinions and abilities by comparison, respectively, with others' opinions and abilities.

- *Corollaries.* Corollaries for Hypothesis II indicate that in the absence of both a physical and social comparison, subjective evaluations of opinions and abilities are unstable. When an objective, non-social basis for evaluating one's ability or opinion is readily available, persons will not evaluate their opinions or abilities by comparison with others.

Hypothesis III

According to Hypothesis III, the tendency to compare oneself with some other specific

person decreases as the difference between his opinion or ability and one's own increases.

- *Corollaries.* Hypothesis III corollaries' state that someone close to one's ability or opinion will be chosen for comparison, given a range of possible persons for comparison. If the only comparison available is a very divergent one, the person will not be able to make a subjectively precise evaluation of his opinion or ability.

- *Derivations.* Derivations of the third hypothesis include subjective evaluations of opinions or abilities that are stable when a comparison is available with others judged to be close to one's opinions or abilities. The availability of comparison with others whose opinions or abilities are somewhat different from one's own will produce tendencies to change one's evaluation of the opinion or ability in question. A person will be less attracted to situations where others are very divergent from him than to situations where others are close to him for both abilities and opinions. A discrepancy in a group concerning opinions or abilities will lead to action on the members of that group to reduce the discrepancy.

Hypothesis IV

Hypothesis IV states there is a unidirectional drive upward in abilities, which is mostly absent in opinions.

Hypothesis V

Following Hypothesis IV, there are non-social restraints that make it difficult to change one's ability. These non-social restraints are mainly absent for opinions.

- *Derivations.* Derivations of Hypothesis V include when a discrepancy exists concerning opinions or abilities, there will be tendencies to change one's position to move closer to others in the group. When a discrepancy exists concerning opinions or abilities, there will be tendencies to change others in the group to bring them closer to oneself.

Hypothesis VI

The cessation of comparison with others is accompanied by hostility or derogation to the extent that continued comparison with those persons implies unpleasant consequences is presented in Hypothesis VI.

- *Corollary.* Hypothesis VI's corollary shows cessation of comparison with others will be accompanied by hostility or derogation in the case of opinions. In the case of abilities, this will not generally be true. An increase in the importance of an ability or an opinion, or an increase in its relevance to immediate behavior, will increase the pressure toward reducing discrepancies concerning that opinion or ability.

Hypothesis VI A

Hypothesis VIA states that the stronger the group's attraction, the stronger the pressure toward uniformity concerning abilities and opinions.

Hypothesis VI B

Similarly, Hypothesis VIB shows that the greater the relevance of the opinion or ability to the group, the stronger will be the pressure toward uniformity concerning that opinion or ability.

- *Derivation E.* The derivation of Hypothesis VII includes any factors that increase the strength of the drive to evaluate some particular ability or opinion that will increase the “pressure toward uniformity” concerning that ability or opinion.

Hypothesis VII

Any factors which increase the importance of some particular group as a comparison group for some particular opinion or ability will increase the pressure toward uniformity

concerning that ability or opinion within that group is shown to be Hypothesis VII.

- *Correlation to Derivation E.* It's correlation to derivation includes an increase in the importance of an ability or an opinion or an increase in its relevance to immediate behavior, which will increase the pressure toward reducing discrepancies concerning that opinion or ability.

- *Corollaries.* Corollaries for Hypothesis VII include the stronger the attraction to the group, the stronger the pressure toward uniformity concerning abilities and opinions within that group. The greater the relevance of the opinion or ability to the group, the stronger the pressure toward uniformity concerning that opinion or ability.

Hypothesis VIII

Finally, Hypothesis VIII states that if persons who are very divergent from one's own opinion or ability are perceived as different from oneself on attributes consistent with the divergence, the tendency to narrow the range of comparability becomes stronger.

Purpose of the Study

Researchers in the field recommend studies that continue attempting to understand precisely how and why SM impacts young adults' well-being. Specific recommendations include longitudinal studies to better clarify the directionality of personality traits and SM use (e.g., do certain personality traits lead to increased SM use or vice versa?). Additionally, researchers note that SM should be moving beyond merely trying to determine if the amount of time spent on SM is related to psychological indicators (e.g., Marino et al., 2018; Merrill & Liang, 2019).

Studies should now be more specific about how particular behaviors associated with SM, such as browsing through others' profiles or publishing content, might impact mental health differently. For example, does simply owning an SM account correlate with mental health

concerns? Or does it depend on which specific platform (e.g., Facebook, Instagram, or Snapchat) or activity (e.g., browsing, posting, actively engaging) the user participates in most frequently?

At the end of 2019, as research has increasingly demonstrated that SM use can negatively impact the mental health of its users, Instagram began the process of hiding “likes” on its SM platform. This move was presumably with the purpose of “creating a less pressurized environment where people feel comfortable expressing themselves.” Instagram's CEO, Adam Mosseri, announced that “We will make decisions that hurt the business if they help people's well-being and health (Meisenzahl, 2019, para. 4).” Although some have hypothesized ulterior, more profitable motives for this experiment on Instagram (Meisenzahl, 2019), Mosseri’s actions demonstrate the need for continued research in this area to provide accurate information regarding SM’s relationship with mental health.

While SM’s impact is a rapidly growing area of research, little information exists about how it affects individuals with existing mental health concerns. An additional gap in the literature regards these individuals' self-perception of how their SM use directly impacts their ongoing mental health difficulties.

Continued investigation in this area aims to increase awareness of SM use impacts on young adults' psychological well-being, specifically those with current psychological diagnoses of anxiety or depression or Emotional Disturbance special education eligibilities. This information can lead to empirically-based resources for families, school staff, and young people themselves so that they can make more informed decisions to protect against adverse outcomes associated with SM. The purpose of the current study sought to address the following questions:

- How does time spent on social media impact young adults' self-esteem, as evidenced by standardized assessment?

- How does time spent on social media impact young adults' self-esteem, as evidenced by subjective reports?
- Does the impact on these young adults' self-esteem differ depending on the specific social media platform (i.e., Facebook, Instagram, etc.) predominantly utilized?
- Does the impact on these young adults' self-esteem differ depending on passive or active social media activity (i.e., browsing, posting, “liking”)?

Method

Participants

This project sought information from a convenience sample of 18 and 19-year-old individuals. The age range was selected to better understand SM use's effects in young adults with and without mental health disorders. The selected age groups is at the threshold of transitioning from adolescence into adulthood, capturing the impact of long-term SM use in younger generations. This exploratory quantitative study recruited participants through various methods and included individuals from multiple locations, races, cultures, socioeconomic statuses, and other demographic factors to obtain a representative sample. Participant protection occurred through a multi-step process. The Institutional Review Board (IRB) at the University of North Texas approved the research before the study's onset on December 21, 2020, # IRB-20-749. As part of the planning process, an a priori power analysis was conducted using G*Power analysis software to determine a target sample size.

Research Design

The current study employed a quantitative survey research design. The aim was to administer a survey to a sample of the population (18-19-year-old individuals) to better understand SM's possible impacts on young adults' self-esteem with and without mental health or emotional/behavioral disorders due to their use or experiences in SM. The study plan involved

gathering information about self-esteem among 18 to 19-year-old participants, including those with mental health diagnoses or former special education eligibility under the category of students with an Emotional Disturbance, engaging in various amounts of time and activity on SM.

No manipulation of the variables occurred. Instead, any determined differences were ex post facto in nature and stemmed from differences in demographic variables, time spent on SM, and the participants' most frequent SM use. All analyses were controlled through demographic characteristics. Because gender differences in mental health and media use are prevalent in the literature (Merrill & Liang, 2019), the study examined final models based on identified gender. The data collection and analysis sections provide further considerations.

Measures

The proposed study utilized the online platform, Qualtrics, to measure three moderator (demographic) variables, two independent variables (i.e., time spent on SM and type of SM use), and one dependent variable (i.e., self-esteem). These variables are outlined below.

Demographic Variables

Information regarding gender, age, and race were collected to control these variables and determine SM use's effects on self-esteem. Additionally, emerging research has shown gender differences in SM use and emotionality (Kim et al., 2018; Oberst et al., 2017).

- *Age.* This qualifying variable presented options of 18, 19, or “Neither/None of the above.”
- *History of a mental health diagnosis or emotional disturbance eligibility.* This second question asked, “Has a licensed professional ever diagnosed you with a mental health disorder, or have you ever received special education services due to an emotional disturbance

eligibility?” Possible responses included the following: “No,” “Yes, emotional disturbance eligibility,” “Yes, depression,” “Yes, anxiety,” “Yes, depression and anxiety,” or “Yes, other (Please share below)” with an option for respondents to type their response.

- *Gender.* Participants responded to the gender they most identify with from a list of options, including female, male, transgender female, transgender male, gender-variant/non-conforming, prefer not to answer, or not listed (with a space to indicate their choice).

- *Race.* Participants self-reported their race as White, Black or African American, Hispanic, Asian, American Indian or Alaska Native, Native Hawaiian or Other Pacific Islander, multiple race-Hispanic, or multiple race non-Hispanic.

Overall Time Spent on Social Media

Participants self-reported how much time they spend on SM by responding to the following question: “On average, how many hours a day do you spend on SM (e.g., Facebook, Snapchat, Twitter, Instagram, TikTok, or ‘Other’ SM platforms)?” The time variable was comprised of an 8-point scale and included the following response options: “Almost no time,” “1 hour,” “2 hours,” “3 hours,” “4 hours,” “5 hours,” “6 hours,” or “Greater than 6 hours.” These options are comparable to other studies examining how much time individuals spend on SM (Thorisdottir et al., 2019; Twenge et al., 2018).

Most Frequently Used Social Media Platform

Participants also self-reported what percentage of their time they spend on a variety of SM platforms. Specifically, participants responded to the following statements: “On average, what percentage of the time that you spend on SM is on each of the following SM platforms: Facebook, YouTube, Instagram, TikTok, Twitter, Pinterest, Reddit, Snapchat, WhatsApp,

Google+, Tumblr, Other?” For this question, participants used a sliding bar to indicate the percentage of time spent on each SM platform listed.

Types of Social Media Use

Participants responded to questions adapted from Frison & Eggermont's (2017) Different Types of Instagram Use scale. This measure utilized a seven-point Likert scale (i.e., Never, Less than once per week, 1-2 times per week, 3-4 times per week, 5-6 times per week, Daily, or Several times per day) and included the following questions: (1) “How often do you look at photos and statuses posted by other SM users (i.e., browsing)?”, (2) “How often do you post a status or photo on SM (i.e., posting)?”, and (3) “How often do you 'like' or 'react' to a status or photo on SM (i.e., liking)?”

Self-Perception of Social Media Use Impact

Participants responded to three statements that inquired about how they perceive SM use impacts their mental health. Respondents rated these statements on a 5-point Likert scale (1 = *strongly agree*, 2 = *somewhat agree*, 3 = *neither agree nor disagree*, 4 = *somewhat disagree*, and 5 = *strongly disagree*). The items included the following: “Social media use impacts my mental health,” “Social media use contributed to my initial mental health diagnosis or eligibility,” and “Social media use is exacerbating (making worse) my mental health diagnosis or eligibility.”

Rosenberg Self-Esteem Scale (RSES)

The Rosenberg Self-Esteem Scale (RSES) is a well-established instrument used to measure self-esteem in many research studies analyzing the effects of SM use. The measure includes 10 items related to self-esteem with an anchored scale for responses from 4 (*strongly agree*) to 1 (*strongly disagree*). The Rosenberg Self-Esteem Scale demonstrates high reliability

with internal consistency at 0.77 with alpha coefficients ranging from .72 to .87 in a varied selection of independent studies using differing samples. Test-retest reliability for a 2-week interval is 0.85, and a 7-month interval is 0.63. Criterion validity is .55 and construct validity is -.64 with anxiety and -.54 with depression (Rosenberg, 1965).

Researchers have conducted multiple additional validity studies to determine the continued validity and reliability of the RSES. Gray-Little et al. (1997) administered various psychological questionnaires, including the RSES, to 1,234 undergraduate students. The researchers approached the study through the lenses of item response theory (IRT) and found inter-item Pearson correlations ranging from .21 to .66 and item-total correlations ranging from .61 to .76. Additionally, they utilized exploratory factor analysis. This analysis indicated a unidimensional solution of the RSES and satisfied the IRT's first assumption, which supported Rosenberg's view that the RSES is unidimensional. The study found that all items of the RSES highly correlate with the primary factor of self-esteem. Overall, the authors concluded that the RSES was deserving of its widespread use and continued popularity as a highly reliable and internally consistent measure of global self-esteem (Gray-Little et al., 1997).

Yaacob (2006) sought to determine if the RSES was a valid and reliable tool for assessing Seremban school children's self-esteem. To achieve this, Yaacob first had the ten items translated into the Malay language and back-translated into English. The researchers did determine that Item 8, "I wish I could have more respect for myself," could be confusing when translated into foreign languages as the term "respect for oneself" might be communicated differently in different cultures. However, the study suggested that the RSES is suitable for analysis on self-esteem among adolescents and young adults in Malaysia and, among the group in this sample ($n = 123$, ages 12-13), with primarily low intercorrelation between items, but with

a high Cronbach's alpha of 0.8 (Yaacob, 2006).

While the original RSES utilizes a 4-point Likert scale, researchers have studied the scale using 4-, 5-, 6-, and 11- point Likert scales. Leung (2011) found no significant difference in internal structure in terms of means, standard deviations, item-item correlations, item-total correlations, Cronbach's alpha, or factor loadings between the different options. Scale ranges vary based on the selected Likert scale and scoring choices (University of Maryland, 2019).

The current study utilized a 5-point Likert scale to provide continuity throughout the survey, with each item ranging from 1-5 and the overall score ranging from 10-50. The scale was adjusted for the current study, ensuring the correct ratio. The Rosenberg family has permitted the scale's use for educational and professional research at no charge, but requests that researchers give Dr. Rosenberg credit and send copies of published works that use the scale to the University of Maryland (University of Maryland, 2019).

Data Collection

The survey was advertised and distributed to participants using the University of North Texas' Qualtrics platform, a web-based tool used to conduct survey research, evaluations, and other data collection activities. Potential participants received a link to the survey through selected SM platforms and pages.

After approval of the university's institutional review board (IRB), the following procedures were followed

Step 1: Review SM Page Policies and Terms

Researchers utilizing SM for participant recruitment must consider that SM users often lack knowledge of how to manage privacy settings and fail to grasp the full extent to which they render information shared over SM publicly available. Researchers must also consider that SM

users may not expect to be approached for research purposes while on SM sites. Investigators must therefore consider whether, or under what conditions, they must alert SM users to their presence and purpose when viewing and collecting personal information (Gelinias et al., 2017).

Despite SM's popularity for recruiting research participants, specific regulatory guidelines and resources regarding the most pressing legal and ethical issues with this practice are minimal (Gelinias et al., 2017). However, previous studies provide some guidance and were considered in the current study. The participants' rights were carefully protected through several steps, including the review of each site or SM page's policies and terms of use to determine the published membership and content expectations. Specifically, it was imperative to clearly understand the site's policy, or lack of, regarding the use of the site's participants for research purposes.

Step 2: Post a Clear Statement on the SM Page

Based on a preliminary SM search, using terms that would likely include members of the target population (or their caregivers), such as *teenagers, young adults, and college* to identify likely places to find participants, the researcher recruited 18 to 19-year-old young adults using personal SM accounts. These SM platforms included Facebook, Twitter, Snapchat, Instagram, and hashtags included #mentalhealth, #youngadults #cyberbullying, #socialmediaaddiction, and #socialmediacyberbullying. The focus was to reach the target population directly to invite them to participate in the survey.

Following IRB ethical guidelines, the researcher ensured that recruitment did not involve deception or fabrication of online identities, “lurking,” or “creeping” within SM pages. In all cases, SM users were fully aware of the study's purpose, and recruitment did not involve advancements or contact that could embarrass or stigmatize potential participants. Instead, after

administrator approval, the researcher posted a clear statement explaining that any obtained data would be used to complete a dissertation and be used only for research. Participation was voluntary, and the researcher did not collect any confidential or identifying information unless the participant provided an e-mail address for the prize drawing.

Step 3: Self-Screening by Eligible Participants

Individuals who chose to participate first responded to a screening question regarding age: (1) What is your age (“18,” “19,” or “Neither/None of the Above”)? Respondents who answered “18” or “19” were linked to a new page to continue the process. Participants who replied, “Neither/None of the Above,” were connected to a page that stated appreciation for their interest and explained they did not qualify for the study.

Step 4: Participants Complete the Online Consent Form

All eligible participants received information that: (1) The IP tracker was turned off in Qualtrics to increase confidentiality, with no identifying information connected to their responses; (2) They could discontinue their participation in the study at any time, without penalty; and (3) They had the opportunity to be entered into a prize drawing for one of five \$10 iTunes gift cards.

After reading this information, participants selected one of the following options: “Yes, I have read and understood the consent information and agree to participate in the current research study” or “No, I have decided not to participate.” The survey then redirected individuals who indicated consent (by clicking the corresponding button) to the remaining questions. All participants had the opportunity to download a copy of the consent form for their personal records.

Step 5: Participants Complete an Online Survey

Eligible and willing participants completed questions regarding demographic information, social-media use, self-perception of SM use on mental health, and self-esteem questions from the Rosenberg Self-Esteem Scale (discussed with detail in the “measures” section).

Step 6: Prize Drawing

At the end of the survey, a final question asked if participants were interested in entering a prize drawing for one of five \$10 iTunes gift cards. Those who chose to enter were redirected to another screen within Qualtrics to enter their e-mail contact information. The selection of winning participants occurred through a randomized spinning wheel on wheelofnames.com.

Data Analysis

Two types of analyses, along with descriptive statistics, were used for this study. First, to describe the sample, univariate descriptive information on age, gender, and race was explored. This analysis included the mean, mode, range, and standard deviation for time spent on SM, time spent on various SM platforms, and self-esteem scores. Second, descriptive statistics were utilized to present information on participants’ subjective reports regarding how social media impacts and/or exacerbates their mental health.

Additionally, ANOVA was used to determine any differences in RSES scores according to gender and race's moderating effects. Lastly, multiple regression analysis was utilized to determine if the overall time spent on SM, percentage of time spent on various SM platforms, or type of SM use could predict self-esteem levels. Hypotheses one through five were tested at a minimum of the .05 level of significance.

The specific hypotheses appear below:

- H1: There is a significant difference in self-esteem according to gender. This hypothesis was tested using ANOVA.
- H2: There is a significant difference in self-esteem according to race. This hypothesis was tested using ANOVA.
- H3: Time spent on social media predicts self-esteem, independent of most frequently used social media platform or activity. This hypothesis was tested using Multiple Regression, when combined with Hypotheses 4 and 5.
- H4: Social media platform (e.g., Facebook, Instagram, etc.) predicts the participant's self-esteem, independent of time spent on social media or most frequent social media activity. This hypothesis was tested using multiple regression, when combined with hypotheses three and five.
- H5: Type of social media use (i.e., browsing, posting, liking) predicts the participant's self-esteem, independent of time spent on social media or most frequently used social media platform. This hypothesis was tested using Multiple Regression, when combined with Hypotheses 3 and 4.
- H6: The majority of participants feel that social media use substantially impacts their mental health. This hypothesis was conveyed using descriptive statistics.
- H7: The majority of participants feel that social media use substantially contributed to their diagnoses/eligibility or continues to exacerbate their diagnoses/eligibility. This hypothesis was conveyed using descriptive statistics.

Results

Demographic Findings

The current study's sample included a total of 119 young adults 18 (46.2%) and 19 (53.8%) years of age. Nine participants completed most of the survey, but did not respond to all of the RSES questions. Therefore, analyses that require a total self-esteem score will only report a total of 110 participants. Demographic information is included in Table 1.

Of the 119 participants, 57 (47.9%) indicated that they had never been diagnosed with a mental health disorder or received special education services due to an ED eligibility. Those who reported a diagnosis or eligibility were distributed as the following: ED eligibility ($n = 2$,

1.7%), depression ($n = 8$, 6.7%), anxiety ($n = 11$, 9.2%), depression and anxiety ($n = 34$, 28.6%), and other ($n = 7$, 5.9%).

Table 1

Number and Percentage of Sample by Gender and Race/Ethnicity

		<i>n</i>	%
Gender	Female	80	67.2%
	Male	35	29.4%
	Transgender male	1	0.8%
	Gender variant/non-conforming	3	2.5%
Race/Ethnicity	White	87	73.1%
	Black or African American	10	8.4%
	American Indian or Alaska Native	3	2.5%
	Asian	1	0.8%
	Multiple Race Hispanic	12	10.1%
	Multiple Race Non-Hispanic	5	4.2%
	Other (White and Native American)	1	0.8%
Total	119	100%	

Those who selected “other” indicated the following diagnoses: post-traumatic stress disorder (PTSD), anxiety, and depression; seizures; depression, anxiety, and attention deficit disorder (ADD); depression, anxiety, obsessive-compulsive disorder (OCD), and PTSD; anxiety, depression, borderline personality disorder, and bipolar disorder; anxiety, depression, and attention deficit hyperactivity disorder (ADHD); and ADD. One respondent entered OTS, but it was unclear what they intended by this acronym.

Descriptive Statistics

Self-Esteem

Descriptive statistics were conducted to explore the 110 participants' self-esteem who

responded through the Rosenberg Self-Esteem Scale's final question (RSES). Responses to the RSES were adapted to include a fifth option of “Neither Agree nor Disagree” to provide continuity between survey questions. This yielded possible self-esteem totals with a minimum of 10 and a maximum of 50. Lower scores indicate more difficulties with self-esteem, and higher scores suggest a more positive sense of self. The overall sample's mean was 29.78 (SD = 8.10), equivalent to 14.81 on the original RSES, indicating overall self-esteem slightly below the average range.

Average self-esteem scores of those who reported a mental health diagnosis or ED eligibility (M = 27.08, SD = 7.36, below average) and those who did not (M = 33.14, SD = 7.79, within normal limits) were examined with a one-way between-groups ANOVA. Levene's test for equality of variances was not violated for the present analysis, $F(1,108) = 17.51, p = .215$, indicating that the two groups' variances (with and without mental health diagnosis or ED eligibility) were equal. There was a statistically significant difference at the $p < .05$ level in self-esteem for the two groups $F(1,108) = 17.51, p < .001$.

Despite reaching statistical significance, the actual difference in mean scores between the groups was relatively small. The effect size, calculated using eta squared, was .139. This indicates that 13.9% of the variance in self-esteem can be accounted for by the presence or absence of a mental health diagnosis or eligibility. Additionally, Cronbach's Alpha was conducted to determine the reliability of the RSES using a 5-point Likert scale on the current sample. Results indicated acceptable internal consistency ($\alpha = .78$).

Social Media Use

Participants were asked how many hours a day they spend on SM and responded via an 8-point Likert Scale (i.e., *almost no time, 1 hour, 2 hours, 3 hours, 4 hours, 5 hours, 6 hours, or*

greater than 6 hours). The average rating for the complete participant sample was 5.12 (SD = 2.12), which equates to between four and five hours per day. The mean for those with a mental health history was 5.44 (SD = 2.12), which equates to between four and five hours per day, and 4.77 for those individuals without a diagnosis or eligibility (SD = 2.08), which equates to between three and four hours a day.

An ANOVA was conducted to examine the difference in time spent on SM between the two groups (i.e., with and without a mental health diagnosis or eligibility). Levene's test for equality of variances was not violated, $F(1,117) = 2.958$, $p = .811$, indicating that the two groups' variances (with and without mental health diagnosis or ED eligibility) were equal. The difference in time spent on SM for the two groups was not statistically significant at the $p < .05$ level with the current sample size $F(1,117) = 2.958$, $p = .088$. The effect size, calculated using eta squared, was .025, indicating that 2.5% of the variance in time spent on SM can be accounted for by the presence or absence of a mental health diagnosis or eligibility.

Table 2 displays the average percentage of time (0-100%) and standard deviation the total sample (119 participants) reported spending on all SM platforms presented in the survey. Table 3 displays the average time participants spend on three different SM activities [i.e., looking at photos and statuses posted by other SM users (browsing), posting a status or photo on SM (posting), and “liking” or “reacting” to a status or photo on SM (liking)].

Table 2

Average Percentage of Time Spent on Various Social Media Platforms (n = 119)

Platform	Mean	Standard Deviation
Facebook	14.59	21.04
YouTube	24.08	28.63

(table continues)

Platform	Mean	Standard Deviation
Instagram	26.75	23.58
TikTok	34.45	32.45
Twitter	13.22	21.98
Pinterest	6.10	15.32
Reddit	4.62	13.36
Snapchat	36.84	31.88
WhatsApp	1.58	10.26
Google +	6.28	19.68
Tumblr	2.08	10.39
Other	2.84	14.25

Table 3

Average Time Spent on Various Social Media Activities (n = 119)

Group	Activity	Mean	Standard Deviation
Overall	Browsing	5.47	1.73
	Posting	2.43	1.23
	Liking	5.34	1.83
Without dx/elig.	Browsing	5.67	1.60
	Posting	2.21	1.10
	Liking	5.30	1.85
With dx/elig.	Browsing	5.29	1.84
	Posting	2.63	1.32
	Liking	5.39	1.83

Is There a Significant Difference in Self-Esteem According to Gender or Race?

To explore differences in self-esteem scores based on gender or race, an ANOVA was conducted. Average self-esteem scores according to gender were as follows: Female (M = 29.43, SD = 7.93), Male (M = 31.6, SD = 8.56), Transgender Male (M = 23, SD = N/A), and

Gender variant/non-conforming (M = 22.67, SD = 2.08). Average self-esteem scores based on race were as follows: White (M = 30.44, SD = 8.50), Black or African American (M = 27.89, SD = 8.93), American Indian or Alaska Native (M = 26, SD = 1.41), Asian (M = 26, SD = N/A), Multiple Race Hispanic (M = 29.17, SD = 7.08), Multiple Race Non-Hispanic (M = 26.4, SD = 4.45). This information is included in Table 4, which is included below.

Table 4

Average Self-Esteem Scores based on Gender and Race/Ethnicity (n = 110)

		Mean	Standard Deviation
Gender	Female	29.43	7.93
	Male	31.6	8.56
	Transgender male	23	N/A
	Gender variant/non-conforming	22.7	2.08
Race/Ethnicity	White	30.44	8.50
	Black/African American	27.89	8.94
	American Indian/Alaska Native	26	1.41
	Asian	26	N/A
	Multiple Race Hispanic	29.17	7.08
	Multiple Race Non-Hispanic	26.4	4.45
	Other	30.00	N/A

A two-way ANOVA was conducted to examine the effects of gender and race on self-esteem. Levene's test for equality of variances was not violated for the present analysis, $F(2, 106) = 1.58, p = .153$ (gender) and $F(4, 103) = .421, p = .863$ (race), indicating that the variances for the groups were equal. No statistically significant interaction was found between the effects of gender and race on self-esteem, $F(3, 97) = .599, p = .617$. There was also no statistically significant difference at the $p < .05$ level in self-esteem for the main effects of either gender $F(3, 106) = 1.58, p = .199$ or race $F(6, 103) = .421, p = .863$.

When examining these results, it is important to consider the very small samples for participants who identified as Transgender male and Gender variant/non-conforming. The actual difference in mean scores between the groups was quite small for both gender and race. The effect size, calculated using eta squared, was .04 (gender) and .023 (race).

Social Media Impact on Young Adults' Self-Esteem by Subjective Report

To better understand how young adults perceive SM's impact on their self-esteem, descriptive statistics were conducted using participants' responses to the following statements: “Social media use impacts my mental health,” “Social media use contributed to my initial mental health diagnosis or eligibility,” and “Social media use is exacerbating (making worse) my mental health diagnosis or eligibility,” with responses ranging from “1 = Strongly agree” to “5 = Strongly disagree.”

For the first statement, means were examined separately for the overall sample and participants with and without a mental health diagnosis or eligibility. When examining the entire sample, the mean was 2.10 (SD = 1.03). For those without a mental health diagnosis or eligibility, the mean was 2.20 (SD = 1.150), and for those with one of these factors, the mean was 2.02 (SD = .922).

Cases were then isolated to include only participants who reported a mental health diagnosis or eligibility ($N = 61$). When asked to respond to the statement, “Social media use contributed to my initial mental health diagnosis or eligibility,” the mean was 3.16 (SD = 1.416). These same individuals reported a mean of 2.79 (SD = 1.171) when asked to respond to the statement, “Social media use is exacerbating (making worse) my mental health diagnosis or eligibility.”

These survey questions were available to all respondents, whether or not they reported

having a mental health diagnosis or ED eligibility. All 54 of the individuals who did not report a mental health history responded to the item, “Social media use contributed to my initial mental health diagnosis or eligibility.” The mean was 3.24 (SD = 1.18). 53 of the 54 participants responded to the statement, “Social media use is exacerbating (making worse) my mental health diagnosis or eligibility, which yielded a mean of 2.91 (SD = 1.23)

Time Spent on SM, SM Platform, and SM Activity's Relationship with Self-Esteem

Skewness and kurtosis statistics were conducted to determine if the data were normally distributed and are included in Table 5.

Table 5

Skewness and Kurtosis Statistics for Independent Variables (n = 119)

	Skewness		Kurtosis	
	Statistic	Std. Error	Statistic	Std. Error
Hours spent on SM	.066	.222	-1.156	.440
Facebook	1.900	.222	3.444	.440
YouTube	1.153	.222	.121	.440
Instagram	1.145	.222	1.181	.440
TikTok	.458	.222	-1.122	.440
Twitter	1.973	.222	3.264	.440
Pinterest	3.615*	.222	14.580**	.440
Reddit	3.455*	.222	11.893**	.440
Snapchat	.624	.222	-.803	.440
WhatsApp	8.291*	.222	75.003**	.440
Google+	3.713*	.222	13.890**	.440
Tumblr	5.635*	.222	32.594**	.440
Other	5.984*	.222	37.228**	.440
Browsing	-1.126	.222	.154	.440
Liking	1.508	.222	2.178	.440
Posting	-1.043	.222	-.200	.440

*Heavily skewed. **Heavily kurtotic

Curran et al. (1996) suggest normality thresholds of -2 to 2 for skewness and -7 to 7 for kurtosis. Given these parameters, the data for several of the social platforms (i.e., Pinterest, Reddit, WhatsApp, Google+, Tumblr, and Other) were heavily skewed and kurtotic. Descriptive statistics indicated the mode for all platforms was 0%, making it difficult to determine variance of the data due to a floor effect.

In order to predict whether social media impacts mental health, several multiple regression analyses were conducted. The regression indicated that all variables combined explained 12.7% of the total sample variance ($R^2 = .127$, $F(16,93) = .843$, $p = .634$). It was found that neither time spent on SM ($\beta = -.149$, $p = .120$), percentage of time spent on any of the SM platforms [Facebook ($\beta = .148$, $p = .226$), YouTube ($\beta = .054$, $p = .609$), Instagram ($\beta = .054$, $p = .654$), TikTok ($\beta = .071$, $p = .533$), Twitter ($\beta = .115$, $p = .348$), Pinterest ($\beta = -.091$, $p = .485$), Reddit ($\beta = .111$, $p = .338$), Snapchat ($\beta = -.070$, $p = .546$), WhatsApp ($\beta = .145$, $p = .381$), Google+ ($\beta = -.001$, $p = .991$), Tumblr ($\beta = -.116$, $p = .555$), or Other ($\beta = -.230$, $p = .247$)], nor time spent on any of the SM activities [Browsing ($\beta = .098$, $p = .448$), Posting ($\beta = -.176$, $p = .108$), Liking ($\beta = .076$, $p = .570$)], significantly predicted self-esteem. Table 6 summarizes the regression analysis results.

Discussion

The purpose of the present research was to examine how time spent on social media impacts young adults' self-esteem measured using a quantitative online survey. The study's findings clearly show significantly lower total self-esteem in participants who reported a mental health diagnosis or Emotional Disturbance special education eligibility. However, no significant differences were uncovered related to gender or race and self-esteem or between any of the independent variables and self-esteem.

Table 6

Model Summary for Hours Spent on SM, SM Platforms, and SM activity (n = 110)

Model		R	R Square	Adjusted R Square	Std. Error of Estimate	Change Statistics				
						R Square Change	F Change	df1	df2	Sig. F Change
Total	Hours spent on SM	.149	.022	-.013	8.048	.009	2.451	1	108	.120
	SM platforms	.309	.095	-.027	8.212	.048	.646	12	96	.798
	SM activity	.356	.127	-.024	8.197	.012	1.118	3	93	.346
Dx	Hours spent on SM	.059	.003	-0.013	7.405	0.003	0.204	1	59	0.653
	SM platforms	.405	.164	-0.067	7.597	0.161	0.754	12	47	0.692
	SM activity	.423	.179	-0.119	7.782	0.015	0.265	3	44	0.850
No Dx	Hours spent on SM	.119	.014	-0.007	7.813	0.014	0.673	1	47	0.416
	SM platforms	.603	.364	0.127	7.274	0.349	1.601	12	35	0.136
	SM activity	.627	.393	0.090	7.430	0.029	0.517	3	32	0.673

Self-Esteem

Results from this study showed that participants with a mental health diagnosis or special education eligibility reported significantly lower self-esteem on the RSES than participants who indicated that they had never been diagnosed. This finding was expected as unstable self-esteem is related to several mental health and social concerns, such as depression, substance abuse, and high-risk behaviors (Sharma, 2020). Overall, there were no other group differences found in this sample of the population, meaning, both individuals with a self-reported mental health diagnosis or eligibility for EBD did not differ from those without a mental health diagnosis or those served in special education.

The current study suggested the sample as a whole had lower self-esteem than presented in previous literature for this age group (Bagley et al., 1997; Bagley et al., 2001; Bleidorn et al., 2016). Those who did not report a mental health diagnosis or eligibility had a mean self-esteem score within the normal range; however, the scale score was 16.6, with 15-25 considered average. While this average self-esteem score on the RSES is comparable to other studies completed with the same age group, such as those cited above, the current study intentionally removed the factor of a mental health diagnosis, which has not occurred in previous research.

Research on self-esteem is clear that life stressors can greatly contribute to a more negative sense of self (Sharma, 2020). Bridgland et al. (2021) indicate that the ongoing COVID-19 pandemic can be described as a traumatic stressor that can lead to symptoms reaching the threshold of Post-Traumatic Stress Disorder (PTSD) symptomology, whether or not the individual or people close to them were directly impacted by the virus. The pandemic has also been shown to exacerbate existing mental health diagnoses, such as anxiety, depression, and psychosocial functioning (Bridgland et al., 2021), which are closely related to self-esteem

(Sharma, 2020). Emotional reactions related to the COVID-19 pandemic, such as fear and excessive worry about basic necessities, can lead to feelings and attitudes of inferiority, emptiness, weakness, passivity, and dependency (i.e., decreased self-esteem) (Sharma, 2020).

According to the Centers for Disease Control and Prevention (2020), trauma experienced during the young adulthood developmental stage, such as with the current study's sample population, may have long-term consequences across their lifespan. The CDC advises that young adults should focus on eating healthy, learning something new, and maintaining physical activity as protective measures against the consequences of trauma related to the pandemic (Centers for Disease Control and Prevention, 2020).

However, the CDC also recommends that young adults can care for their mental health by maintaining social connections through alternative methods to face-to-face interactions, such as phone calls and video chats (Centers for Disease Control and Prevention, 2020). Given the lower than typical self-esteem scores and higher than expected time reported on social media for the current sample, further research will be essential to better understand the relationships between self-esteem, social media, and emotional consequences of the pandemic.

Subjective Report

Participants provided a subjective report of how they feel SM affects them. On a scale from “*strongly agree*” to “*strongly disagree*,” the young adults in this study tended to agree that SM use impacts their mental health. This trend was true for participants with and without a mental health diagnosis. Participants with a diagnosis generally felt indecisive about whether or not SM had contributed in any way to their initial mental health symptoms. When asked if SM might be exacerbating their symptoms, these same individuals still did not feel strongly about its

impact, but leaned more toward agreement. The same pattern was found for respondents without a diagnosis who still responded to these items.

These findings contrast previous research that has asked adolescents and young adults with mental health disorders how they perceive SM's impact on their psychological well-being. Prior studies have shown that individuals in this age group tend to perceive SM as a threat to their mental well-being, including being a trigger for anxiety disorders, serving as a platform for cyberbullying, increasing perceived social isolation, and acting as an addiction (O-Reilly et al., 2018; Primack et al., 2017).

Gender and Race Differences

Previous literature has often found gender differences when examining mental health issues (Merrill & Liang, 2019), with emerging research showing gender differences in SM use and emotionality (Kim et al., 2018; Oberst et al., 2017). Results from this study did not indicate any significant differences in self-esteem scores by gender. Additionally, no differences were found in self-esteem scores according to race. This finding could be due to the disproportionately female and White sample. Moreover, some identified genders and races had as few as one respondent. Outcomes related to each research question are discussed further below.

Time Spent on Social Media

Literature from the past several years has shown an increase in SM use across all ages and locations (Clement, 2020; Simoncic et al., 2014; Tankovska, 2021). The current study indicates that participants spend an average of four to five hours per day on SM sites, which is more than the average of two hours and 55 minutes per day for this age group, assessed immediately before the COVID-19 pandemic (Malik, 2019).

However, the current study results found that this increased time young adults spend on

SM did not predict their overall self-esteem. This finding contrasts previous research on screen-time and mental health in young people, showing that changes in total recreational screen-time can negatively impact physical self-concept and psychological well-being. Specifically, literature has shown that time spent on SM is correlated with more significant symptoms of anxiety, depressed mood, and increased addictive behaviors (Babic et al., 2017; Brunborg et al., 2017; Thorisdottir et al., 2019).

This is an additional area of the current study likely impacted by the COVID-19 pandemic. Current research suggests that internet addiction has greatly increased, and is impacting younger individuals (Lin, 2020) and the frequency of social media use (e.g., Instagram, YouTube, TikTok, Twitter, and Facebook) has significantly increased since the pandemic's onset (Vall-Roqué et al., 2021). Dependent on specific platform, the percentage change in total session time from February of 2020 to March 2020, immediately before and after COVID-19 heavily impacted the United States, increased by as much as 42.8% (MediaBriefAdmin, 2020). The current study provides additional support indicating that social media use has increased during the pandemic.

Social Media Platform Used

This study substantiates previous statistics related to young adults' SM use habits (Olafson et al., 2021). Descriptive statistics showed that the participant sample tended to report higher levels of Snapchat, Instagram, TikTok, and YouTube use compared to the other SM site options. It was hypothesized that certain platforms would provide more opportunities for upward social comparison, such as those with tools users can utilize to idealistically enhance their appearance. Young adults might then compare themselves to their peers' carefully curated images, leading to strong pressure toward uniformity concerning abilities and opinions (Cherry,

2019). However, the current study results did not indicate a relationship between any of the assessed SM platforms and self-esteem.

Social Media Activity

Overall, this study's participants reported more time browsing other SM users' posts and reacting to them with a click than actually posting their own content. It was hypothesized that passive SM use would significantly impact participants' self-esteem as frequent browsing of others' posts provides an abundance of opportunities for upward social comparison. The current study's results found that more passive (i.e., browsing) versus active (i.e., liking and posting) SM use did not predict their overall self-esteem. This finding contributes essential information to the literature as this an area of recent discussion. While some studies have shown passive SM use to correlate with poorer mental health (Frison & Eggermont, 2017; Thorisdottir et al., 2019), other research has determined no relationship between passive SM use and psychological well-being (Cingel & Olsen, 2018). Of important note, the studies that reported a correlation examined SM activity's impact on depression and anxiety. In contrast, Cingel & Olsen (2018) examined SM and self-esteem, the outcome variable utilized in the current study.

Limitations

Limitations need to be considered as they could have affected the results of the current study. This study was greatly impacted by the COVID-19 pandemic, which can be observed throughout the data collection as the sample is much smaller than predicted. Without specific knowledge, but something important to consider, is that social media use and mental health during the COVID-19 pandemic could have also been heightened, as described by recent research (Hester, 2020; Hu et al., 2020; Majumdar et al., 2020).

During this time, individuals across the world utilized internet-based platforms for most

responsibilities (e.g., Zoom, WebEx, FaceTime), especially those requiring the meeting of groups of people. This has often led to technology fatigue, or “digital overload,” which can occur when individuals have difficulty processing the amount of information they are taking in online, leading to feelings of distraction, anxiety, fatigue, and depression. It can occur when an individual spends too much time online, becomes overwhelmed with the amount of information available, and engages in too much media multitasking (Asamoah, 2020). This could have been a significant barrier to participant recruitment, as completing the survey required additional time online.

As previously mentioned, this study's results must also be interpreted with caution due to the non-normality of the data. For all SM platforms, the mode of the data was 0%, indicating that more participants reported a lack of participation than any other percentage of time on every platform investigated. This lack of variance could be due to various factors, including the target sample's narrow age group and demographics.

Bias

The researcher acknowledges that biases should be considered and addressed, as ignoring them can cause harm to participants. For this study, few biases were noted. One potential bias to consider is the age difference between the researcher and the participants, which is an important consideration given the focus of the current study. Specifically, the researcher was the participants' age before the influence of social media. Additionally, the researcher needed to consider bias as an investigator seeking to understand the decline in psychological well-being better, and therefore, hoping to find answers. This was taken into account when analyzing and interpreting the data.

Assumptions

For the current study, the researcher assumed that participants would provide honest and reasonably correct responses to survey items. For example, the survey asked participants to indicate whether or not a mental health professional had ever diagnosed them with a mental health diagnosis or Emotional Disturbance special education eligibility. The researcher assumed that participating young adults were aware of their mental health history and able to accurately respond to this item. Additionally, missing values with SM platforms were changed to zeroes with the assumption that if the participant did not move the percentage bar, they were reporting 0% use of that platform.

Implications for Future Research

Continued research will be vital to understand the impact of SM on young adults with mental health diagnoses. Most importantly, future research should focus on social media use and its effect on young adults with disabilities as the gap within the literature is clear. This research can potentially guide interventions within K-12 schooling and beyond to help minimize any effects. Future studies should further explore SM's impact on young adults with a mental health diagnosis or those who previously received special education services under an EBD diagnosis. Combined with results from the current study, continued research can be used to build and maintain these individuals' self-esteem to withstand possible competing factors, such as SM use.

Additionally, researchers could conduct more experimental studies with this age group similar to what Tromholt (2016) conducted in the one-week experiment, called the Facebook Experiment. During this time period, the treatment group discontinued using Facebook for one week, while the control group continued as usual. Results indicated that the participants who

took a break from Facebook had increased life satisfaction and more positive emotions for this period (Trombolt, 2016).

Researchers may also choose to conduct a study similar to the current one, but with an improved research design based on this study's outcome. This may be achieved through a larger sample size, more variable demographics, and a broader age range. Additionally, future studies that assess the impact of time spent on specific SM platforms should explore ways of measuring this that will not be hampered by a large number of zeroes or lack of SM participation.

Conclusion

Social media can offer young people an ideal platform for negative comparison, described as the experience of negative feelings due to social comparison (Frison & Eggermont, 2016). However, research continues to explore the reciprocal relationship between SM and young users' psychological well-being. It is still unclear if SM directly causes mental health difficulties or if those who are already more susceptible tend to seek out SM. While not definitive on this issue, the results of the current study lean toward the latter explanation.

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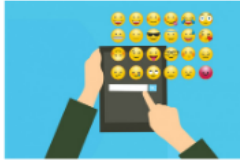
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APPENDIX A
RECRUITMENT FYLER



UNIVERSITY OF NORTH TEXAS



The UNT Department of Educational Psychology
is Conducting a Research Study on:

**Exploring the Impacts of Social Media Use on Young Adults' Self-Esteem
and Perceived Impact on Psychological Diagnoses or Emotional
Disturbance Eligibility**

If you are **18 or 19** years old, you may qualify to participate in a research study examining the effects of social media use on self-esteem in individuals with and without psychological diagnoses or Emotional Disturbance Eligibility

Eligible participants will complete an online survey, which should take no more than 10 minutes, on average.

Participants will have the opportunity to enter a drawing for one of 5 \$10 itunes gift cards.

Principal Investigator: Dr. Brenda Barrio

For more information, please contact Dr. Brenda Barrio at Brenda.Barrio@unt.edu or Rebecca Atkinson at Rebecca.Atkinson@my.unt.edu



APPENDIX B
SURVEY ITEMS

1. What is your age? (18, 19, Neither/None of the above)
2. Has a licensed professional ever diagnosed you with a mental health disorder or have you ever received special education services due to an Emotional Disturbance eligibility? (No; Yes, Emotional Disturbance Eligibility; Yes, Depression; Yes, Anxiety; Yes, Depression and Anxiety; Yes, Other (Please share below))
3. With which gender do you identify? (Female, Male, Transgender female, Transgender male, Gender variant/non-conforming, Prefer not to answer, Not listed)
4. What is your race/ethnicity? (White, Black or African American, American Indian or Alaska Native, Asian, Native Hawaiian or Pacific Islander, Multiple Race Hispanic, Multiple Race Non-Hispanic, Other (please share))
5. On average, how many hours a day do you spend on social media (e.g., Facebook, Snapchat, Twitter, Instagram, TikTok, or other social media platform)? (Almost no time, One hour, Two hours, Three hours, Four hours, Five hours, Six hours, Greater than six hours)
6. On average, what percentage of the time you spend on social media is on each of the following social media platforms: Facebook, YouTube, Instagram, TikTok, Twitter, Pinterest, Reddit, Snapchat, WhatsApp, Google +, Tumblr, Other (0-100%)
7. How often do you look at photos and statuses posted by other social media users (i.e., browsing)? (Never, Less than once per week, 1-2 times per week, 3-4 times per week, 5-6 times per week, Daily, Several times per day)
8. How often do you post a status or photo on social media (i.e., posting)? (Never, Less than once per week, 1-2 times per week, 3-4 times per week, 5-6 times per week, Daily, Several times per day)

9. How often do you 'like' or 'react' to a status or photo on social media (i.e., liking)?
(Never, Less than once per week, 1-2 times per week, 3-4 times per week, 5-6 times per week, Daily, Several times per day)
10. Social media use impacts my mental health (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)
11. Social media use contributed to my initial mental health diagnosis or eligibility (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)
12. Social media use is exacerbating (making worse) my mental health diagnosis or eligibility (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)
13. I feel that I am a person of worth, at least on an equal plane with others (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)
14. I feel that I have a number of good qualities (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)
15. All in all, I am inclined to feel that I am a failure (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)
16. I am able to do things as well as most other people (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)
17. I feel I do not have much to be proud of (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)
18. I take a positive attitude toward myself (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)

19. On the whole, I am satisfied with myself (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)
20. I wish I could have more respect for myself (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)
21. I certainly feel useless at times (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)
22. At times I think I am no good at all (Strongly agree, Somewhat agree, Neither agree nor disagree, Somewhat disagree, Strongly disagree)

APPENDIX C
IRB APPROVAL

December 21, 2020

PI: Brenda Barrio

Study Title: Exploring the Impacts of Social Media Use on the Self-Esteem of Young Adults with Mental Health Disorders or Formal Emotional/Behavioral Disorder Eligibility
IRB # IRB-20-749

Dear Dr. Brenda Barrio:

As permitted by federal law and regulations governing the use of human subjects in research projects (45 CFR 46), the UNT Institutional Review Board has reviewed your proposed project titled “Exploring the Impacts of Social Media Use on the Self-Esteem of Young Adults with Mental Health Disorders or Formal Emotional/Behavioral Disorder Eligibility.” The submitted protocol is hereby approved for the use of human subjects in this study.

Your informed consent document can be found in the Study Details section under the Attachments tab in Cayuse IRB. Please store them in a secure location and **use the approved copy** for your study subjects.

Any and all changes to an approved research study must be submitted for review and approval prior to implementing the change(s) into the research study.

COVID-19 is having an impact on normal operations and procedures at UNT. Please review the following guidance to ensure you may proceed with in-person human subjects research. You must comply with all information located on this page during the conduct of your study to ensure safety of the participants and the research team.

APPENDIX D

ROSENBERG SELF-ESTEEM SCALE PERMISSION FOR USE IN RESEARCH

“The Rosenberg Self-Esteem Scale is perhaps the most widely-used self-esteem measure in social science research. Dr. Rosenberg was a Professor of Sociology at the University of Maryland from 1975 until his death in 1992. He received his Ph.D. from Columbia University in 1953, and held a variety of positions, including at Cornell University and the National Institute of Mental Health, prior to coming to Maryland. Dr. Rosenberg is the author or editor of numerous books and articles, and his work on the self-concept, particularly the dimension of self-esteem, is world-renowned. There is no charge associated with the use of this scale in your professional research. However, please be sure to give credit to Dr. Rosenberg when you use the scale by citing his work in publications, papers and reports. The Rosenberg Self-Esteem Scale may be used without explicit permission. However, the Rosenberg family would like to be kept informed of its use (University of Maryland, 2020).”

APPENDIX E

IMPACTS OF SOCIAL MEDIA USE ON ADOLESCENTS' WELL-BEING: A SYSTEMATIC
LITERATURE REVIEW

Abstract

This literature review sought to examine and summarize current findings regarding how social media impacts adolescents' mental health. The review included a total of 22 studies based on pre-specified databases, search terms, and inclusion/exclusion criteria. The studies included 78,759 participants, ranging in age from 12 to 19 and grades seven to 12. Studies included participants from Latin America, Norway, Switzerland, Spain, Hungary, Belgium, Canada, Italy, Australia, Iceland, the Netherlands, South America, and the United States. Researchers utilized various surveys, and other standardized instrumentation, to assess outcome measures. Researchers used the Rosenberg Self-Esteem Scale most frequently. Overall, only one study did not suggest any adverse internalizing or externalizing outcomes for adolescent social media use. However, others indicated concerns with the relationship between adolescent social media use and several factors, including self-esteem issues, depression and anxiety, suicidal ideation/attempts, and risky behaviors such as heavy drinking. Some studies determined that these effects may depend on the specific social media platform used, the average amount of time spent on social media, and whether the adolescent is engaging in active or passive use (e.g., browsing versus posting). Further studies are needed to understand better how and why social media impacts adolescent well-being.

Keywords: social media, adolescents, psychological well-being, self-esteem

Introduction

Smartphones and other technological and communication advances continue to change the way individuals and communities live, work, play, and socialize (Scott et al., 2016). Among endless other opportunities, these advances have provided relatively new ways of communicating that have revolutionized the way people connect and interact with others (Kim et al., 2018;

Pantic, 2014). Increasingly, this communication is occurring through social networking sites (SM). SMs refer specifically to websites where the purpose is to network and interact with other users and include websites, such as Facebook and Twitter. These SMs provide a forum for communication and allow users to share personal content, give and receive feedback, explore self-identity, and express their emotions and thoughts (Calancie et al., 2017; Escobar-Viera, 2018). Unfortunately, several studies have indicated that the prolonged use of SMs may have detrimental effects, such as signs of depression, low self-esteem, and other mental health issues (Veldhuis et al., 2018). The repercussions of this modern and developing form of socialization seem to be incredibly impactful for adolescents, who have an increased susceptibility to peer pressure and a reduced capacity for self-regulation (Guinta & John, 2018).

In a pervasive study by Twenge et al. (2018), the researchers sought to understand why, after staying steady or rising between 1991 and 2011, adolescent psychological well-being had drastically worsened between 2012 and 2016. Overall, they found that adolescents who spent more time on electronic communication and screens were less happy, less satisfied with their lives, and had lower self-esteem. Conversely, adolescents who spent more time on non-screen and in-person social interaction reported healthier psychological well-being. Statistical analyses suggested that the changes in activities, particularly those in new media screen activities, preceded the decrease in psychological well-being rather than vice versa (Twenge et al., 2018).

Social networks provide adolescents with a variety of novel and innovative opportunities, but concurrently give rise to additional risks such as potential abuse, exposure to inappropriate content, and online bullying, which all potentially have psychological implications. Some risks are a continuation of those historically experienced by this age group offline, but many are new and unanticipated (Srivastava & Bhardwaj, 2014). With limited supervision in online

environments, there are also growing concerns about adolescents' vulnerability to negative online experiences, such as cyber victimization (Holfeld & Sukhawathanakul, 2017).

Given the substantial increase in smartphone ownership among adolescents, it is vital to better understand how and why having social media (SM) at their fingertips affects adolescents' psychological well-being. Developing a more extensive understanding of how SM impacts adolescent mental health is crucial to understanding the increasing prevalence of mental health issues in this group (Babic et al., 2017).

This review is essential because SM is a relatively new phenomenon and many questions regarding the potential impact on mental health remain unanswered. Due to the popularity of these online services in the general population, any future confirmed connection between them and psychiatric diseases would pose a serious public health concern (Pantic, 2014). This literature review aims to analyze the research conducted regarding how SM might impact adolescents' psychological well-being and what steps professionals and families can take to mitigate these issues.

The following research questions outline these goals:

- How does social media use impact adolescent psychological well-being?
- What specific factors associated with adolescent social media use contribute to any adverse outcomes?
- What factors reduce any adverse outcomes of adolescent social media use?

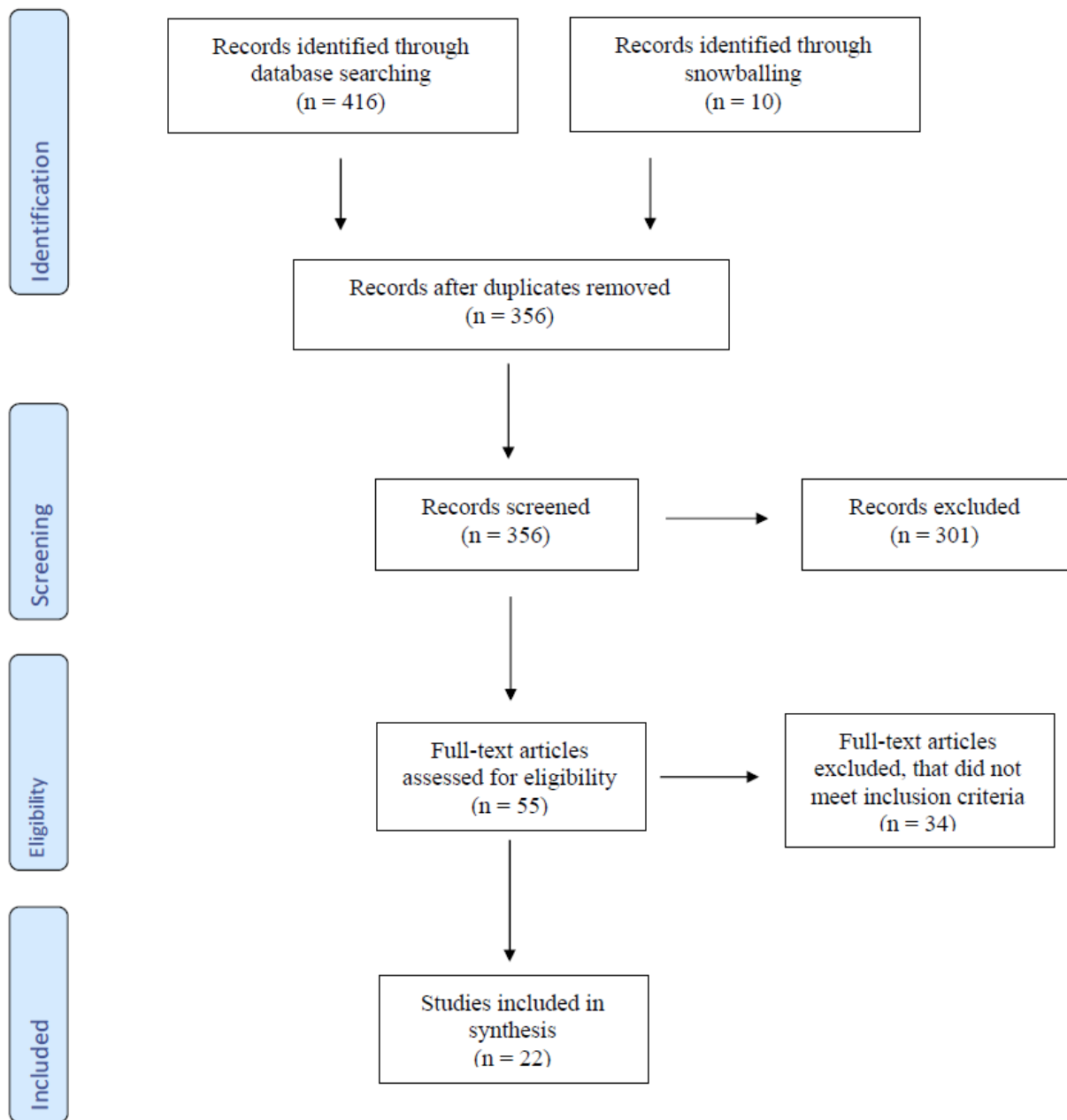
Methods

I searched the following electronic databases: Academic Search Complete, Communication & Mass Media Complete, Education Source, PsycINFO, and the Psychology and Behavioral Sciences Collection. I then utilized the following keywords and search string to obtain the articles for this search: “social media OR smartphone OR social networking sites OR

Facebook OR Twitter OR Instagram OR Snapchat OR Tiktok OR VSCO” AND “adolescents OR teenagers OR young adults” AND “mental health OR mental illness OR mental disorder OR psychiatric illness OR depression OR anxiety OR self-esteem.”

Figure E.1

PRISMA Diagram



I used the following inclusionary criteria to narrow the focus: full text, references available, peer-reviewed, and English. Given these parameters, the search resulted in 416 total articles, with 343 remaining after removing exact duplicates. Through a snowballing approach of searching references included in the original articles returned, an additional 11 articles were included that met criteria. After reading the titles and abstracts of the 356 articles total, I excluded 301 articles. A selection of 55 relevant articles that specifically addressed SM, some aspects of psychological well-being, and participants 19 years of age and younger were further analyzed.

A total of 34 articles were excluded as they were not relevant after further inspection, as they provided anecdotal information on the topic as opposed to results of an experimental study or included participants outside of the target age range (without disaggregating the data). Through this process, a total of 22 studies were included in this literature synthesis. Information on SM use was then extracted from the articles and organized by theme, resulting in themes of “social comparison,” “cyberbullying,” and “addiction.” These phenomena and their relation to adolescent SM use are explained in the final synthesis. The PRISMA diagram in Figure E.1 outlines the abovementioned procedure.

Results

The overall literature review results suggest that growing evidence exists regarding screen time and SM influences on adolescents. Currently, much of the literature continues to focus on if, how, and why SM use negatively impacts adolescent users. While some research has found no or minimal relationships between SM and mental health concerns (Houghton et al., 2018; Merrill et al., 2019), most studies indicate that there is reason for concern and continued investigation.

SM use, likely due to the overwhelming opportunities for social comparison during an important developmental time of identity formation (Cyr et al., 2015; Neira et al., 2014), can relate to depression, anxiety, lower life-satisfaction, cyberbullying, addiction, and more (Babic et al., 2017; Brunborg et al., 2017; Cole et al., 2016; Dempsey et al., 2009; Frison et al., 2016; Frison et al., 2017; Kim et al., 2018; Lemola et al., 2015; Roberts et al., 2016; Thorisdottir et al., 2019).

A total of 22 peer-reviewed publications from the database and subsequent journal search investigated SM's impacts on adolescent well-being. Locations of the results were varied and included international research as SM use is prevalent worldwide. In fact, in some parts of the world, such as South America, Africa, and Asia, the average SM use is higher than in the United States (broadbandsearch, 2021).

The current literature review included five studies conducted in the United States (Dempsey et al., 2009; Cyr et al., 2015; Cole et al., 2016; Merrill & Liang, 2019; Padilla-Walker et al., 2019), as well as research in Latin America (Oberst et al., 2017), Norway (Brunborg et al., 2017), Switzerland (Lemola et al., 2015; Foerster & Roosli, 2017), Spain (Errasti et al., 2017), Hungary (Banyai et al., 2017), Belgium (Frison et al., 2016; Frison & Eggermont, 2016; Frison & Eggermont, 2017), Canada (Sampasa-Kanyinga & Lewis, 2015; Roberts et al., 2016; Kim et al., 2018), Australia (Neira & Barber, 2014; Babic et al., 2017; Houghton et al., 2018), Iceland (Thorisdottir et al., 2019), and the Netherlands (Cingel & Olsen, 2018). For studies that reported participant grades, these ranged from seventh to 12th grade. Participant ages extended from 12 to 19 years. Table E.1 summarizes these findings:

Table E.1

Summary of Literature Review Findings

Study	Participants	Instrumentation	Study Design	Analysis	Findings
Sampasa-Kanyinga & Lewis, 2015	N=753 Location: Canada Population: Grades 7–12	<u>Survey(s)/Questions:</u> Kessler Psychological Distress Scale (K-10) (Kessler, 2002); Questions related to time spent on SM, emotional health, suicidal ideation, & unmet MH needs	Survey using two-stage (school, class) stratified (region & school type) cluster sample design.	Taylor series linearization; Chi-square test for categorical data & w/ adjusted Wald test for continuous data; Crude & adjusted multinomial logistic regression analyses	Participants who reported an unmet need for MH support more likely to report using SM for > two hours every day than those w/o. Daily SM use of > two hours associated w/poor self-rating of MH & experiences of high levels of psychological distress & suicidal ideation.
Frison & Eggermont, 2016	N=1,840 Location: Flanders Population: 12-19 years of age	<u>Survey(s)/Questions:</u> Social Networking Peer Experiences Questionnaire (Landoll et al., 2013); CESD Depression Scale for Children (Irwin et al., 2012); Satisfaction w/ Life Scale (Diener et al., 1985); Multidimensional Scale of Perceived Social Support (Zimet et al., 1988); Gender; Age; time spent on SM	Questionnaires were completed at Time 1 & Time 2 using a six-month time lag.	Autoregressive cross-lagged panel model w/ structural equation modeling (AMOS) using the maximum likelihood method; Model fit evaluated w/ chi-square-squared-to-degrees-of-freedom ratio	Negative comparison on FB & adolescents' life satisfaction are reciprocally related over time. Negative comparison on FB negatively predicted adolescents' life satisfaction & life satisfaction negatively predicted adolescents' negative comparison on FB.
Oberst et al., 2017	N=1,468 Location: Latin America Population: 16-18 years of age.	<u>Survey(s)/Questions:</u> Hospital Anxiety & Depression Scale (Quintana et al., 2003); Fear of Missing Out- FOMO scale (Gil et al., 2015); Scale drawn from a survey by Salehan & Negahban (2013) (e.g., “Visiting social networking sites is part of my everyday activity”); Spanish <i>Cuestionario de Experiencias Relacionados con el Movil</i> (Questionnaire of experiences related to mobile phone use) (Beranuy et al., 2009)	Questionnaires were completed via computer or mobile device w/ instant feedback on the participants' degree of FOMO.	Pearson correlations to test for zero-order relationships between two variables; Cronbach's alpha & the Intraclass correlation coefficient, separated by instrument & country to calculate reliability	For girls, feeling depressed seems to trigger higher SM involvement. For boys, anxiety triggers higher SM involvement.
Banyai et al., 2017	N=5,961 Location: Hungary Population: 16 years of age	<u>Survey(s)/Questions:</u> Bergen SM Addiction Scale (Banyai et al., 2017); Rosenberg Self-Esteem Scale (Rosenberg, 1965); Center of Epidemiological Studies Depression Scale (Radloff, 1977); Socio-demographic questions; questions related to the frequency of online social networking.	Data collected in March 2015 as part of the European School Survey Project on Alcohol & Other Drugs w/ nationally representative adolescent sample.	CFA; CFI; TLI; RMSEA & its 95% confidence interval; SRMR; Latent profile analysis; Lo-Mendell-Rubin Adjusted LRT Test; Wald's Chi-square test of mean equality	Participants in the at-risk group reported low self-esteem, high level of depression symptoms, & elevated SM use. The BSMAS was found to have appropriate psychometric properties.
Foerster & Roosli, 2017	N=895 Location: Switzerland Population: Grade 7	<u>Survey(s)/Questions:</u> Mobile Phone Problem Use Scale (MPPUS-10) (Foerster et al., 2015); KIDSCREEN- 52 (Ravens-Sieberer et al., 2008); Questions related to time spent on mobile phone & other devices for various purposes.	An exploratory study using the HERMES cohort (Health Effects Related to Mobile phone use in adolescentS). Baseline investigations conducted in two waves in 2012/2013 & 2014/2015.	LCA; MLR; Overall fit of the models compared via the sample-size adjusted Bayesian Information Criterion (SABIC), Akaike's information criterion (AIC) & the Bozdogan's criterion; Coefficients obtained via nonparametric bootstrapping to account for non-normal data distribution.	Five distinct media use classes could be identified: Low Use, Medium Use, Gaming, Call Preference & High Social Use. The <i>High Social Use</i> class showed less well-being on most of the scales, but the best connections w/ peers.
Babic et al., 2017	N= 322 Location: Australia Population: Grade 7	<u>Survey(s)/Questions:</u> Adolescent Sedentary Activity Questionnaire (Hardy et al., 2007); Physical self-concept subscale from Marsh's Physical Self-Description	Longitudinal study measuring associations between changes in screen-time & multiple indicators of MH	Multi-level linear regression analyses; Paired samples t-tests	Changes in total recreational screen-time & tablet/mobile phone use were negatively associated w/ physical self-concept. Changes in total recreational screen-time & computer use

Study	Participants	Instrumentation	Study Design	Analysis	Findings
Frison & Eggermont, 2017		Questionnaire (Marsh, 1996); Flourishing Scale (Diener et al., 2010); Strength & Difficulties Questionnaire (Goodman, 1997); Adiposity-weight/BMI; GENEActiv write worn accelerometer	among sample of adolescents; Time 1 & Time 2 data collected w/ 6-month lag.		were negatively associated w/ psychological well-being. A positive association was found w/ television/DVD use & psychological difficulties. No associations were found for non-recreational screen-time.
	N= 671 Location: Flanders Population: 12-19 years of age, Instagram users	<u>Survey(s)/Questions:</u> CESDDepression Scale for Children (Olson & von Knorring, 1997); Questions related to Instagram use.	Two-wave panel data, from part of a large-scale longitudinal panel study on the relationships between SM use & adolescents' MH, (Time 1 = March 2014; Time 2 = October 2014) obtained from 15 high schools.	SEM; Chi-squared to degrees of freedom ratio (χ^2/df), RMSEA & CFI to determine goodness-of-fit of the models; Autoregressive cross-lagged panel model; Covariances between control & study variables; Modeled covariances between study variables measured at the same time point & allowed covariances between the error terms of same indicators; Multiple group comparison test followed by path-by-path analysis	Instagram <i>browsing</i> , but not <i>posting or liking</i> , at Time 1 correlated w/ more significant depressed mood at Time 2. A depressed mood at Time 1 was correlated w/ increased Instagram <i>posting</i> at Time 2.
Errasti et al., 2017	N= 503 Location: Spain Population: 14-17 years of age	<u>Survey(s)/Questions:</u> Basic Empathy Scale (Jolliffe & Farrington, 2006); Narcissistic Personality Inventory (Raskin & Hall, 1979); Rosenberg Self-Esteem Scale (Rosenberg, 1965); Use of FB Questionnaire (Errasti et al., 2017); Use of Twitter Questionnaire (Errasti et al., 2017)	Sample taken at random from the network of schools in the Principality of Asturias. A random cluster sample was taken, where the cluster was the school.	Calculation of coefficient alpha for ordinal variables for each scale; Ordinal alpha estimated from a polychoric correlation matrix between variables; Shapiro-Wilk goodness of fit test; Mann-Whitney U test; Spearman's rho correlation coefficient	Level of Affective & Cognitive Empathy was higher in participants who used FB & Twitter more often to express their positive or negative feelings & to relate empathetically to others. Participants who followed a higher number of people on Twitter obtained higher scores on Affective Empathy. Highest levels of Affective Empathy found in FB non-users & frequent users. Lower levels of Affective Empathy found in occasional or sporadic users who use FB more to observe material published by other users than to publish their own material. Greater use of Twitter associated w/ lower score self-esteem.
Merrill & Liang, 2019	N= 13,156 Location: United States Population: Grades 9-12	<u>Survey(s)/Questions:</u> Age; gender; race; ethnicity; & questions related to time spent on media, depression, suicidal ideation, & risky sexual behaviors.	Data derived from 2015 Youth Risk Behavior Surveillance System (YRBSS)	Univariate descriptive information; bivariate correlations among all study variables; Multiple regression & logistic regression analyses	Media use was not found to be an important factor in adolescents' internalizing & externalizing problems. SM & television were not found to be contributors to MH or risky sexual behaviors.
Thorisdottir et al., 2019	N= 10,563 Location: Iceland Population: 14-16 years of age	<u>Survey(s)/Questions:</u> Multidimensional Anxiety Scale for Children (Olason et al., 2004); Original Symptoms Checklist (Derogatis & Lipman, 1973); Perceived Parental Support Scale (Thorisdottir et al., 2019) Iowa-Netherlands Comparison Orientation Measure (Gibbons & Buunk, 1999); Rosenberg Self-Esteem Scale (Rosenberg, 1965); Offer Self-Image Questionnaire (Offer et al., 1972); time spent on SM, family, & social support.	Anonymous questionnaires administered to all students present in class on the day of the survey; Teachers distributed the questionnaires, & students returned them sealed in blank envelopes upon completion.	Spearman correlations to examine bivariate relationships; Hierarchical linear regression; Two-way interactions w/ gender & SM variables added	Time spent on SM was correlated w/ greater symptoms of anxiety & depressed mood. Passive use was related to greater symptoms of depressed mood for both girls & boys. The relationship between duration of use & symptoms of anxiety & depressed mood and the relationship between passive use & depressed mood was stronger for girls than boys.
Lemola et al., 2015	N= 362 Location: Switzerland	<u>Survey(s)/Questions:</u>	Trained study personnel visited the school classes & administered	ANOVA; Pearson correlations; Regression analyses	Adolescents owning a smartphone spent more time on the Internet & FB, spent several times

Study	Participants	Instrumentation	Study Design	Analysis	Findings
	Population: 12-17 years of age	Insomnia Severity Index (Bastien et al., 2001); Allgemeine Depressionsskala (German version of the Center of Epidemiological Studies Depression Scale) (Hautzinger & Bailer, 1993); "lights off" time & rise time; time spent on media consumption while in bed before going to sleep; time spent watching TV, playing video games, on FB, & on the Internet; & number of text messages sent per day	questionnaires on sleep, media consumption before going to sleep, & psychological health.		more text messages per day, used their phones in bed before sleeping & turned out lights later; Girls had higher levels of depressive symptoms & reported more calling &/or text messaging in bed before sleep, sleep duration on weekdays was negatively related to depressive symptoms & all types of electronic media use at night, & depressive symptoms were positively associated with all types of electronic media use at night.
Padilla-Walker et al., 2019	N= 1,155 Location: United States Population: 10-20 years of age	<u>Survey(s)/Questions:</u> 12-item adapted measure of media monitoring taken from the Perceived Parental Media Monitoring Scale (Valkenburg et al., 2013); Spence Children's Anxiety Scale (Spence, 1998); Questions related to time spent using a variety of platforms of media	Participants were taken from a national quota sample of teenagers who participated in an online survey examining adolescent media use. Participants were recruited via Qualtrics & given a brief online survey & were compensated on a sliding scale in points.	T-tests; Path analysis	Controlling styles of both restrictive & active monitoring were associated w/ higher levels of anxiety & depression. In contrast, autonomy-supportive restrictive monitoring associated w/lower levels of anxiety & depression, & autonomy-supportive active monitoring associated w/lower levels of depression. The only type of media monitoring associated w/lower levels of media use was autonomy-supportive restrictive monitoring, & both types of controlling monitoring associated w/higher levels of media use. SM use was associated w/higher levels of anxiety, & video game use was associated w/higher levels of both anxiety & depression. TV was associated w/lower levels of anxiety & depression.
Kim et al., 2018	N= 31,148 Location: Ontario, Canada Population: Grades 6-12	<u>Survey(s)/Questions:</u> Nine items from the Emotional Problems Scale (Statistics Canada, 2014); 13 items from the Conduct Problems Scale (Statistics Canada, 2014); Ontario Ministry of Education's Safe Schools Survey (Statistics Canada, 2014); 3 additional items on conduct disorder (i.e., "I use weapons when fighting," "I steal things from places other than home," & "I have broken into someone's house") (Tremblay et al., 1987)	Selection of schools based on the sampling design of the 2014 Ontario Child Health Study. Anonymous student surveys administered to consenting youth. Surveys completed during school hours, using either paper-& pencil questionnaires or secure internet-based technology (SNAP Surveys).	SEM; CFA; Wald Chi-square Test of Parameter Constraints	Cyberbullying significantly contributed to emotional & behavioral problems in both sexes, w/more emotional problems in females & behavioral problems in males. Social bullying was more strongly associated w/emotional problems in females than males, while physical & verbal bullying was more strongly associated w/emotional problems in males. For females, social bullying & cyberbullying had the strongest association w/emotional problems. W/in males, cyberbullying had the strongest association w/behavioral problems compared to verbal, social, & physical bullying.
Dempsey et al., 2009	N= 1,684 Location: United States Population: 11-16 years of age	<u>Survey(s)/Questions:</u> The Victimization of Self (VS) portion of the Revised Peer Experiences Questionnaire (Prinstein et al., 2001); The Social Anxiety Scale for Adolescents (La Greca, 1998); The Center for Epidemiology Studies Depression Scale (Radloff, 1977); Questions related to the frequency at which students were victimized by peer aggression involving instant messaging, text	Participants completed the survey packet consisting of the RPEQ w/ cyber aggression questions, CES-D, the SAS-A, & a demographic questionnaire.	A three-factor structure consisting of (1) overt victimization items, (2) relational victimization items, & (3) cyber victimization items, a CFA of the correlation matrix; Independent hierarchical regression analyses	14% of students indicated they had been victims of cyber aggression at least once in the past 30 days, w/ a larger proportion of females reporting cyber victimization than males. Cyber victimization was shown to be a disparate form of victimization, separate from either overt or relational victimization.

Study	Participants	Instrumentation	Study Design	Analysis	Findings
		messaging, personalized Web sites, Web posts, & e-mail			
Cingel & Olsen, 2018	N= 337 Location: Netherlands Population: 12-18 years of age	<u>Survey(s)/Questions:</u> 10-item Dutch version of the Rosenberg Self-Esteem Scale (Franck et al., 2008); Questions related to time actively spent on FB the previous day, how many times participants engaged in various activities the previous day (e.g., writing a status update, liking a post, etc.)	Classrooms w/in each grade randomly asked to participate. Teachers approached before data collection & asked to allow members of the research team to use a short period of class time to present a survey.	Correlations between the variables of interest; Hierarchical multiple regression	Self-esteem curvilinearly related to active, text- & visual-based social contributions such that both were highest among those moderate in self-esteem; no relationship between self-esteem & passive engagement on FB.
Cole et al., 2016	N= 827 Location: United States Population: 8-13 years of age	<u>Survey(s)/Questions:</u> Peer Victimization Self-Report (Cole et al., 2014; Sinclair et al., 2012) Reynolds Adolescent Depression Scale (Reynolds, 2002); The Children's Automatic Thoughts Scale (Schmiering & Rapee, 2002); Behind Your Back protocol (Cole et al., 2014)	Data collection at all schools took place over six weeks. Trained research assistants alerted school counselors if respondents endorsed clinically significant depressive symptoms.	Series of hierarchical regressions; Pearson-Filon z-test of dependent correlations to compare all pairs of stability correlations; Series of multiple regressions	Being subjected to cybervictimization related to the development of negative self-cognition & depressive symptoms. Combining results w/ previous longitudinal studies suggests that incremental & predictive effects of cybervictimization on depression-related symptoms & cognitions are evident at six weeks, six months, & one year.
Roberts et al., 2016	N= 805 Location: Ontario, Canada Population: 5-17 years of age	<u>Survey(s)/Questions:</u> Questions related to age, gender, reason for referral to the Child & Adolescent MH Urgent Care Clinic, substance abuse, physical & sexual abuse & type of bullying, & past psychiatric history & outcome	Two-year retrospective study of adolescents seen for bullying victimization, including cyber victimization between Oct. 2012 & Sept. 2014 in the Child & Adolescent MH Urgent Consult Clinic of the Division of Child & Adolescent MH.	Frequency & percent distribution; v2 analysis; Multinomial regression; Bimodal logistic regression	The prevalence of any type of bullying for patients was 26.9%. The prevalence of cyber-bullying was 13.5 % & traditional bullying was 13.4 %. Suicide threat/attempt & depressed mood were the reason for referral in 75 % of the cyber-bullying group compared to 57.7 % for traditional bullying & 56.8 % for the non-bullied group. Substance use/abuse was reported by 32.1 % of the cyber-bullying group, 26.6 % of the traditional bullying group & 43.1 % of the non-bullied group.
Houghton et al., 2018	N= 1,749 Location: Australia Population: 10-17 years of age	<u>Survey(s)/Questions:</u> The Screen Based Media Use Scale (Houghton et al., 2015); Adolescent Preoccupation w/ Screens Scale (Hunter et al., 2017); Children's Depression Inventory, Second Edition (Kovacs, 2004)	SBMUS & CDI-2 completed by participants via an online survey during regular school hours. School principals nominated one teacher responsible for liaising w/researchers & administering the survey	Fit a latent growth curve model to the trajectories of the CDI 2 T scores; Fit a Random Intercept Cross Lagged Panel Model to examine the reciprocal longitudinal relationship; Cross Lagged Panel Model (CLPM); threshold effect model was fitted	The study identified three classes: Low - Stable, High -Decreasing, & Low – Increasing. Among males, time spent each day on three of the four screen activities almost doubled from Year 1 to Year 3. No reciprocal associations between SM use & depressive symptoms in the group as a whole, but small positive effects were present for boys when this was assessed by sex.
Brunborg et al., 2017	N= 851 Location: Norway Population: Grades 8-12	<u>Survey(s)/Questions:</u> MacArthur Scale of Subjective Social Status- Youth Version (Goodman et al., 2001); Barratt Impulsiveness Scale- Brief (Steinberg et al., 2013); Severity Measure for Depression adapted from the Patient Health Questionnaire for Adolescents (Kroenke et al., 2001); 5-item peer relationship problems subscale of Strengths & Difficulties Questionnaire (Goodman & Goodman, 2009; Goodman et al., 2010); gender, grade, alcohol consumption, time on SM	Students completed a computer-based questionnaire in October 2014 w/ teachers available for supervision & safeguarding confidentiality. DatStat software was used for data management & computer-based data collection.	Multiple imputation procedure w/ linear regression imputation w/ results pooled to single multiple imputation results using “mi estimate” command; Ordinal regression	The more time adolescents spent on SM, the more frequently they tended to engage in episodic heavy drinking (EHD). Time spent using the Internet, in general, was associated w/ increased likelihood of EHD. The relationship between SM use & EHD is evident even after controlling for a range of demographic & individual characteristics.

Study	Participants	Instrumentation	Study Design	Analysis	Findings
Neira & Barber, 2014	N= 1,819 Location: Western Australia Population: Grades 9 & 11	<u>Survey(s)/Questions:</u> Social self-concept scale items were drawn from existing measures (Marsh, 1992a, 1992b, 1992c); Questions related to demographics; use of social networking sites (SM), frequency of SM activities, & SM investment; self-esteem; & symptoms of depressed mood	Adolescents from 34 high schools who took part in the Youth Activity Participation Study of Western Australia completed questionnaires.	Independent samples t-tests; Pearson's correlations; one-way ANOVAs for each gender; Hierarchical regression	SM use may negatively impact female youth while being a positive leisure activity for male youth (more positive social self-concept). The frequency of SM use is a positive predictor of social self-concept. Investment in SMs was found to predict lower self-esteem & higher depressed mood due to social comparison.
Cyr et al., 2015	N= 268 Location: United States Population: Grades 9-12	<u>Survey(s)/Questions:</u> Technology Usage Scale (Cyr et al., 2015); Ego Identity Process Questionnaire (Balistreri et al., 1995); Identity Distress Survey (Berman et al., 2004); Existential Anxiety Questionnaire (Weems et al., 2004); Experiences in Close Relationships (Brennan et al., 1998); Peer Conflict Scale (Marsee & Frick, 2007; Marsee et al., 2008); Brief Symptoms Inventory-18 (Derogotis, 2000)	Cross-sectional, correlational design study w/ participants recruited from classes at three public high schools. Participants were told that the study's nature was to survey students' beliefs & feelings about their sense of self.	Distribution of scores examined for skew & kurtosis; main analyses supplemented w/ identical analyses using logarithmic transformations to normalize the distributions; two by four MANOVA; multiple One-Way ANOVAs; multiple regression analysis.	Results support the notion that communication technology might be increasing psychological maladjustment in general, & specifically regarding identity formation & relationship quality.
Frison et al., 2016	N= 1,621 Location: Belgium Population: 12-19 years of age	<u>Survey(s)/Questions:</u> Social Networking Peer Experiences Questionnaire adapted to FB context (Landoll et al., 2013); CESDDepression Scale for Children (Irwin et al., 2012); Satisfaction w/ Life Scale (Diener et al., 1985); Multidimensional Scale of Perceived Social Support (Zimet et al., 1988); Questions related to gender & age; time spent on FB on weekdays & weekend	Questionnaires completed during regular school hours, at two different time points, six months apart (March–October 2014).	Two-way MANOVA; SEM; multiple group comparison tests	Peer victimization on FB marginally significant predictor of lower life satisfaction. Low life satisfaction positively predicted being victimized on FB. A unidirectional relationship was found between depressive symptoms & peer victimization on FB (depressive symptoms are a risk factor for peer victimization rather than an outcome).

How Does Social Media Use Impact Adolescent Psychological Well-being?

Social media use negatively impacts the psychological well-being of adolescents in a variety of ways. Overwhelmingly, results proposed that engaging in SM during the vulnerable adolescent years is associated with mental health difficulties. These struggles can include anxiety, depression, self-esteem issues, negative physical self-concept, suicidal ideation/attempts, and generally low life self-satisfaction (Babic et al., 2017; Sampasa-Kanyinga & Lewis, 2015; Frison & Eggermont, 2016; Banyai et al., 2017; Errasti et al., 2017; Thorisdottir et al., 2019; Lemola et al., 2015; Cingel & Olsen, 2018; Neira & Barber, 2014; Cyr et al., 2015). Only one study examined in the current literature review suggested no relationship between adolescent SM use and internalizing or externalizing problems (Merrill & Liang, 2019).

Another study did not find reciprocal associations between SM use and depressive symptoms when looking at the group as a whole, but found small positive effects present for boys. This same study found that, among males, the time spent each day on-screen activities almost doubled from year one to year three of the study (Houghton et al., 2018).

Adolescence as a Tumultuous Life Stage

Adolescence is a tumultuous time of changes and identity development, which is one area in which researchers found that SM might interfere and lead to difficulties with psychological well-being. According to researchers included in the literature review, communication technology usage may not be interfering with the identity development process, but might be exacerbating the level of anxiety and distress often associated with this process. Alternatively, studies found that young people with higher levels of identity-related anxiety and distress may be using communication technology to manage discomfort. Research from the literature review

supports the notion that communication technology might increase psychological maladjustment in general, specifically concerning identity formation and relationship quality (Cyr et al., 2015).

Research has shown that engaging in SM activities during adolescence is related to increased psychological maladjustment symptoms, but the exact impacts can depend on various factors. For example, studies show that active and passive SM use is differentially related to these symptoms, with passive SM use in adolescents related to more significant signs of depressed mood, regardless of gender. Additionally, the relationship between duration of use and anxiety and depressed mood symptoms was more robust for girls than boys (Thorisdottir et al., 2019).

Social Media Use in Adolescence

When focusing specifically on the type of SM use, studies suggested a strong relationship between passive use (e.g., browsing “friends” published information without engaging) and depressed mood (Frison & Eggermont, 2017), with this relationship being more robust for girls (Thorisdottir et al., 2019). Authors suggested that the negative impact of Instagram browsing on adolescents' depressed mood could be due to the large number of strangers they follow and subsequent comparison behavior (Frison & Eggermont, 2017). Studies also indicated that the type of phone a young person owns mediates the overall impact of SM use; those who own a smartphone spend more time on SM. Concurrently, this smartphone ownership leads to more time spent on their phone in bed before sleeping and turning off the lights later. Another concern is that sleep duration on weekdays is negatively related to depressive symptoms (Lemola et al., 2015).

While research within the systematic literature review suggests that SM use in adolescence can lead to emotional difficulties, the reverse directional relationship of these

variables is also possible. For example, studies demonstrated that depressed mood in adolescents correlates with broadcasting Instagram content later. This concept is in line with Mood Management Theory, which argues that participants purposively utilize SM for coping with emotions. However, expanding on Mood Management Theory, specific types of SM use (e.g., browsing versus liking/posting) instead of the particular SM platform (e.g., Facebook versus Instagram) may be used for mood management (Frison & Eggermont, 2017).

According to Frison & Eggermont (2017), adolescents with a depressed mood may be more likely to post images or videos on Instagram to enhance their appearance in the eyes of other SM users, especially when considering the availability of editing and filtering on Instagram. These individuals may also be seeking positive feedback through the likes and positive comments provided by users who view their posts. Adolescents with initially high levels of depression or low levels of self-esteem may perceive online social communication via social network sites as a possibility to gain social support on a lower threshold and to relieve themselves from negative feelings through the ease of self-disclosure (Frison & Eggermont, 2017).

Conversely, using social networking sites and instant messengers might heighten levels of depression and lessen life satisfaction and self-esteem (Foerster & Roosli, 2017).

While research has shown that adolescents with poor mental health tend to use SM more frequently, the debate continues over which comes first- SM use or psychological maladjustment. Some researchers hypothesize that adolescents with mental health difficulties might be turning to SM for interaction and support, as they are unsure of where to find assistance. This behavior could indicate that SM is a valuable avenue for reaching adolescents with mental health needs (Sampasa-Kanyinga & Lewis, 2015).

Additionally, there may not be a linear relationship between adolescent SM use and some facets of psychological well-being. For example, research suggests that self-esteem is curvilinearly related to active Facebook use. Varying levels of self-esteem are differentially related to social networking site use. Individuals with moderate self-esteem levels may be more likely to engage in active, text-based social contributions than those at opposing ends of the self-esteem spectrum (Cingel & Olsen, 2018).

Adolescents possess many traits that might affect their SM use and the impact it has on them. These traits can include personality characteristics, such as empathy and self-esteem, which seem to be particularly relevant in influencing how individuals utilize social networks and are crucial aspects of one's sense of self. Research has shown that affective and cognitive empathy seems to be higher in individuals who use Facebook and Twitter more often to express their positive or negative feelings and to relate empathetically to others. Those who follow a higher number of individuals on Twitter tend to demonstrate higher affective empathy, which suggests that, while addictive use of social networks can be related to a decrease in empathy, moderate use may facilitate empathy toward others. However, research indicates that the highest level of affective empathy is displayed in Facebook non-users and frequent users, suggesting that the specific SM platform is an essential piece of the puzzle (Errasti et al., 2017).

Differences by Gender

Studies also showed variances regarding gender differences related to adolescent SM use on psychological well-being. In some cases, SM use may negatively affect female youth while being more of a positive leisure activity for adolescent males (Neira & Barber, 2014). While research has demonstrated that psychopathological symptoms are predictors of SM use's negative consequences in females, some research has surmised that depression does not affect negative

consequences of SM for male adolescents. This contrast could be due to the essential gender difference in adolescents because there is a sharp increase in prevalence rates of female depression at this time (Oberst et al., 2017).

Social Comparison

As previously mentioned, studies indicated that adolescents seek positive feedback through the reactions of peers who view their posts (Frison & Eggermont, 2017). A term commonly used to describe social comparison on SM is “FOMO” or Fear of Missing Out. FOMO has been considered a mediator between personal characteristics or psychological needs and engagement with social networking sites. Research has shown that FOMO's role mediates adverse outcomes regarding adolescent maladaptive technology use, such as the path between psychopathological symptoms and the negative consequences of SM use via mobile devices (Oberst et al., 2017).

In general, research has found that unfavorable comparison on Facebook relates to adolescents' life satisfaction over time. Negative comparison on Facebook tends to predict adolescents' life satisfaction negatively, and life satisfaction negatively predicts adolescents' unfavorable comparison on Facebook (Frison & Eggermont, 2016)

Negative Outcomes of Adolescent Social Media Use

Cyberbullying

Kim et al. (2018) describe Cyberbullying as a potential consequence of electronic communication. Additionally, Rice et al. (2015) describe Cyberbullying as the “willful and repeated harm inflicted [on another] through the use of computers, cell phones, or other electronic devices.” This can occur through spreading rumors online, posting hurtful or threatening messages on social networking sites, stealing a person's account information to break

into their account, pretending to be someone else online to hurt another person, or taking unflattering pictures of a person and spreading them through text messages or online (stopbullying.gov, 2021).

Recent statistics suggest that, in 2020, 36.5% of individuals reported they had been cyberbullied, with 17.4% reporting it has happened at some point in the past 30 days. These numbers have more than doubled since 2007 and increased since 2018-2019, suggesting that society is heading in the wrong direction regarding cyberbullying. Regarding specific SM platforms, Instagram, Facebook, and Snapchat are the most common avenues for cyberbullying, while the least amount of cyberbullying occurs on Twitter (stopbullying.gov, 2021).

When considering the impacts of cyberbullying, research indicates that cyberbullied adolescents tend to feel less safe and are less able to learn at school. These individuals are also more likely to have social, mental health, and behavior problems, experience physical problems like headaches and stomachaches, and feel negatively about themselves (stopbullying.gov, 2021). Based on research, peer victimization on Facebook is a marginally significant predictor of lower life satisfaction, and low life satisfaction positively predicts Facebook victimization. Depressive symptoms appear to be a risk factor for peer victimization on Facebook (Frison et al., 2016).

According to the literature review, being subjected to cybervictimization is related to the development of negative self-cognition and depressive symptoms. These depression-related symptoms and cognitions have been evident at six weeks, six months, and even one year after the cyberbullying incident (Cole et al., 2016). When working with patients at a child and adolescent mental health urgent care clinic, Roberts et al. (2016) found that the prevalence of bullying for the patients was 26.9%. The prevalence of cyber-bullying was 13.5 %, and traditional bullying

was 13.4 %. Suicide threat/attempt and depressed mood were the reason for referral in 75 % of the cyber-bullying group compared to 57.7 % for traditional bullying and 56.8 % for the non-bullied group. The researchers indicated substance use and abuse in 32.1 % of the cyber-bullying group, 26.6 % of the traditional bullying group, and 43.1 % of the non-bullied group.

Cybervictimization is a different form of victimization, separate from overt or relational victimization (Dempsey et al., 2009).

Research indicates that cyberbullying significantly contributes to emotional and behavioral problems, with more emotional problems in females and behavioral problems in males. Social bullying tends to be more strongly associated with emotional problems in females than males. In contrast, physical bullying and verbal bullying more strongly associate with males' emotional problems than females'. For females, social bullying and cyberbullying appear to have the strongest association with emotional problems. Research suggests that, in males, cyberbullying has a stronger association with behavioral problems than verbal bullying, social bullying, and physical bullying (Kim et al., 2018).

Addiction

A review of the literature suggests that adolescents can struggle both with addiction to SM and experience increased addiction/abusive behaviors due to SM use. Research indicates that adolescents considered at-risk for SM addiction display lower self-esteem levels and the highest levels of depressive and withdrawal symptoms. Specifically, research has shown that adolescents at-risk for problematic SM use are majority female (Banyai et al., 2017).

Further research has suggested that the more time adolescents spend on SM, the more frequently they engage in episodic heavy drinking (EHD). Time spent using the internet, in general, is associated with an increased likelihood of EHD. The relationship between SM use and

EHD is evident even after controlling for a range of demographic and individual characteristics (Brunborg et al., 2017).

Reduction of Negative Outcomes of Adolescent Social Media Use

The literature provides few strategies to mitigate adverse impacts of adolescent SM use as most studies continue to focus on how and why SM influences this population. Some ways parents can help diminish negative effects include monitoring the time their children spend on social media, especially at night (Babic et al., 2017; Brunborg et al., 2017; Thorisdottir et al., 2019). Parents and school staff should also monitor for cyberbullying, which can be a consequence of SM use and lead to serious mental health concerns, such as negative self-cognitions, negative externalizing behaviors, depression, and suicidal ideation and attempts (Cole et al., 2016; Dempsey et al., 2009; Frison et al., 2016; Kim et al., 2018; Roberts et al., 2016).

However, simply monitoring might not be sufficient to affect how adolescent SM use impacts their well-being. Parental media monitoring typically involves either active monitoring (e.g., parent-child media-based conversations about online content) or restrictive monitoring (e.g., restrictions on the amount of screen time, media platforms, or content the child is allowed to view). The parenting style used when media monitoring, such as autonomy-supportive or controlling, is also a critical factor. With autonomy-supportive parenting, the parent attempts to take their child's perspective, avoiding controlling language, such as "must" or "should," and offer meaningful choices when possible. In contrast, controlling parents adopt an authoritarian approach to media monitoring with unreasonable, unilateral rules and regulations (Cikanavicius, 2017; Neubauer, 2021; Padilla-Walker, 2019).

Controlling styles of both restrictive and active SM monitoring are associated with higher levels of anxiety and depression and increased SM use as the limited media then becomes a “forbidden fruit.” In contrast, autonomy-supportive restrictive monitoring correlates with lower levels of anxiety and depression. Autonomy-supportive active monitoring is associated with lower levels of depression. The only type of media monitoring associated with lower levels of media use is autonomy supportive restrictive monitoring. What might be surprising to some parents is that both control monitoring and autonomy-supportive active monitoring are associated with higher media use levels (Padilla-Walker, 2019).

Discussion

Current literature indicates that the impact of adolescent social use is a growing and vital area of research. A search of four electronic databases resulted in 22 studies after sorting and applying inclusionary and exclusionary criteria. Studies included participants ages 12 through 19 from various locations worldwide, including the U.S. and Europe. The included studies showed a wide range of surveys and instrumentation used to assess outcome measures, although most used the Rosenberg Self-Esteem Scale.

In some instances, SM can benefit adolescent users. It can provide access to social connections and a way for adolescents to reach out regarding unmet mental health needs. Some research has also shown no relationship between SM use and internalizing or externalizing problems in adolescents. The exact combination of protective factors needed to prevent negative outcomes is yet to be determined but may include the user’s gender, total time spent on SM, preferred SM activity (passive versus active use), baseline self-esteem and psychological functioning, and history of peer victimization.

However, most studies found unfavorable outcomes for adolescents who use SM, such as lower self-esteem, increased depressive symptoms, and increased addiction behaviors. However, this was somewhat dependent on exactly how much time the individuals spent on SM and the specific activity (e.g., browsing versus posting and liking). Some of the contributors that may directly or indirectly impact SM's effect on adolescent psychological well-being include social comparison and cyberbullying. Mental health concerns, such as depression and anxiety, can also trigger increased SM use, leading to a concerning cycle.

Parental monitoring can protect adolescents against these negative impacts when approached through an autonomy-supportive parenting style. While simply having an open dialogue with adolescents about media use is associated with lower depression levels, restricting media in a supportive manner can decrease anxiety and depression and reduce SM use (Padilla-Walker et al., 2019).

Limitations

When reviewing the results, readers should consider the limitations of the current review. Limitations are mostly related to the minimal and variable studies produced due to this research area's novelty. While various study locations help better understand how SM impacts adolescents across countries and cultures, it can be challenging to generalize findings with such limited replication in one particular area. Methodological shortcomings (e.g., cross-sectional studies, examining only one screen medium, such as television, and a limited selection of mental health indicators, such as depression) are also routine in the literature (Babic et al., 2017).

Additionally, the limitations of the review include database selection. I did not utilize all possible databases for the review, which could always lead to the chance that it is not as comprehensive as possible. Aspects of the search strategy also limit the results. For the current

review, I did not utilize interobserver agreement measures, leading to the possibility of inadvertently excluding relevant articles during the screening process. Furthermore, the current review only included peer-reviewed journal articles. This limitation could lead to missing unpublished literature, including studies with inconclusive or null results, which might introduce publication bias into the findings.

Lastly, despite attempts at including all applicable words related to SM, the targeted age group, and possible outcomes of SM use, studies that did not use the exact words were not returned and included in the review. Also related to search terms, new SM platforms are developed and piloted rapidly, making it challenging to ensure that the literature review consists of the most updated information.

Future Directions for Research

All studies reviewed provided recommendations for future research in this area of study. In general, the compiled studies suggested a continued attempt to understand precisely how and why SM impacts adolescent well-being. Results indicated that further research should include longitudinal studies to clarify better directionality of personality traits and SM use (e.g., do certain personality traits lead to increased SM use or vice versa?) (Errasti et al., 2017; Marino et al., 2018; Merrill & Liang 2019; Thorisdottir et al., 2019).

Researchers also recommended experimental studies to improve understanding of the causal mechanisms that explain how SM impacts adolescent mental health outcomes (Babic et al., 2017) and expanding current methodologies to other age groups and cultures (Twenge et al., 2018).

As SM continuously and rapidly evolves and is not likely going away any time soon, I believe it will be essential to grasp the specific components of SM that negatively impact

adolescent well-being. If activists and responsible SM platform designers/editors better understand the more dangerous aspects (e.g., ability to comment, browsing, tagging), we can work around these pitfalls to create a safer place for adolescents to engage in SM.

For example, Instagram began the process of hiding “likes” at the end of 2019, presumably with the purpose of “creating a less pressurized environment where people feel comfortable expressing themselves.” Instagram's CEO, Adam Mosseri, announced that “We will make decisions that hurt the business if they help people's well-being and health.” While some hypothesize ulterior, more profitable motives, continued research in this area is vital to provide accurate information to SM platforms (Meisenzahl, 2019).

Author Disclosure Statement

The author declares that no competing financial interests or relationships, conditions, or circumstances present a potential conflict of interest.

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*Denotes studies included in the literature review

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