



**The Effects of Social Media Over-Use on Adolescents' Psychological Well-Being: A  
Scoping Review**

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### **Declaration**

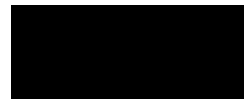
I, Phumelela Sibusisiwe Hlongwane (214525845), hereby declare that the work of the following Dissertation with the title:

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SCOPING REVIEW**

was solely undertaken by myself, with no help from sources other than those allowed. All sections of the paper that use quotes or describe an argument or concept developed by another author have been referenced, including all secondary literature used, to show that this material has been adopted to support my dissertation. This dissertation has not been previously submitted for assessment to another institution or for another qualification.

Date: 18 May 2021

Signature:

A solid black rectangular box used to redact the signature of the author.

### **Acknowledgements**

First and foremost, God is good all the time. Without Him, none of this would be possible.



Thank you to my supervisor: Mr Sachet Valjee, for your academic support and guidance throughout the process of researching and writing this dissertation.

I dedicate this dissertation:

To my late maternal grandmother: the first professional working woman in our family, who set the precedent for us all. I wish you had managed to see me complete this degree. I hope I have made you proud.

To my mother: your unending love, support and prayers are the reason I am where I am. You have kept me going by giving me strength through prayer. This is for you.

To my father: you have given so much towards this accomplishment, financially and beyond. Thank you.

To my sisters: thank you for the grace with which you have both supported me throughout this process. And thank you to my angel sister in heaven, I know you are always looking out for me. I hope you are smiling.

To my partner: the support you have shown me throughout this journey knows no bounds. You are an inspiration.

And last but not least, to my friends and colleagues: your encouragement has made all the difference.

We are here. We did it. Thank you.

## Abstract

**Introduction:** The last 10 years have seen an exponential growth in the use of technology, the internet and social media, and while many benefits of social media use have been found, there are also various adverse effects that can be detrimental to mental health. Recent literature indicates a relationship between the overuse of social media and the development of adverse mental health outcomes, such as symptoms of depression and anxiety, amongst the adolescent population who are at a critical and vulnerable stage of their development. This study aims to synthesise and map studies that demonstrate a relationship between social media over-use and adolescents' psychological well-being. **Methods and Analysis:** A scoping review was conducted to provide an overview of, and to map, the existing literature within this field of research. The data were screened thoroughly using the PRISMA-ScR flow diagram according to the inclusion and exclusion criteria. Relevant databases were searched and a total of 11 studies were eligible for final review. **Results and Discussion:** The data were charted in table form and summarised by: Author(s) and Year, Study Title, Aims and Objectives, Operational Definition of Social Media/Overuse Concepts, Methodology, and Results, and synthesised into a comprehensive report. Identified trends and gaps were analysed thematically to provide a narrative interpretation of existing literature. Studies that investigated relationships between social media overutilization and mental health vulnerabilities were categorized in relation to five overarching themes: Conceptualisations of Overuse, Developmental and Social Factors, Gender Differences, Study Design, and Psychometric Measures. **Conclusion and Recommendations:** Five specific themes emerged in relation to the various factors that contributed towards the relationship demonstrated between excessive social media use and adverse mental health outcomes. Future research could aim to better understand the challenges faced by adolescents as a result of excessive social media use and provide opportunities to develop cultural and context specific interventions to reduce and remediate these effects.

*Keywords:* Social Media, Social Networking Sites, Mental Health, Psychological Well-being, Adolescents, Depression, Anxiety, Narcissistic Traits

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## **Chapter 1: Introduction**

### *Social Media in the Context of Modern Living*

Over the last decade, society has experienced an exponential growth in the use of technology, internet use and social media (Kuss, Griffiths, Karila & Billieux, 2014), and according to Boursier, Gioia and Griffiths (2020), in recent years the use of social media has become a widely practiced activity that is used daily especially among adolescents.

The internet has been one of the fastest growing and most transformative technologies across the globe. The number of internet users has increased from 143 million in the year 2000, to 3.4 billion in the year 2016, with numbers still growing (Roser, Ritchie & Ortiz-Ospina, 2015). This is due to a growth in broadband access globally by means of fixed broadband subscriptions, and growth in the use of mobile phones, with many developing countries fast becoming connected. The rise of social media, starting in the early 2000s, has also played a key role in the growth of internet use, with platforms such as Facebook and Instagram having more than a billion users and Tumblr and TikTok having over half a billion users (Roser, Ritchie & Ortiz-Ospina, 2015).

In 2015, South Africa saw exponential growth in internet traffic as more people began to use smartphones and other smart devices (Increased internet access, 2015) and at this point it was predicted that South Africa's broadband speed would increase from 3.5 mbps to 10 mbps in 2019. In January 2020, there was a recorded 36.54 million internet users in South Africa (Kemp, 2020), which was an increase of 1.1 million from the 35.44 million recorded in 2019. An increase in social media use in South Africa was recorded from 18.5 million users in 2019 to 22 million in 2020, and an increase in mobile connections was also recorded from 100.4 million internet connections in 2019 to 103.5 million in 2020 (Kemp, 2020). Therefore, it is likely that this increase in demand for internet access, faster internet

connection speed and an increase in internet, social media use and mobile connections in South Africa has contributed to the rapid rise in the overall online activity that has been witnessed over the last 10 years.

### *Operational Definitions*

#### 1. Social media

Social media is the term given to describe various online activities that allow internet users to interact and share with one another, visually and verbally (Keles, McCrae & Graeish, 2019). In addition to this definition, Oberst, Wegmann, Stodt, Brand and Chamarro (2017) defined social media as "... web-based virtual communities allowing the construction of an individual and partially public profile." (p. 52). The social media platforms that are included in the literature reviewed in the current study refer to the popular social media platforms: Facebook, Twitter and Instagram.

#### 2. Overuse

The term overuse is defined as using something too much, too frequently or too excessively. Therefore, social media overuse, or "heavy" social media use, is described by Twenge and Martin (2020) as spending five or more hours a day engaging on social networking sites, as opposed to what they termed "light" social media use which is described as spending 30 minutes per day on social media. However, there are conceptual issues regarding what the existing literature has defined as overuse and these issues will be elaborated on in chapters 4 and 5 of the present study.

#### 3. Adolescents

The term adolescence refers to the stage of life which begins around the onset of puberty, up until an individual reaches a level of adult-like independence (Somerville, 2013).

#### 4. Psychological well-being

Psychological well-being refers to inter- and intrapersonal levels of an individual's general positive functioning; this includes the way in which a person relates to themselves and others, their beliefs and attitudes, their sense of mastery and their own personal growth. This reflects a person's overall judgement of their life satisfaction (Burns, 2016). Therefore, poor psychological well-being can be described as a general life dissatisfaction and includes risk factors such as unhappiness, depressive symptoms and suicide ideation (Twenge & Martin, 2020).

### *Social Media Use and Mental Health Outcomes*

While there are many benefits of social media use, there are also various disadvantages that cannot be overlooked as these disadvantages could have adverse effects on the mental health and well-being of adolescents (Reid & Weigle, 2014). These disadvantages include a potentially increased risk of developing symptoms of depression and anxiety, as well as certain personality shifts (e.g., Narcissistic traits) (Rosen, Whaling, Rab, Carrier & Cheever, 2013; Seabrook, Kern & Rickard, 2016). Among the shortfalls of social media use is its adverse effects on mental health and well-being, with studies suggesting a connection between social media use and psychological distress (Keles, McCrae & Graelish, 2019).

Over the last 10 years, social networking has rapidly transformed how most people communicate and interact with one another. However, only a limited number of studies have explored how these changes impact human behaviour, mental health and well-being among the adolescent population. Therefore, the current study provides an opportunity to consolidate published work in this area (Pantic, 2014; Cyr, Berman & Smith, 2015).

The main aims of scoping reviews are to map existing literature in a particular research field, and to compile that data in a synthesised manner into a comprehensive report. The purpose of this data collection method is to identify key ideas in a particular field of

research and to investigate them, in order to establish key concepts and identify possible gaps and trends in literature (Peters et al., 2015). This method of data collection is favoured over alternative methods (i.e., a systematic review of literature) for the present study, because the study aims are well-aligned with the main aims of a scoping review. Systematic reviews of literature aim to confirm current practices or identify new practices in a field of research, identify and analyse conflicting or contradictory outcomes, and guide decision-making (Munn et al., 2018). These aims are not well-aligned with the aims of the present study, and therefore, a scoping review is assessed to be a better suited data collection method.

The aim of this scoping review is to map and synthesise studies that have investigated the adverse outcomes of social media overuse on adolescents' psychological well-being. The current global COVID-19 pandemic has influenced our reliance on technology, as a mode towards maintaining basic human needs of connectedness, social associations and economic/academic advancement (Nicola, Alsafi, Sohrabi, Kerwan, Al-Jabir, Iosifidis, Agha & Agha, 2020).

Therefore, it is critical to investigate what is currently known about the effects of social media overuse for two reasons: firstly, to highlight the nature and extent of mental health states as a consequence of social media overuse, and secondly, to determine mental health outcomes amongst a vulnerable population (adolescents). In this study, only references to social media use (Facebook, Instagram and Twitter) will be made.

## **Chapter 2: Literature Review and Problem Statement**

### **2.1 Literature Review**

#### **2.1.1 Introduction**

This chapter reviews extant literature on the trends of social media use among adolescent populations. This section will highlight the nature and scope of the problem and will conclude with a rationale for the present study. A review of relevant literature regarding the relationship between social media overuse and mental health outcomes in adolescent populations will be guided with a review of the following areas which are central to the present study: identifying and understanding the nature and the scope of the problem that this study aims to investigate, and exploring mental health outcomes in general and then focussing on specific associations (i.e., social media use and mood/anxiety spectrum states and personality characteristics), as well as the factors contributing to these outcomes. Therefore, because there is fairly limited literature in this area of study, this scoping review aims to investigate and map the literature on this particular research area and provide an opportunity to identify key concepts, gaps in the literature and the types and sources of evidence to inform practice and future research. These will be reflected as themes in chapter 4, section 4.3 (discussion).

#### **2.1.2 Nature and Scope of the Problem**

According to Weinstein (2017), using social media applications such as Instagram, both actively and passively, has become a daily practice for adolescents in current times, however, the correlation between social media use and adolescents' psychological well-being remains debatable as studies have demonstrated contrary findings. On the one hand, studies have alluded to positive outcomes such as sustaining social connectedness, whilst on the other hand, some findings indicate risk towards adverse outcomes such as low self-esteem

and diminished life satisfaction amongst what researchers have termed “heavy users” (Twenge, 2020). Although the daily use of social media has become routine and central in the lives of most adolescents (Nesi, 2020), due to the multifaceted nature of online experiences, research regarding mental health outcomes have been limited to sampling adult populations and general online use as opposed to demonstrating relationships between specific applications/platforms and outcomes.

Twenge, Martin and Campbell (2018) conducted a study which aimed to establish trends in adolescents’ psychological well-being and to explore the possible causes for the sudden decrease that was noted. Post 2012, they found a decrease in overall life satisfaction among a US sample of adolescents with such changes attributed to a sudden increase in electronic device usage. In this study, adolescents’ psychological well-being was the umbrella term given to several constructs including “... happiness, life satisfaction, domain satisfaction and self-satisfaction” (p. 766). These constructs were measured in the following ways: self-esteem was measured by asking 6 items from the Rosenberg Self-Esteem Scale (Rosenberg, 1965), while domain satisfaction was measured by asking the adolescent population about their satisfaction based on 13 areas of their life. Happiness was measured by asking participants how they would describe their happiness based on response choices ranging from 1 – 3, and life satisfaction was measured by asking a single item: “How satisfied are you with your life as a whole these days?”. The results of this study found that while adolescents’ psychological well-being either remained stable or improved between the years 1991 and 2011, it declined noticeably between 2012 and 2016 and this suggested a negative correlation between adolescent psychological well-being and electronic device use.

When exploring the possible causes of this notable decrease, it was found that adolescents who engaged with social media and the internet for long periods of time, were found to be less happy, had lower levels of life satisfaction and self-esteem, with statistically

significant reduction (i.e., mean happiness outcome) as screen time increased. These findings corroborate previous research that found an association between increased social media use and adverse mental health outcomes (i.e., diminished psychological well-being) (Pantic et al., 2012; Raudsepp, 2019; Twenge & Campbell, 2019; Beeres et al., 2020). This suggests that social media use may not necessarily lead to mental health vulnerabilities, but once social media use becomes maladaptive, the potential towards developing mental health outcomes increases. Therefore, the results of this study present evidence of an association between excessive social media usage and shifts in psychological well-being amongst adolescents (Twenge, Martin & Campbell, 2018).

With regard to specific mental health vulnerabilities, Coyne, Rogers, Zurcher, Stockdale and Booth (2020) conducted an eight-year longitudinal study in this area using an adolescent sample and found that at both the cross-sectional and longitudinal levels, the time spent using social networking sites was moderately related to depression and anxiety. Furthermore, according to the findings of a study conducted by Sampasa-Kanyinga and Lewis (2015), using social media for more than two hours a day was found to be associated with decreased mental health as well as increased experiences of compromised psychological well-being and tendencies towards suicide ideation among adolescents.

#### *Adolescent Stage and Social Media Use*

Adolescents are a population who are especially vulnerable to these psychological effects because these individuals are at a stage of development where their social life becomes an important part of their daily functioning. From a developmental standpoint, the adolescent developmental stage is characterised by a number of complex transitions, which are not only limited to social functioning. This population group also faces biological and psychological change as part of their development from childhood to adulthood. The development of an adolescent's identity also mediates their social growth with regard to their



need for group acceptance and membership. At this stage, adolescents are faced with a number of fundamental developmental tasks. These stages include an individual's need to build and maintain positive attitudes towards themselves and how they identify culturally, learning how to form relationships and how to get along with peers of different cultures and sexes, the need to develop positive behaviours towards social groups, and the need to achieve socially responsible behaviours (Manning, 2002). Going through these various emotional, psychological, biological and social developmental changes can be an overwhelming and sometimes difficult experience for the adolescent, and this may increase their vulnerability towards potential adverse psychological outcomes that are developmentally dependent.

Adolescents are also among the most active participants of social networking (Schønning, Hjetland, Aarø & Skogen, 2020), with studies finding that 84% of people between the ages of 18 and 29 use Facebook, which exceeded any other age group observed (Smith, 2013, as cited in Strickland, 2014). Furthermore, because adolescents are among the most prolific users of social media and spend a substantial amount of their daily lives engaging on social networking sites, this has the potential to compound some of the developmental transitions that they may experience (Ahn, 2011). The outcomes regarding the consistent use of social media, more specifically mental health outcomes, have not yet been fully explored.

### **2.1.3 Social Media and Mood/Anxiety Spectrum States**

The following section will give a brief review of various studies that found associations between the use of social media and mood/anxiety spectrum states, as observed amongst the adolescent population. These studies made use of a variety of research methodologies, and their outcomes were as follows:

- Keles, McCrae and Grealish (2019) conducted a systematic literature review which demonstrated the following outcomes: evidence of a relationship between using social media applications such as Facebook (i.e., time spent on platforms, activities engaged in, personal investment and addictive/problematic use) and mental health problems experienced by adolescents was found, and depression was the most commonly measured outcome.
- A more recent systematic review of studies among children and adolescents in North America (Abi-Jaoude, Naylor & Pignatiello, 2020) analysing survey data revealed the following outcomes: over the last 10 years evidence from various cross-sectional, longitudinal and empirical studies found an association between increased social media use (i.e., time and multiple platforms) and mental distress, self-harming behaviours and suicidality. These findings are suggestive of a dose-response relationship, with gender being identified as a moderating variable (i.e., girl participants experienced outcomes more than boy participants). This is further explored under subheading 2.1.8 of this chapter.
- According to Nesi (2020), it has been noted in recent years that the prevalence of mental health concerns such as depression and suicidality among adolescents has coincided with the rapid spread of social media use, and this has further perpetuated concerns that the two constructs could be potentially connected. Additionally, studies have also found that social media use could potentially act as a catalyst for adverse attitudes and behaviours in adolescent populations (Rajamohan, Bennett & Tedone, 2019).
- Lhaksampa, Miller and Platt (2020) conducted a scoping review which examined the bi-directional association between the use of social media and depressive symptoms and suicidality among adolescents. Their scoping review concluded that there were

four main themes which contributed to an increase in depression and suicidality among adolescents based on their use of social media. These were as follows: the quantity of social media use, the quality of social media use, the social aspects related to social media use, and the disclosure of mental health symptoms. However, it was noted that further research in this area would benefit more from longitudinal study designs done in clinical populations if the results are to assist in informing clinical practice, and this was outlined as a limitation of this study.

- In their review of literature, Steele, Hall and Christofferson (2020) suggest that there are differential results regarding the relationship between the use of digital media and psychological outcomes. On the one hand, correlational and experimental research has demonstrated an association between the use of social media and compromised psychological functioning within the adolescent and young adult population. Yet on the other hand, the significance of these associations is questionable due to effect sizes not being substantial enough for findings to be generalisable, and with some studies having found positive outcomes of digital media use (Steele et al., 2020; Weinstein, 2017).
- In the findings of their study, Baker, Houston, Krieger and LeRoy (2016) identified four potential components, which when related could contribute to digital stress among users. These are: the stress associated with being constantly available, the anxiety associated with seeking approval from their peers, the fear of missing out (FOMO) which is positively associated with an increase in depressive symptoms, and an overall communication overload.
- According to Weinstein (2017), recent literature published in this area of study supports these findings in that there appears to be a relationship between the use of

social media and the development of adverse mental health outcomes, such as depression and anxiety.

Therefore, in conclusion of this section, there have been several research studies done on the use of social media and mental health which have found that prolonged use of social media has demonstrated an association with mental health outcomes such as anxiety and depression, and an unfavourable association with overall psychological well-being (Eraslan-Capan, 2015; Hong, Huang, Lin & Chiu, 2014; Malik & Khan, 2015; Marino et al., 2017; Pantic, 2014; Shakya & Christakis, 2017; Toker & Baturay, 2016). Furthermore, the frequent use of smartphones and social media, more especially at night before bedtime, has resulted in negative outcomes for stress levels, sleeping patterns, and symptoms of anxiety and depression in the observed samples (Cain, 2018).

#### *Developmental Neuroscience Perspective*

Regarding the impact of electronic device use on adolescents' sleeping patterns, Hysing et al. (2015) conducted a large, population-based study which found that not only is device use frequent amongst the adolescent population both during the day and at night before bed, but also that the results of the study demonstrated a significant relationship between the two constructs. Almost all of the participating adolescents reported that they used one or more electronic devices an hour before going to bed, and that the frequent use of their devices had a significant and positive correlation with sleep onset latency and sleep deficiency, with an inverse dose-response relationship between sleep duration and media use. This suggests that meaningful data exists which proves that adolescents would experience improved sleep hygiene if they spent less time using electronic devices and media before bed, as that excessive use of media and electronic devices leads to overall poor sleep quality.

#### *Impact on Physical Health/Well-being*

Studies have identified growing concerns regarding the widespread use of social networking sites by adolescents and young adults, and the impact that this use could have on their mental health, functioning and general well-being including physical well-being. An association between problematic smartphone use and levels of physical activity was found, in that problematic smartphone use led to decreased physical activity, and that this decrease in physical activity could increase symptoms of depression (Baker, Houston, Krieger & LeRoy, 2016; Pereira, Bevilacqua, Coimbra & Andrade, 2020). These findings are relevant to the study because, according to Khodarahimi and Fathi (2017), the data shows that adolescents who are nonusers of social media present with fewer symptoms of depression and anxiety, the opposite of what has been found regarding adolescents who are users of social media platforms such as Instagram and Facebook. This suggests that there is evidence which supports the notion that social media use has significant impacts on both psychological and physical well-being. Individuals who engage less with social media have been found to experience less psychological distress, further suggesting that the more psychologically stable an individual is, the greater their likelihood of being less sedentary.

Twenge (2020) supports this in stating that according to her findings, heavy users of digital devices (i.e., individuals who spend 5 or more hours per day using devices) are about twice as likely to experience symptoms of depression or have compromised well-being than those who use digital devices less. The above statements indicate that in the literature there is a connection between the use of social media, and a potential increase of the risk of developing adverse mental health outcomes; a risk which is not evident in people who either do not engage with social media or engage with it less frequently.

And finally, with regard to the above, adolescents who were reported to be engaging in problematic social media use were also observed to be at risk of lower psychosocial well-being than those who did not use social media as intensely. The individuals who exhibited

lower well-being were described as those who reported lower levels of life satisfaction, lower levels of family support, and increased levels of psychological complaints. The research indicates an association between increased social media use and the deterioration of mental health, and because the adolescent population interacts the most social media, they are the users who are most at risk for developing mental health issues (Boer et al., 2020; Strickland, 2014). Odgers and Jensen (2020) supported this by stating that the adolescent population appears to be increasing the time spent on online social activities and that the use of social media has reached unprecedented levels. As a result of this, there is growing concern that constant connectedness is proving to be harmful to their mental health.

#### **2.1.4 Social Media Use and Factors Contributing to Mental Health Outcomes**

##### *Quality of Online Activities*

While the quantity of social media use appears to be a central factor with respect to mental health vulnerabilities, another aspect which requires attention is the quality of social media use. According to Parent, Gobble and Rochlen (2018), the way in which an individual engages with social media and social networking sites (what they do online during the time spent on social media) plays a significant role when considering the impact that social media has on an individual's psychological well-being. Therefore, it would be meaningful to consider that the activities that one engages in while online would mediate the relationship between the frequency of usage and mental health vulnerabilities. This is further supported by Marino (2018), who also proposes that not only could there be a link between the hours spent using social media and the potential development of depressive symptoms, but also that there may be a link between the *quality* of online interactions and the potential development of depressive symptoms. It would therefore be of value to distinguish between the patterns of adolescents' online behaviours, as this may shed some light on which of those behaviours have stronger associations with mental health outcomes. To illustrate this, in their research,

Muzaffar, Brito, Fogel, Fagan, Kumar and Verma (2018) found that there seems to be a considerable increase in symptoms of generalised anxiety identified amongst adolescents who exhibited increased and repetitive Facebook behaviours, as opposed to other Facebook-use behaviours. This means that beyond time spent on social media being a contributing factor to the development of mental ill-health, the quality of the online activities that people engage in also plays a role worth noting.

### *Social Media and Social Comparison*

The second contributing factor of social media use on psychological well-being is the aspect of social comparison which arises from one's constant exposure to others' lives through social media, and the effects that this may have on an individual's self-esteem and even their self-worth, and furthermore how these effects can make a person vulnerable to symptoms of depression and anxiety. To demonstrate this, a study by Seabrook, Kern and Rickard (2016) found that there was an existing correlation between negative interactions online, *frequent social comparison* and addiction or problematic use of social networking sites, and the prevalence of anxiety and depression symptoms in the population that was studied. In keeping with the findings mentioned above, Appel, Gerlach and Crusius (2016) further reported that the passive use of Facebook led to social comparison and envy amongst users, and that this in turn could then lead to an individual experiencing low self-esteem issues as well as depressive symptoms. To further support social comparison as a plausible factor of social media usage negatively affecting mental health, Tomoniko (2019) also proposed that the anxiety experienced by adolescents as a result of social media use could potentially stem from the kind of social interactions that occur among the youth; these include: the comparison between one another's lifestyles, the tendency to be exposed to bullying behaviours, the need to belong to certain social groups and seeking acceptance within these groups, as well as the risk of potentially developing an internet addiction. For

example, the impact of misrepresented portrayals of lavish lifestyles and comfortable lived experiences could, in theory, have quite a negative effect on an adolescents' well-being, as it could conjure negative social comparisons as a result of believing misleading perceptions of other people's happiness. This could ultimately lead to negative emotional experiences such as compromised self-esteem, low life satisfaction, and ultimately the potential to develop mood and anxiety spectrum symptoms in such individuals (Weinstein, 2018). The abovementioned factors may be considered when exploring how certain anxieties can be felt and internalised by teenagers when they are engaging with one another on social media platforms.

### *Social Media and Stages of Development*

A third factor to be considered regarding the impact that social media overuse has on adolescents' mental health is that the stage of development that adolescents are at could cause this population group to be especially vulnerable to most psychological challenges. Studies have identified that of the various impacts of social media on the health of children and adolescents, the greatest impact is on their mental health and more so in areas related to self-esteem and well-being, as these are areas that are particularly vulnerable during this stage of development of a young person (Richards, Caldwell & Go, 2015). This makes the adolescent population an at-risk group for developing low self-esteem, increased depressive symptoms and more frequent social media use (Bányai, Zsila, Király, Maraz, Elekes, Griffiths, Andreassen & Demetrovics, 2017). Furthermore, Alsabaani, Alshahrani, Abukaftah and Abdullah (2018) suggested that although there are multiple risk factors associated with depression which develop in adolescence, there appears to be increasing evidence of an association between the impact of overutilisation of social media on depression, specifically in the adolescent population. Additionally, according to Brunborg and Burdzovis Andreas (2019), an increase in the time that adolescents spend on social media has been shown to be



correlated with an increase in symptoms of depression and conduct problems in this population group, who at their stage of development are more susceptible to facing mental health challenges.

### *Social Media Use and Boredom*

A fourth factor which contributes to the use, and potential overuse of social media amongst adolescents is that of boredom. When bored and with nothing else to do, many users find themselves turning to social media to either pass the time or keep themselves entertained. Scrolling through social media as a result of boredom often leads to individuals unintentionally spending elongated periods of time engaging on these platforms, which then could result in a problematic exposure to online material. A recent article written by Stockdale and Coyne (2020) proposed that it is of importance to find out what the motivation is for social media use among adolescents and found that many social media users do so due to boredom, which leads to them spending long hours connecting socially with other users online. The findings of the study that they conducted resulted in supporting the notions posed by previous research, which suggest that the use of social networking platforms, in order to alleviate boredom among teenagers, may increase their risk towards developing pathological tendencies and behavioural patterns when using social media. These pathological tendencies include maladaptive social media use, stress, anxiety, low self-esteem, and body dissatisfaction (Kolcz, 2019).

### *The Effects of Various Types of Internet Access*

Finally, in addition to the abovementioned factors contributing to psychological distress as a result of social media overuse is the factor relating to the various types of internet access, and how they impact the way that individuals engage online. In their research, Eiser (2011, cited in Cain, 2018) found that firstly, the use of social media has

created negative effects in the youth throughout societies and they established a correlation between increases in social media usage and a vulnerability towards depression and anxiety. And secondly, that the rise in depressive symptoms can also be attributed to increased smartphone use, suggesting that in addition to there being an existing relationship between social media use and adverse mental health outcomes, there is also an association which exists between the *types* of online access and mental health outcomes. In addition to these findings, the results of a separate study that was done by Einarsdóttir (2015) found that with the increased usage of the internet, adolescents tend to have lower self-esteem, higher levels of depression, and an increase in psychosomatic symptoms. Therefore, the present study will review literature that demonstrated a relationship between social media platforms (i.e., type and frequency of exposure) and adverse mental health outcomes.

### **2.1.5 Social Media Usage and Addiction**

Since the global emergence of social media use over the last decade, concerns have also arisen regarding people potentially being at risk of developing an addiction to social media, a risk that is worthy of being included in the next edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM). Griffiths (2000, 2012) describes social media addiction as the excessive and irrational use of social media, to the point in which it interrupts other areas of everyday functioning. Additionally, Hou, Xiong, Jiang, Song and Wang (2019) further expand on this by proposing that the ever-present use of social media platforms, as well as the easy accessibility to the internet, has brought about a rise in the potential for social media *addiction*, and that such an addiction has far-reaching negative effects on an individual's overall well-being; emotionally, relationally, and with regard to health and performance. Furthermore, research which was conducted by Wang, Wang, Wu, Xie, Wang, Zhao, Ouyang and Lei (2018) found that it was the *problematic* use (likely indicating a

tendency towards compulsive use) of social media that was positively associated with depression among a large sample of Chinese adolescents.

### **2.1.6 Social Media and Adult vs Adolescent Samples**

When considering the evidence that exists in the literature pertaining to the effects of social media on adolescents' psychological well-being, one needs to also consider whether these findings are also true of other population groups, including children and adults.

According to the web article, Social Media Contributing (2019), the results of a study conducted in Great Britain found that one-fifth of adults who used social media in the last year experienced mental health issues as a direct result. The data, which was collected using an online poll in June 2019, aimed to analyse the impact that social media has on people's mental health, and the outcomes of the study showed that twenty percent of adults felt depressed and anxious when they used social media platforms frequently. In addition to this, younger adults were the group who were found to be more likely to be negatively affected by their use of social media. Thirty-one percent of young adults reported that they felt depressed or anxious when they used social media platforms, and fifty-eight percent reported that using social media platforms made their flaws and shortfalls more prominent to them, thus perpetuating feelings of low self-esteem and general dissatisfaction with their lives (Social Media Contributing, 2019).

These results indicate that while the impact of social media overuse may not be as severe in the older adult population, this population is still generally affected by it in the same ways that adolescents and younger adults are. What becomes increasingly clear from the above study outcomes, from a developmental/life-course perspective, is that population variances can be accounted for by differences in developmental stages. Because adolescents are at a more vulnerable stage of development in their lives, they could potentially be more significantly at risk of developing unfavourable mental health outcomes as a result of using

social media platforms. For the purposes of the present study, most of the studies reviewed were those involving adolescent participant samples, with less studies involving adult samples being reviewed. This was done in keeping with the target population outlined for this study (the adolescent population group), and in part to address the potential limitations of previously conducted studies which focused mainly on psychological outcomes as they relate to the adult population.

### **2.1.7 Social Media and Other Mental Health Outcomes**

While the present study places emphasis on the effects that social media use has on mood/anxiety spectrum disorders and narcissistic personality traits, it is worth briefly mentioning the various other impacts that over-usage of social media potentially has on the developing adolescent's psychological well-being.

According to Zeeni, Doumit, Abi Kharma and Sanchez (2018), the use of social media has been correlated to dissatisfaction with body image and the risk of developing eating disorders, and furthermore, the anxiety that comes with separation from, and dependence on technological devices has been associated with dissatisfaction with body image and the risk of developing eating disorders, in addition to anxiety and depression. Additionally, the various studies that were reviewed by Hussain and Griffiths (2014) showed that there were associations between the problematic use of social media and symptoms related to psychiatric disorders including depression, anxiety, stress, attention deficit and hyperactivity disorder (ADHD) and obsessive-compulsive disorder (OCD), but that most of these association were found in relation to depression and anxiety, and more particularly in adolescents. Adolescents who reported having an emotional investment in social media also reported that they experienced a lower quality of sleep, poorer self-esteem, and higher levels of depression and anxiety, associated with the increased use of social networking sites (Woods & Scott, 2016; Primack & Escobar-Viera, 2017). Although the abovementioned

mental illnesses are not explored in the present study, it is worth noting that there are various other far-reaching psychological vulnerabilities that adolescents are exposed to as a result of their problematic engagement on social networking platforms.

### **2.1.8 Social Media Use and Gender Differences in Outcomes**

Many studies that were reviewed for the purposes of the present study found that above and beyond social media overuse having an unfavourable effect on the psychological well-being of adolescents, female participants in these studies were mostly found to be more negatively affected than male participants. This is supported by Barthorpe, Winstone, Mars and Moran (2020), who stated that the more time adolescents spent on social media, the greater their risk of self-harm, symptoms of depression, and lower levels of self-esteem, more specifically in female participants. Furthermore, in their study, Thorisdottir, Sigurvinsdottir, Kristjansson, Allegrante, Lilly and Sigfusdottir (2020) also found that the relationship between the hours spent on social media and all measures of psychological distress, including symptoms of depressed mood, social anxiety and psychical symptoms of anxiety, were more significant for girls than for boys. This pattern was also noted by Twenge and Farley (2020), who found that many hours spent on social media (vs hours spent gaming and watching television) is significantly related to self-harming, symptoms of depression, reduced life satisfaction and lower self-esteem among adolescents, but that these associations were demonstrated more among girls than among boys.

Finally, Abi-Jaoude, Naylor and Pignatiello (2020) support this by stating that girls and young women are more inclined to spend more hours using social media than boys are, and thus they show a higher tendency towards experiencing more negative effects on their mental health, indicating depressive symptoms, self-harming behaviours, and increased suicidality among young females in particular. Additionally, according to Blomfield Neira and Barber (2014), they found that the use of social networking sites was linked to more

negative indicators of adjustment for female adolescents than for male adolescents. This is important to note when considering who, in the adolescent population, is more at risk of developing mental ill-health as a result of problematic social media use, and how this correlates with the difference in online behaviours that each gender engages in.

### **2.1.9 Relationship between Social Media Use and Narcissistic Personality Traits**

The second main aspect of this study is to explore the way in which social media overexposure can potentially lead to, or exacerbate, signs and symptoms of narcissistic personality traits in the adolescent population. The basis of this idea is rooted in Social Comparison theory, which states that people will naturally have the tendency to compare themselves to others, and that people do this in order to gauge their own personal opinions and abilities (Festinger, 1954). This behaviour has been found to be more common in adolescents and young adults, as compared to younger children and older adults (Krayner, Ingledew & Iphofen, 2008; Myers & Crowther, 2009). The way in which this is related to social media use is described by Keles, McCrae and Grealish (2019) who wrote that: “The impact of social media on mental health may differ between adolescents who engage in downward social comparison (comparing themselves to lower performers), and those who use higher performers as a reference point.” (p. 3). In simpler terms, this means that individuals who view other people’s lives on social media and consider themselves to be doing generally better than them are more likely to have a “grander” sense of self when comparing their lives to others; and furthermore, that some individuals who view other people’s lives on social media, whom they consider to be doing well for themselves, use this as an inspiration to do better and also attain those levels of life satisfaction. Additionally, it was found by Strickland (2014) that Facebook users who had the tendency to display what can be described as elevated traits of narcissism had lower levels of depression, however, this could not be counted as a positive effect of social media usage, as their narcissistic traits were

viewed as potentially maladaptive. The DSM-V (American Psychiatric Association, 2013) describes Narcissistic Personality Disorder as marked by a pervasive pattern of grandiosity (in fantasy or behaviour), need for admiration, and lack of empathy, beginning by early adulthood and present in a variety of contexts.

According to Rosen, Whaling, Rab, Carrier and Cheever (2013), studies have been conducted which show that the use of social networking sites has proven to exacerbate narcissistic traits in social media users. The researcher who worked on this study found that there was an association between the more time that users spent on Facebook and the frequency of checking their Facebook accounts, and that this behaviour predicted an increase in narcissism scores. Furthermore, the results of a study done by Kolcz (2019) found that teenagers who scored higher towards narcissistic tendencies were more inclined to post more frequently on social media, more especially photos of themselves (selfies). According to Akça, Bilgiç, Karagöz, Çikili, Koçak and Sharp (2020), the frequency of selfie-taking behaviours has been proven to be predicted by narcissistic personality features.

## **2.2 Problem Statement and Rationale for the Current Study**

Globally, research studies have been conducted to establish the impact that social media has on an individual's psychological health and well-being. Although there are studies that have found positive effects of social media use, such as a sense of community, a place to communicate with others, and general social involvement and interconnectedness (Glaser, Liu, Hakim, Vilar & Zhang, 2018), many of the studies reviewed have found a significant relationship between social media overuse and its adverse mental health outcomes for adolescents (i.e., depressive symptoms, anxiety symptoms and narcissistic traits) (Keles, McCrae & Grealish, 2019; Seabrook, Kern & Rickard, 2016; Strickland, 2014; Rosen, Whaling, Rab, Carrier & Cheever, 2013; Abi-Jaoude, Naylor & Pignatiello, 2020).

The purpose of this scoping review is to investigate and map studies that demonstrate an association between excessive social media use and adolescents' psychological well-being.

Given the current health pandemic (COVID-19), it is important to consider the impact and the changes that are expected to occur in overall human and social functioning, as a result of the adjustments made to cope with the crisis on a global scale. These adjustments include but are not limited to an increase in the use of technological and digital functioning (Nicola et al., 2020). Therefore, it is critical to investigate how an increase in the necessity for online communication may pose a risk to mental health vulnerabilities, especially in vulnerable populations such as adolescents.



## **Chapter 3: Methodology**

### **3.1 Aim**

The aim of the study is to map and synthesise studies that have demonstrated the effects of social media overuse on adolescents' psychological well-being.

### **3.2 Objectives**

- To explore existing evidence of the effects of social media overuse on adolescents' psychological health/well-being
- To explore the factors (e.g., which type of social media engagement) that contribute towards adverse psychological outcomes
- To explore study characteristics (i.e., psychometric measures) that demonstrated an association between excessive social media use and adverse psychological outcomes.
- To explore the key gaps in literature on the effects of social media overuse on adolescents' psychological health/well-being

### **3.3 Research Design and Phases**

Scoping reviews aim to provide an overview of, and to map, existing published and unpublished literature within a given field of research, and then to synthesise that data into a comprehensive report (Peters, Godfrey, Khalil, McInerney, Parker & Soares, 2015). The purpose is to establish the main ideas in the literature which exist in relation to a particular field, to investigate the manner in which those studies are conducted, identify main concepts and to analyse potential gaps or trends in the literature. The findings from scoping reviews can also be used as a step preceding a systematic review of the literature (Munn, Peters, Stern, Tufanaru, McArthur & Aromataris, 2018).

A broad search of numerous databases was accessed through the online research platform Ebscohost, made available through the UKZN online library, which was utilised to identify and analyse literature that was relevant to this scoping review. The database search included: Academic Search Complete, APA PsycINFO, APA PsycArticles, MEDLINE and ERIC. Arksey and O'Malley's (2005) five-stage approach was also utilised as a framework to guide the design of this study. The five-stage approach is outlined as follows:

#### Step 1: Identifying the research question

The starting point in a scoping review is to develop a strong research question as it will provide guidance in developing the search strategies. It is important, at the beginning stage, to identify which key aspects of the research question are of significance, for example, the study population, study methods and interventions, and study outcomes.

The research question for this scoping review is: *What are the predominant mental health outcomes from social media overuse amongst adolescent populations?* The study aim and objectives are as outlined above in sections 3.1 and 3.2, respectively. The reason for conducting the present study is to examine and map the effects of social media overuse on adolescents' psychological well-being, to determine what types of social media usage are contributors towards mental health vulnerabilities among adolescents, and to explore the disparities identified in reviewed studies while assessing their scientific rigour.

#### Step 2: Identifying relevant studies

The aim of a scoping review is for it to be as comprehensive as possible in identifying published primary studies that appropriately answer the main research question. To do this, Arksey and O'Malley (2005) identified a strategy which includes searching "electronic databases, reference lists, hand-searching key journals and searching existing networks, relevant organisations, and conferences" (p. 10) to obtain relevant research evidence.

For the purpose of this study, the searching of electronic databases is the strategy that has been utilised in order to identify relevant studies.

The *inclusion* criteria for this scoping review are:

- Quantitative, qualitative and mixed methods study designs, scoping reviews and systematic reviews
- Study samples of adolescents/teenagers/university students (age range 13 – 20 years of age), and clinical samples
- Mental health/psychological well-being (specifically regarding symptoms of depression, anxiety and narcissistic personality traits)
- Use of social media/social networking sites (e.g., Facebook, Instagram, Twitter) – i.e., the type of social media platforms
- Frequency of exposure to social media platforms
- English articles and articles which have been translated into English
- Full text studies published within the last 10 years (2010 – 2020)

The *exclusion* criteria for this scoping review are:

- Study samples of children (age range 5 – 12 years of age)/adults (ages 21+)/the elderly (ages 65+)
- Physical health/mental health vulnerabilities other than symptoms of depression, anxiety and narcissistic personality traits (e.g., eating disorders, cyberaggression/cyberbullying, self-harm, suicidality, violence, insomnia, self-esteem, etc.)
- Studies examining the incidence or prevalence rates of the use of technological devices to access the internet (e.g., internet/smartphone/digital use, TV, texting, sexting, etc.)

- Articles that are written in languages other than English and which have not been translated into English
- Studies/articles published before 2010
- Studies investigating the impact of overuse of technological devices, as a consequence of the COVID-19 pandemic, on mental health/psychological well-being

For the purpose of the present study, only references to certain psychological vulnerabilities (i.e., symptoms of depression, anxiety and narcissistic personality traits) are made. This is done in order to maintain a particular focus on specific aspects of adverse mental health outcomes with regard to social media overuse. Expanding the study's focus to include various other mental health vulnerabilities could potentially require the study to be conducted at a larger scale and may require resources that are beyond its scope.

The following search term was initially tested using Boolean search terms, in order to obtain a preliminary search strategy yield related to this study:

*(social media OR social network\*) AND (adolescent\* OR student\* OR teenager\* OR youth) AND (well-being OR stress OR anxiety OR depression\* OR psychology\* or mental health)*

Table 1.

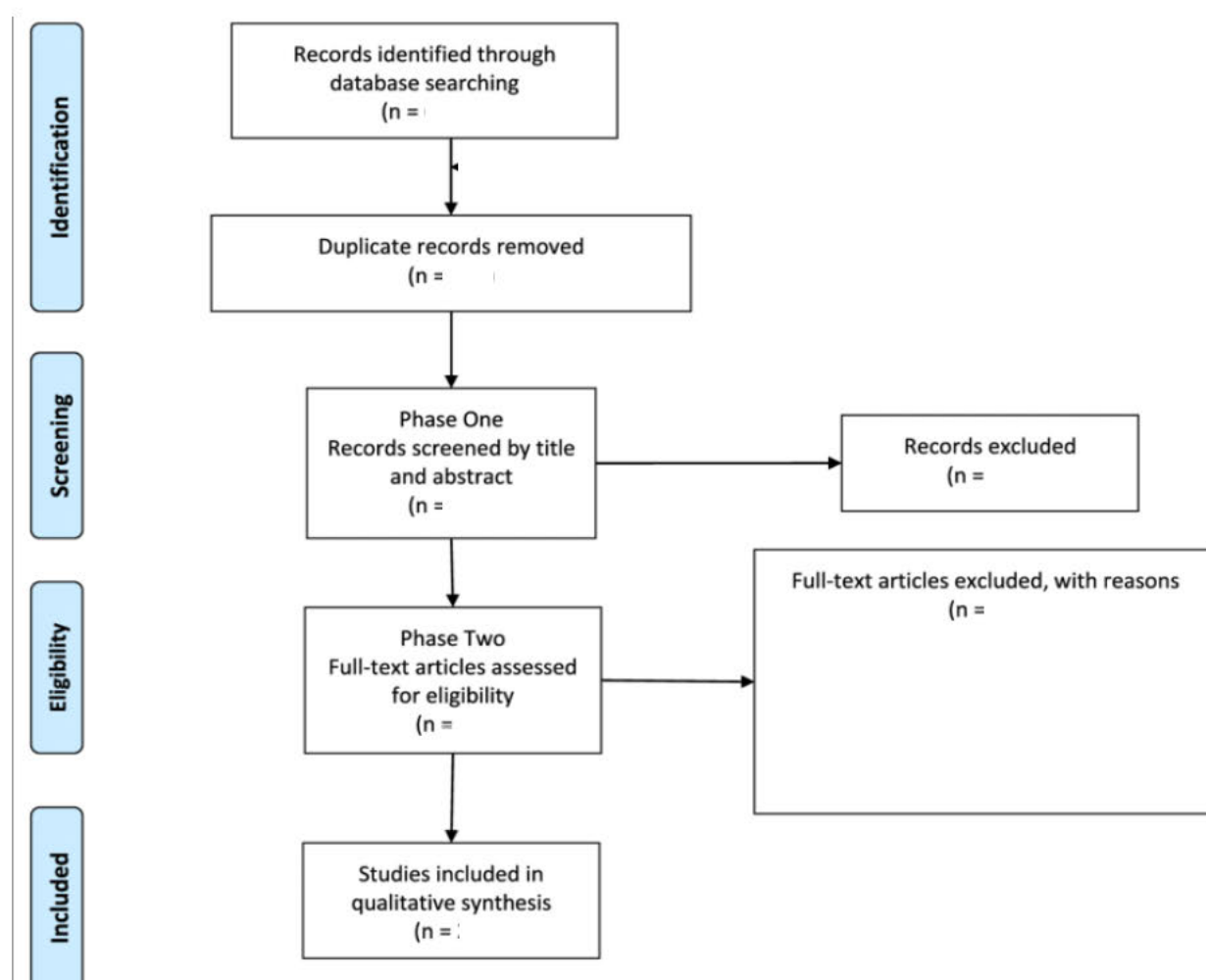
Key Search Words using PCC elements

<b>Population</b>	<b>Concept</b>	<b>Context</b>
<b>Adolescents</b>	Psychological well-being	Social Media
<b>Students</b>	Mental health	Social Networking Sites
	Anxiety	
	Depression	
	Narcissistic traits	

### Step 3: Study Selection

The process of reviewing the literature was achieved by screening the abstracts and full texts of articles guided by the inclusion criteria outlined above. Screening results were reported using the Preferred Reporting Items for Systematic Reviews and Meta-Analyses-ScR (PRISMA-ScR) flow diagram, as shown in figure 1 below.

Figure 1. Example of Preferred Reporting Items for Systematic Reviews Meta-Analyses-ScR (PRISMA-ScR extension for Scoping Reviews) flow diagram for the scoping review process (Tricco et al., 2018)



#### Step 4: Charting the data

The fourth stage of this approach involves charting the key information obtained from the articles that have been reviewed. Charting is described by Arksey and O'Malley (2005) as the process of synthesising and interpreting data by organising the information into key themes. Charting of the data was guided by a narrative review approach (Pawson, 2002), where the information that was obtained from the database search was charted according to the author(s), the year of publication, the study aims and objectives, the methodology used, and the results that were found.

Table 2.

Charting of data using a narrative review approach (Pawson, 2022)

<b>Author(s), Year</b>
<b>Study Title</b>
<b>Aims and Objectives</b>
<b>Operational Definition of Social Media/Overuse Concepts</b>
<b>Methodology</b>
<b>Results</b>

#### Step 5: Collating, summarising and reporting the results

This is the final stage of the five-stage approach and involves a summary presentation of the studies which were reviewed. Subsequently, a thematic analysis of the data was done in order to provide a narrative interpretation of the existing literature (Arksey & O'Malley, 2005).

According to Arksey and O'Malley (2005), the fifth step of their five-stage approach includes collating, summarising and reporting the results. Usually, an analytic framework or a thematic construction is used for this step in order to present an overview of the literature (Colquhoun et al., 2014). A thematic analysis of the literature collected is then presented in a clear and consistent way when reporting on the results. According to Braun and Clarke

(2006), thematic analyses are a useful qualitative research tool which provide an account of data, by the researcher, that is rich, detailed and nuanced. This is useful in the synthesising, summarising and reporting of the data collected in a scoping review, as it allows for the findings of the data to be reported in a clear and precise way, where there is an illustration of how the findings relate to the overall research question and purpose of the study.

Arksey and O'Malley (2005) describe the importance of including a descriptive numerical summary which describes the characteristics of the studies included in the final study review. This includes information such as the total number of studies that the researcher included, the study design, publication year, interventions used, study populations and countries where the studies were carried out.

For the purposes of this study, only the following information has been included in the summary presented in table 5 (section 4.2): Author(s), Year; Study Title; Aims and Objectives; Operational Definition of Social Media/Social Media Overuse Concepts; Methodology; and Results. Thereafter, thematic content analysis will be the technique used to describe the themes found during the process of reviewing the articles included in the present study.

Levac et al. (2010) describe three steps that a researcher should follow in order to accurately carry out step five of Arksey and O'Malley's (2005) five-stage approach: "(1) analysis (including descriptive numerical summary analysis and qualitative thematic analysis), (2) reporting the results and producing the outcome that refers to the overall purpose or research question, and (3) consider the meaning of the findings as they relate to the overall study purpose; discuss implications for future research, practice and policy" (p. 4). Summarising of data will be done in the present study as per the above, using a descriptive numerical summary and thematic content analysis.

### 3.4 Search Strategy

The studies that have been conducted regarding the effects of social media overuse on the mental health and psychological well-being of adolescents have been disseminated in various journals related to psychology, psychiatry, nursing, social work and medicine. For this reason, multiple online databases were searched, including: Academic Search Complete, APA PsycINFO, APA PsycArticles, MEDLINE and ERIC, all of which were accessed through the online research platform Ebscohost made available through the UKZN online library. The searches were limited to English or English translated studies and articles which were conducted and published between the years 2010 and 2020 (over the last 10 years). The database search was completed in October 2020. For accuracy purposes during the information retrieval process, the search term combinations used were slightly reworked, and included: *(social media OR social networking site) AND (adolescent\* OR teenager\*) AND (well-being OR psychology\* OR mental health)*. This is illustrated in table 3 below.

Table 3.

Search strategies and yields for electronic databases (*Dates accessed: 22 – 23 Oct 2020*)



Database	Search strategy	Yield	Total relevant to study
<b>Academic Search Complete (Ebscohost)</b>	(social media OR social networking site) AND (adolescent* OR teenager*) AND (well-being OR psychology* OR mental health)	1,455	247
<b>APA PsycINFO (Ebscohost)</b>	(social media OR social networking site) AND (adolescent* OR teenager*) AND (well-being OR psychology* OR mental health)	1,320	103
<b>APA PsycArticles (Ebscohost)</b>	(social media OR social networking site) AND (adolescent* OR teenager*) AND (well-being OR psychology* OR mental health)	54	8
<b>MEDLINE (Ebscohost)</b>	(social media OR social networking site) AND (adolescent* OR teenager*) AND (well-being OR	1,671	71

	psychology* OR mental health)		
<b>ERIC (Ebscohost)</b>	(social media OR social networking site) AND (adolescent* OR teenager*) AND (well-being OR psychology* OR mental health)	73	13
<b>TOTAL YIELD</b>		4,573	442

### 3.5 Criteria for Inclusion

Table 4 below illustrates the inclusion and exclusion criteria that were used for this study in terms of study design, age of population, concept, context, language, and time period.

Table 4.

Criteria for the inclusion and exclusion of studies

<b>Criteria</b>	<b>Inclusion Criteria</b>	<b>Exclusion Criteria</b>
<b>Study Design</b>	Quantitative, qualitative and mixed methods study designs, systematic / scoping reviews	-
<b>Population</b>	Study samples of adolescents / teenagers / university students (age range 13 – 20 years of age), clinical samples	Study samples of children (age range 5 – 12 years of age) / adults (ages 21+) / the elderly (ages 65+)

<b>Concept</b>	Mental health / psychological well-being (specifically regarding symptoms of depression, anxiety and narcissistic personality traits)	Physical health / mental health vulnerabilities other than symptoms of depression, anxiety and narcissistic personality traits (e.g., eating disorders, cyberaggression / cyberbullying, self-harm, suicidality, violence, insomnia, self-esteem, etc.)
<b>Context</b>	Use of social media / social networking sites (e.g., Facebook, Instagram, Twitter) – i.e., the type of social media platforms	Studies examining the incidence or prevalence rates of the use of technological devices to access the internet (e.g., internet / smartphone / digital use, TV, texting, sexting, etc.)
	Frequency of exposure to social media platforms	-
	Studies investigating the impact of social media overuse on mental health / psychological well-being	Studies investigating the impact of overuse of technological devices, as a consequence of the COVID-19 pandemic, on mental health / psychological well-being
<b>Language</b>	English articles and articles which have been translated into English	Articles written in languages other than English, and which have not been translated into English
<b>Time period</b>	Full text studies published within the last 10 years (2010 – 2020)	Studies published before 2010

### 3.6 Selection of Studies

The titles and abstracts of each study that were obtained using the search strategy were read and compared against the inclusion and exclusion criteria in order to determine whether it met the inclusion criteria for this study. The articles that were included were then reviewed by full text, and the studies included in the final review were all assessed to be eligible for inclusion as per the inclusion and exclusion criteria outlined in table 4. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses-ScR (PRISMA-ScR) flow diagram shown in figure 2 illustrates the reviewing phases that were utilised in order to identify articles that were eligible for inclusion.

Figure 2. PRISMA-ScR flow diagram of the selection process

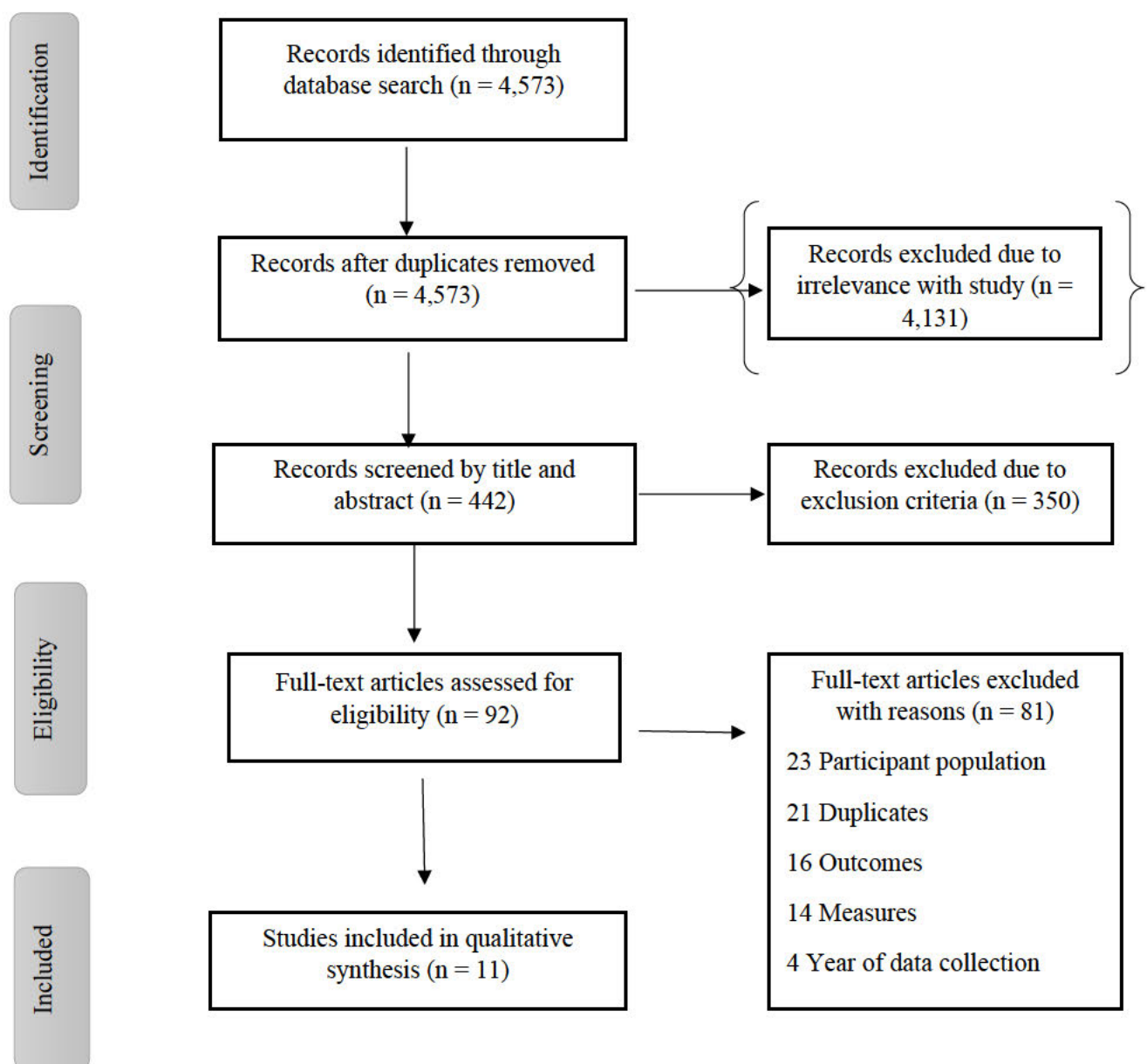


Figure 2 is a PRISMA-ScR flow diagram which illustrates that 4,573 studies were initially identified through electronic database searches, of which there were no duplicates. Thereafter, the titles were screened, and 4,131 articles were excluded. Following the title screening, an abstract screening was done, after which 350 articles were excluded due to not meeting the inclusion criteria for this study. The full texts of 92 studies were assessed for eligibility, and of these studies, 81 were excluded. As a result, 11 articles were included for the charting of the data process.

The reasons for exclusion were as follows: wrong participant population ( $n = 23$ ), duplicates across databases ( $n = 21$ ), unrelated outcomes ( $n = 16$ ), use of measures that were not relevant to this study ( $n = 14$ ), year of data collection fell outside of inclusion criteria ( $n = 4$ ), and unable to access the full text of the article ( $n = 3$ ).

### **3.7 Charting the Data**

The data extraction process was done by charting the data that was found from reviewing each article that was included in this study, as per step four of Arksey and O'Malley's (2005) five-stage approach. The important data from each article that was included was extracted and charted in terms of table 5 illustrated in the Results (section 4.2) in chapter 4.

## **Chapter 4: Results and Discussion**

### **4.1 Introduction**

The use of the internet, technology and social media have become a part of society's everyday life over the last 10 years (Kuss, Karila & Billieux, 2014). The use of these systems as channels of interaction and communication have grown rapidly over this timeframe and in more recent years, the use of social media has become an activity that is practiced on a daily basis among the adolescent population (Boursier, Gioia & Griffiths, 2020).

Starting in the early 2000s, social media has grown exponentially with platforms such as Facebook, Instagram and Twitter receiving engagement from billions of users, globally (Roser, Ritchie & Ortiz-Ospina, 2015). While there are many benefits of social media use, it has been found that there are also several disadvantages which can be harmful to the psychological well-being of the adolescent population if it is used in excess (Reid & Weigle, 2014).

Thus, the present study aimed to map and synthesise studies that have investigated the effects of excessive social media use on the mental health of adolescents. The objectives of this study were: to explore existing evidence of the effects of social media overuse on adolescents' psychological well-being, explore the factors (e.g., which type of social media engagement) that contribute towards adverse psychological outcomes, explore study characteristics (i.e., psychometric measures) that demonstrated an association between excessive social media use and adverse psychological outcomes, and to explore the key gaps in literature on the effects of social media overuse on adolescents' mental health and well-being. This was done by conducting a scoping review of research that has been done in this area of study.

The following chapter consists of 2 sections, the results and the discussion. The results section outlines the data obtained in the study by providing both narrative and descriptive statistics (see section 4.2, tables 5 and 6, and figures 3 – 13) which will provide a basis for the discussion section (see section 4.3, tables 7 – 11).

The subsequent section will critically discuss the themes that were identified in the scoping review, with particular reference to the participants, concept and context of the research. As outlined in the methodology section (chapter 3), the data collected in the present scoping review is presented in a thematic construction to give a clear and consistent report of the results. Making use of thematic content analyses ensures that a rich, detailed and nuanced account of the data is provided in the discussion, and that there is a clear illustration of how the findings relate to the research question and purpose of the study (Braun & Clarke, 2006).

## 4.2 Results

Table 5.

Charting of the extracted data

Author(s); Year	Study Title	Aims and Objectives	Operational Definition of Social Media/Social Media Overuse Concepts	Methodology	Results
<b>1. Keles, McCrae &amp; Grealish, 2020</b>	A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents	To examine the evidence for the influence of social media use on depressive symptoms, anxiety and psychological distress in adolescents.	The term ‘social media’ refers to various internet-based networks which enable its users to interact with others, both verbally and visually.	Systematic review of literature: The databases Medline, Embase, PsychINFO, Cumulative Index to Nursing and Allied Health (CINAHL), and Social Sciences Citation Index (SSCI), systematically searched May 2018.	The results of the studies that were reviewed were not entirely consistent, however, a general correlation between social media use and mental health difficulties was found. In the studies reviewed, depression was the



					most commonly measured outcome.
<b>2. Twenge &amp; Martin, 2020</b>	Gender differences in associations between digital media use and psychological well-being: Evidence from three large datasets	To compile a comprehensive analysis of gender differences in a time of digital media and its associations with psychological well-being and mental health indicators.	Digital media includes texting, social media/networking sites, electronic gaming, and general smartphone/computer use.	Systematic literature review design study drawing from three representative surveys of adolescents in the United States and the United Kingdom that examined media usage (in hours/day) and various measures of mental health in three datasets.	The study found associations between heavy media use and low psychological well-being. These associations were larger for adolescent girls than boys. Regardless of the direction of causation, heavy users of digital media are at greater risk for mental health issues.
<b>3. Twenge &amp; Campbell, 2019</b>	Media Use is Linked to Lower Psychological Well-Being: Evidence from Three Datasets	To examine the association between the use of digital media and mental health in three datasets.	The use of devices including computers, smartphones and tablets to engage in activities including social media, using computers, gaming and texting. Described	Systematic study design where participants completed surveys as part of three large studies of adolescents. Surveys included the time spent using digital	The study found that across three surveys completed in the United States and the United Kingdom, adolescents who engaged with digital media for longer

			using the term digital media.	media and a measure of well-being. Well-being was measured using the Warwick-Edinburgh Mental Well-Being Scale, and participants answered 4 items about depression and other suicide risk factors.	hours reported lower well-being. Furthermore, heavy users had double to chances of experiencing compromised psychological well-being than light users.
<b>4. Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante &amp; Sigfusdottir, 2019</b>	Active and Passive Social Media Use and Symptoms of Anxiety and Depressed Mood Among Icelandic Adolescents	To estimate the prevalence of active and passive social media use, and to examine how social media use relates to symptoms of anxiety and depressed mood.	Using social media such as Facebook, Instagram and Snapchat. "Active use" involves texting, posting pictures or statuses, and sharing other personal content. "Passive use" refers to browsing, scrolling, reposting links and looking at content from others.	The data for this study was extracted from a survey of Icelandic adolescents, conducted in February 2018. A quantitative study design was used, and data was collected using questionnaires administered to participants. Hours using social media was	This study found that symptoms of anxiety and depression were positively correlated with the hours spent using social media. Both passive and active use were correlated with an increase in symptoms of anxiety and depression. The regression analysis

				<p>assessed by asking the participants how many hours a day they spent using social media, type of social media used was assessed with the Multidimensional Scale of Facebook Use; anxiety measured using two dimensions from the Icelandic version of the Multidimensional Anxiety Scale for Children; and depression measured using 10 items from the depression dimension scale of the Original Symptom Checklist.</p>	<p>demonstrated that time spent using social media was positively correlated with greater symptoms of depressed mood (<math>R = 0.202</math>) and anxiety (<math>R = 0.207</math>). Significant interactions emerged, as time spent on social media had a stronger relationship with emotional distress among girls. Additionally, passive use was more strongly associated to symptoms of depression among girls.</p>
<b>5. Pantic, Damjanovic,</b>	Association Between Online Social	To investigate the relationship between	Since their creation less than a decade ago, social	An observational, population-based,	A statistically significant positive

<b>Todorovic, Topalovic, Bojovic-Jovic, Ristic &amp; Pantic, 2012</b>	Networking And Depression In High School Students: Behavioral Physiology Viewpoint	social networking and depression indicators in the adolescent population.	media platforms such as Facebook, Twitter and MySpace have recently become very popular among both children and adults.	cross-sectional epidemiologic study carried out in 2011, at a high school in Central Serbia. An anonymous, structured questionnaire, BDI-II, was used to collect data. It is a 21-question multiple-choice self-report inventory (Beck et al., 1996), which produces a score that is interpreted on a scale from minimal to severe depression.	correlation ( $R = 0.15$ ) was found between the BDI-II score and the time spent social networking, which indicates that the time spent using social media in high school students was related to the risk for depression as determined by BDI-II.
<b>6. Raudsepp, 2019</b>	Brief report: Problematic social media use and sleep disturbances are longitudinally	To examine complex longitudinal associations between problematic social media use, sleep disturbances, and	Problematic use of social media is characterised by an excessive concern about platforms, being driven by a motivation to	A two-year longitudinal study was conducted, it consisted of three waves, separated by one year. The Bergen Social	The study found an increase in problematic social media use was associated with an increase in depressive

	associated with depressive symptoms in adolescents	depressive symptoms during middle adolescence.	use social media, and devoting so much time and effort towards it that it limits other social activities, studies, interpersonal relationships, mental health and well-being.	Media Addiction Scale (BSMAS) was used to assess participants' problematic social media use. Depressive symptoms were measured using The Center for Epidemiologic Studies Depression Scale (CES-D).	symptoms. The findings further supported evidence regarding longitudinal associations between problematic social media use and depressive symptoms in middle adolescence.
<b>7. Oberst, Wegmann, Stodt, Brand &amp; Chamarro, 2017</b>	Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out	To determine whether adolescents with psychopathological problems (especially anxiety and depression) experience negative consequences when using social networking sites (SNS), and that these consequences are	Social networking sites were defined as web-based virtual communities that allow the construction of an individual and partially public profile.	Participants were social media users from Spanish-speaking Latin-American countries who replied to an online questionnaire (quantitative study design). The participants completed the Hospital Anxiety	The results of this study confirmed the role of FOMO in the development of the negative consequences of maladaptive media use in adolescents, and it specified that only depression had a direct effect on negative

		mediated by FOMO (fear of missing out) and the intensity of SNS use.		and Depression Scale (HADS), the Social Networking Intensity scale (SNI), the FOMO scale (FOMOs), and a questionnaire on negative consequences of using SNS via mobile device (CERM).	psychological consequences. Furthermore, the study found that the increased use of social media may exacerbate adolescents' feelings of FOMO (anxiety), thus perpetuating symptoms of compromised psychological well-being.
<b>8. Li, Mo, Lau, Su, Zhang, Wu, Mai &amp; Chen, 2018</b>	Online social networking addiction and depression: The results from a large-scale prospective cohort study in Chinese adolescents	To estimate the longitudinal associations between online social networking addiction (OSNA) and depression, whether OSNA predicts the development of depression, and reversely, whether	Online social networking is a relatively new phenomenon, and high prevalence of depression has been observed among the population who are users. Online social networking addiction (OSNA) is a relatively	Students from nine secondary schools in Southern China were surveyed at baseline in March 2014 and followed up nine months later. Data was collected using surveys within a quantitative	The results found that among those without depression at baseline, adolescents who were classified as persistent OSNA or emerging OSNA had a higher risk of developing depression compared

		depression predicts the development of OSNA.	new addictive behaviour among adolescents.	methodological design. Levels of OSNA and depressive symptoms were measured using the validated OSNA scale and Center for Epidemiology Scale for Depression (CES-D), respectively.	with those who were no OSNA. The findings indicate a bidirectional association between OSNA and depression, meaning that addictive online social networking use is accompanied by an increased level of depressive symptoms.
<b>9. Beeres, Andersson, Vossen &amp; Galanti, 2020</b>	Social Media and Mental Health Among Early Adolescents in Sweden: A Longitudinal Study With 2-Year Follow-Up (KUPOL Study)	To measure the longitudinal associations between the occurrence of social media use and compromised mental health among Swedish adolescents.	The use of social media is an emerging factor in the developmental context of adolescence, which affects the way in which youths spend their leisure time and maintain social relationships.	For this study, data from the KUPOL (Kunskap om Ungas Psykiska hälsa Och Lärande) longitudinal database was used. The cohort rests on two sub-samples of adolescents that followed up during	The study found that adolescents with frequent social media usage described greater symptoms of adverse mental health outcomes, but there was an absence of evidence towards longitudinal associations between

				the subsequent three years. Mental health problems were self-reported by the participants yearly using the Strength and Difficulties Questionnaire (SDQ), and social media use was self-reported by answering a question related to the hours spent engaging on social media.	the variables. These findings suggest that social media could be an indicator of psychological distress rather than a risk factor for symptoms of psychological distress.
<b>10. Puukko, Hietajärvi, Maksniemi, Alho &amp; Salmela-Aro, 2020</b>	Social Media Use and Depressive Symptoms—A Longitudinal Study from Early to Late Adolescence	To examine longitudinal within-person associations between the occurrence of active social media use and depressive symptoms,	The use of social networking services (SNSs), including Facebook, Instagram, and Snapchat, have become intertwined with adolescents' daily lives.	The study was a large-scale longitudinal cohort study targeting adolescents. The participants filled out a self-report questionnaire on their	The study found that average levels of social media use and depressive symptoms grew steadily across adolescence, but the within-person



		over six years, from early to late adolescence.	This increase in connectivity has raised concerns that the time that adolescents spend using social media can negatively influence their psychosocial well-being, putting them at risk for depressive symptoms.	social media use, psychosocial well-being, and various background variables. The measures were depressive symptoms (DEPS scale), and social media use using the social media networking dimension of the socio-digital participation inventory.	associations between adolescents' social media use and symptoms of depression were very small and somewhat inconsistent over time.
<b>11. Nishida, Tamura &amp; Sakakibara, 2019</b>	The association of smartphone use and depression in Japanese adolescents	This study aims to assess the association between smartphone usage (which facilitates access to social networks, online chat, videos and games), and depression in each gender of senior high school students.	Smartphones provide a variety of functions such as phone uses, cameras, multimedia players, Internet browsing and navigation systems. Smartphones also facilitate access to social networks, online	A cross-sectional study with self-administered questionnaires for school students was conducted in Japan. Depression was assessed using the Center for Epidemiologic Studies	The findings of this study demonstrated that female adolescents spent more time on social networking sites (SNS), online chats and internet browsing, while males spent more time playing games.

	chatting, videos and games.	Depression Scale (CES-D).	Furthermore, it demonstrated that long hours (5+ hrs/day) spent on online chats or SNS using a smartphone was related to depression among female students, while they were not present in males.
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Table 6.

Thematic analysis coding of reviewed articles

Study Title	Author(s); Year	Code	Explanation
A systematic review: the influence of social media on depression, anxiety and psychological distress in adolescents	Keles, McCrae and Grealish (2020)	SLR1	Systematic Literature Review 1

<b>Gender differences in associations between digital media use and psychological well-being: Evidence from three large datasets</b>	Twenge and Martin (2020)	SLR2	Systematic Literature Review 2
<b>Media Use is Linked to Lower Psychological Well-Being: Evidence from Three Datasets</b>	Twenge and Campbell (2019)	SLR3	Systematic Literature Review 3
<b>Active and Passive Social Media Use and Symptoms of Anxiety and Depressed Mood Among Icelandic Adolescents</b>	Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante and Sigfusdottir (2019)	Q1	Quantitative 1
<b>Association Between Online Social Networking And Depression In High School Students: Behavioral Physiology Viewpoint</b>	Pantic, Damjanovic, Todorovic, Topalovic, Bojovic-Jovic, Ristic and Pantic (2012)	Q2	Quantitative 2
<b>Brief report: Problematic social media use and sleep disturbances are longitudinally associated with depressive symptoms in adolescents</b>	Raudsepp (2019)	Q3	Quantitative 3
<b>Negative consequences from heavy social networking in adolescents: The mediating role of fear of missing out</b>	Oberst, Wegmann, Stodt, Brand and Chamorro (2017)	Q4	Quantitative 4

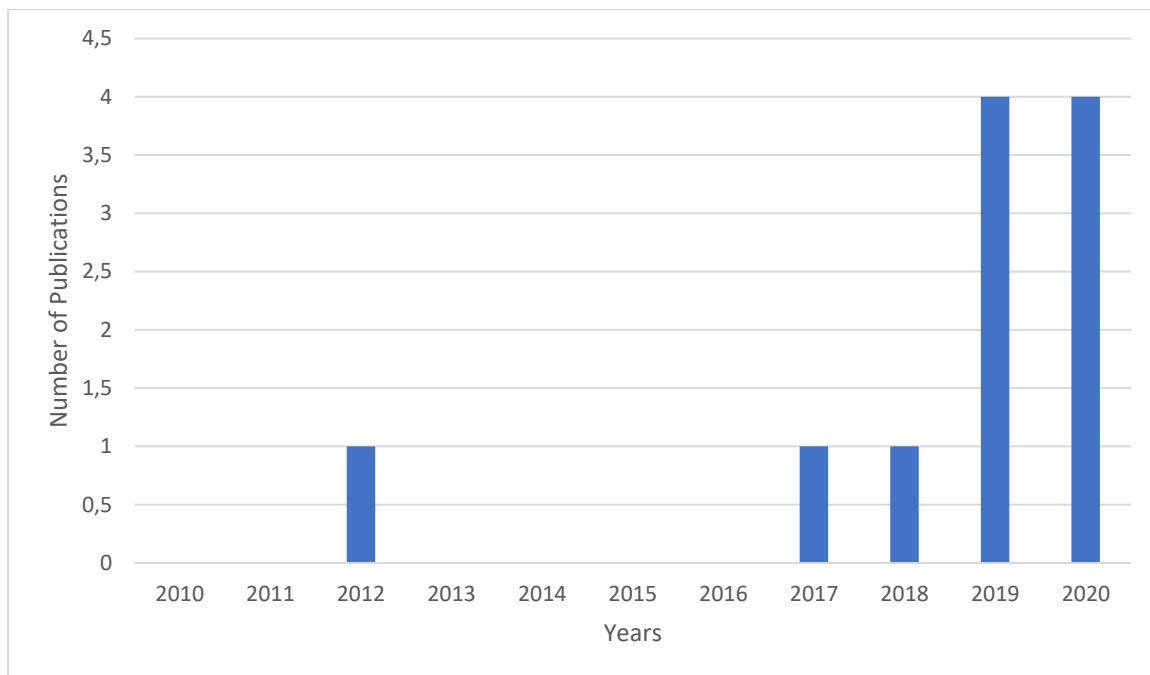
<b>Online social networking addiction and depression: The results from a large-scale prospective cohort study in Chinese adolescents</b>	Li, Mo, Lau, Su, Zhang, Wu, Mai and Chen (2018)	Q5	Quantitative 5
<b>Social Media and Mental Health Among Early Adolescents in Sweden: A Longitudinal Study With 2-Year Follow-Up (KUPOL Study)</b>	Beeres, Andersson, Vossen and Galanti (2020)	Q6	Quantitative 6
<b>Social Media Use and Depressive Symptoms—A Longitudinal Study from Early to Late Adolescence</b>	Puukko, Hietajärvi, Maksniemi, Alho and Salmela-Aro (2020)	Q7	Quantitative 7
<b>The association of smartphone use and depression in Japanese adolescents</b>	Nishida, Tamura and Sakakibara (2019)	Q8	Quantitative 8

Based on an extensive search of the identified electronic databases, a total of 11 studies were identified that met the outlined inclusion criteria (illustrated in table 5 above). The majority ( $n = 8$ ) of the studies had a quantitative methodological design and made use of surveys/questionnaires, across large sample populations, to collect data. The participating population sampled adolescents in both the community and in schools ( $n = 11$ ). The scoping review identified the psychological effects of social media usage amongst the adolescent population, between the ages of 13 and 20 years. The predominant ages sampled in the studies were between the ages of 13 and 19 years.

#### *Number of publications per year*

The number of publications from 2010 to 2020 is illustrated in figure 3 below. There was an increase observed in the number of publications per year from 2010 to 2020. No articles met the inclusion criteria for the present study between the period 2010 to 2012 and between the period 2013 to 2017, although social media has been an active part one's everyday life over the last decade (Kuss, Griffiths, Karila & Billieux, 2014; Boursier, Gioia & Griffiths, 2020). From the studies that were eligible for inclusion, there is evidence that majority of the research was conducted between the years 2019 to 2020 (end of October).

Figure 3. Number of publications per year

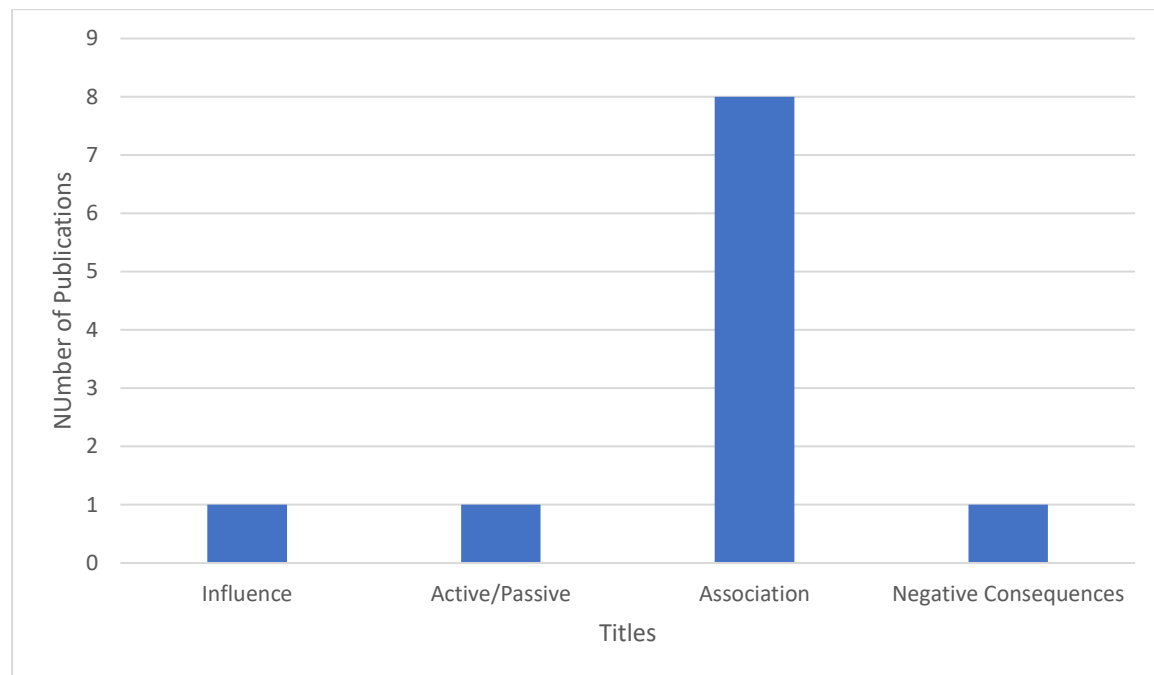


### *Titles, Aims/Objectives and Conceptual Definitions of Reviewed studies*

Most of the studies reviewed had similar study titles, aims and objectives, with operational definitions for social media overuse being conceptually similar. These are briefly outlined and illustrated in figures 4, 5 and 6 below.

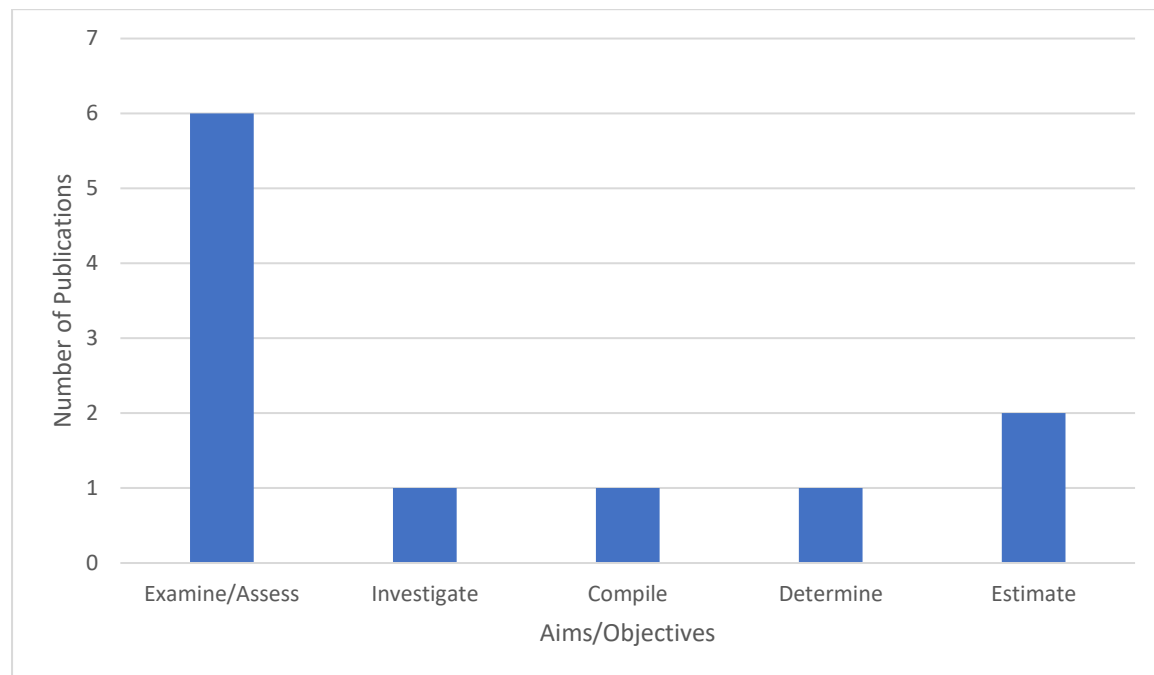
Some of the variations apparent across all eleven studies included the following terms in their titles: ‘the *influence* of social media on mental health’, ‘*active/passive* social media use and mental health’, ‘the *association* between social media and mental health’, and ‘the *negative consequences* of social media on mental health’. The prevalence of these key words in the study titles are illustrated in figure 4 below.

Figure 4. Titles of reviewed studies



With regard to the aims and objectives of the reviewed studies, various similarities were found. All 11 of the studies aimed to either ‘*examine/assess* evidence of the influence of social media use on mental health vulnerabilities’, ‘*investigate* a relationship between the two constructs’, ‘*compile* an analysis of the association between the two constructs’, ‘*determine* whether social media overuse impacts psychological well-being’, or to ‘*estimate* the prevalence or associations between social media use and mental health vulnerabilities’. These are illustrated in figure 5 below.

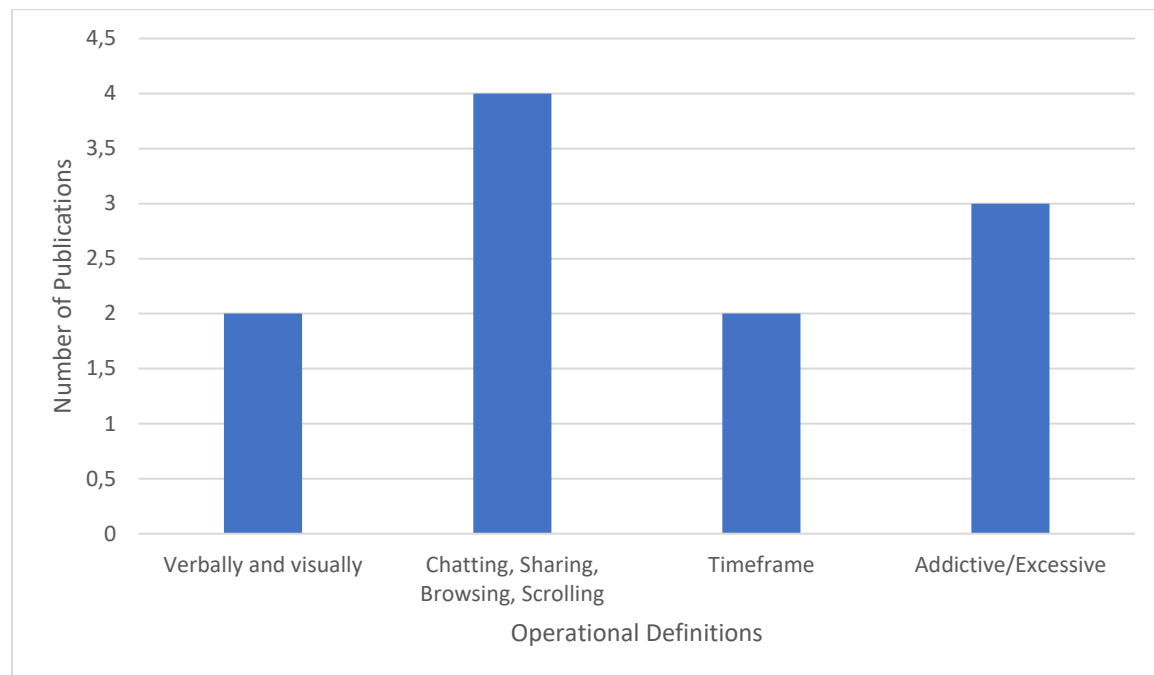
Figure 5. Aims/Objectives of reviewed studies



In terms of the operational definitions used to conceptualise the excessive/overuse of social media across the reviewed studies, there were also several similarities. These studies all defined social media use as either ‘internet-based networks used to interact *verbally and visually*’, ‘platforms used for *chatting, sharing, browsing and scrolling*’, a few ( $n = 2$ ) referred to the *decade-long timeframe* that social media has been around, and some studies referred to ‘*addictive/excessive*’ use to describe social media overuse. These definitions are illustrated below in figure 6 below.



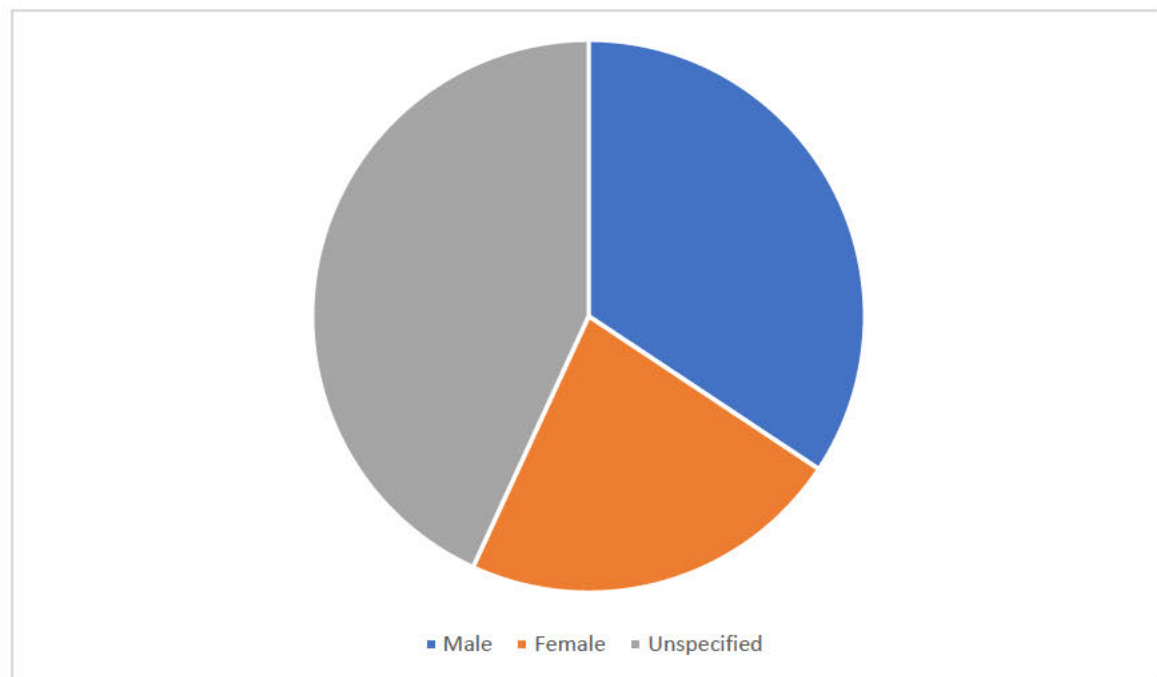
Figure 6. Operational definitions of reviewed studies



### *Gender and Age of Participants*

From the studies systematically reviewed, secondary data retrieved from N = 10 cumulatively assessed 466 684 adolescent participants. The number of participants in 1 study was not specified as the study design was a systematic review of literature. In 5 of the reviewed studies, the genders of the participants were not specified. In the remaining 6 studied which specified the gender of the participants, there was a total of 15 335 males and 10 068 females (illustrated in figure 7 below). All of the participants in the reviewed studies were adolescents between the ages of 13 and 19 years.

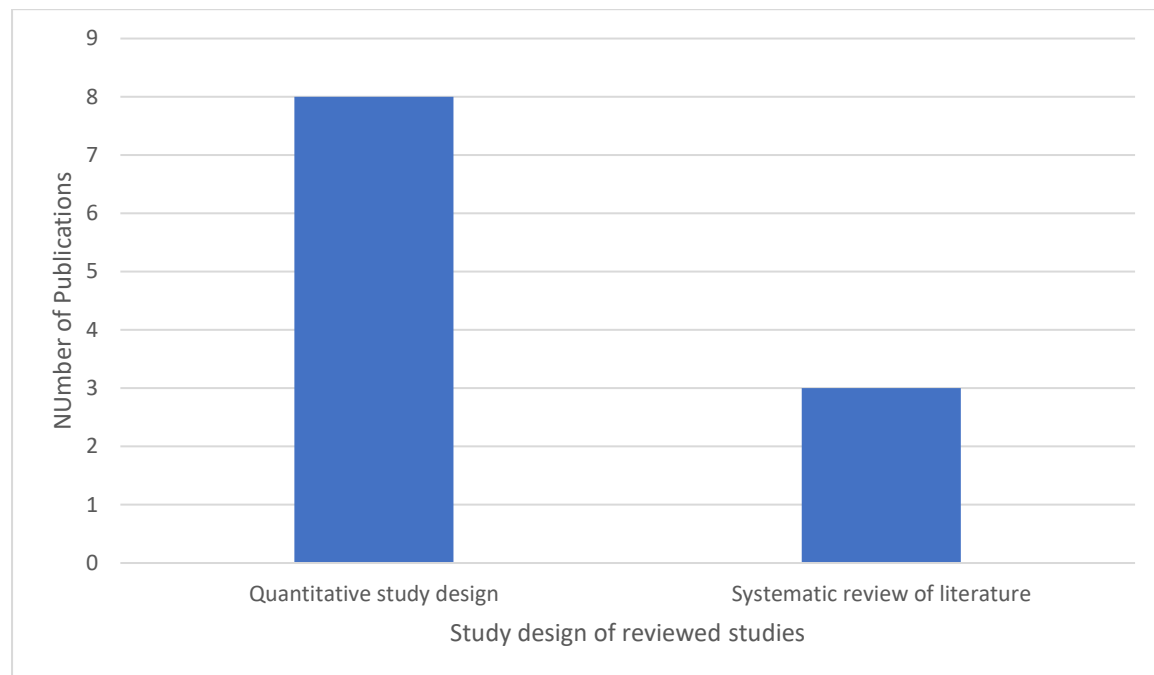
Figure 7. Gender of participants



### *Study Designs and Psychometric Measures Used*

All of the studies reviewed found varying degrees of association between social media overuse and compromised mental health among this study population (adolescents 13 – 19 years old), with some studies assessing this relationship using various psychometric measures to collect data using a quantitative study design ( $n = 8$ ) (e.g., BDI-II), whilst others obtained outcomes through systematic/scoping reviews ( $n = 3$ ). Three of the studies which used psychometric measures made use of scales which measured both depressive and anxiety symptoms. The study design of the reviewed studies, as well as the outcome measures used to identify correlations between social media use and adverse mental health outcomes are outlined in figure 8, 9, 10 and 11, respectively.

Figure 8. Study design of reviewed studies



### *Study Designs and Outcomes*

A national survey of Icelandic adolescents (Thorisdottir et al., 2019) used a quantitative methodological study design which made use of anonymous questionnaires as the method of data collection. The findings of this study were that symptoms of anxiety and depression had a positive correlation with the amount of time the adolescent participants spent using social media, both actively and passively. Another study which used a quantitative design in the form of a cross-sectional epidemiologic study (Pantic et al., 2012) found a statistically significant correlation between high scores of depressive symptoms and the time that Serbian adolescents spent engaging on social media applications such as Facebook and Twitter. A longitudinal study done over 2 years by Raudsepp (2019) found that increases in maladaptive social media use was associated with an increase in symptoms of depression in the adolescent population, and separate quantitative studies (Twenge & Martin, 2020; Twenge & Campbell, 2019) found a correlation between heavy media use and

compromised psychological well-being among large adolescent population samples across the UK and the US. In a quantitative study conducted among a Chinese adolescent population, Li et al. (2018) found a bidirectional association between addictive social media use and depression, and the findings of separate quantitative studies (Beeres et al., 2020; Nishida et al., 2019) indicated that adolescents who reported more frequent social media use also reported more symptoms of mental ill-health.

### *Correlational Study Outcomes*

The following statistics illustrate the results that were observed in the studies that used psychometric scales to measure psychological outcomes; the correlation coefficients of studies which found a relationship between social media overuse and symptoms of depression ( $n = 8$ ) had a range of 0.001 – 0.47, and  $\bar{x} = 0.13$ ; and the correlation coefficients of studies which found a relationship between social media overuse and symptoms of anxiety ( $n = 3$ ) had a range of 0.001 – 0.207, and  $\bar{x} = 0.07$ .

All of the psychometric scales that were used in the reviewed studies were proven by the respective researchers to be both valid and reliable. The measures were tested and retested, demonstrated sound psychometric properties and had adequate internal consistency and reliability. The various scales measuring symptoms of depression and anxiety (illustrated in figures 9 and 10 below), demonstrated adequate construct validity.

Figure 9. Psychometric measures for depression

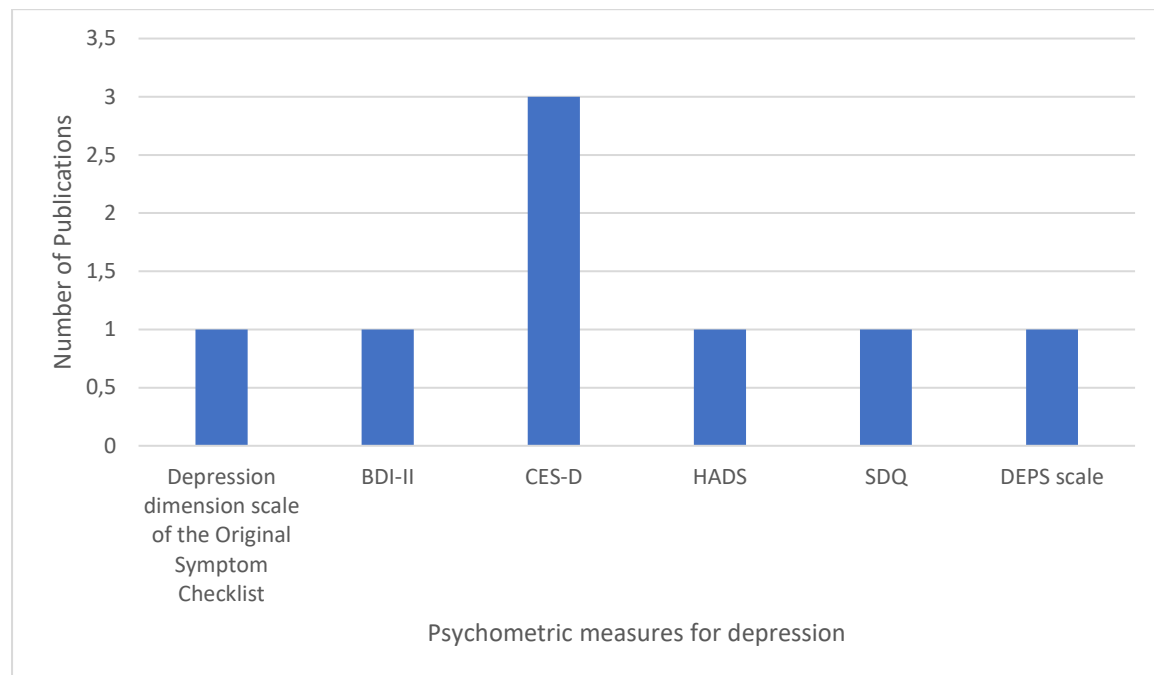
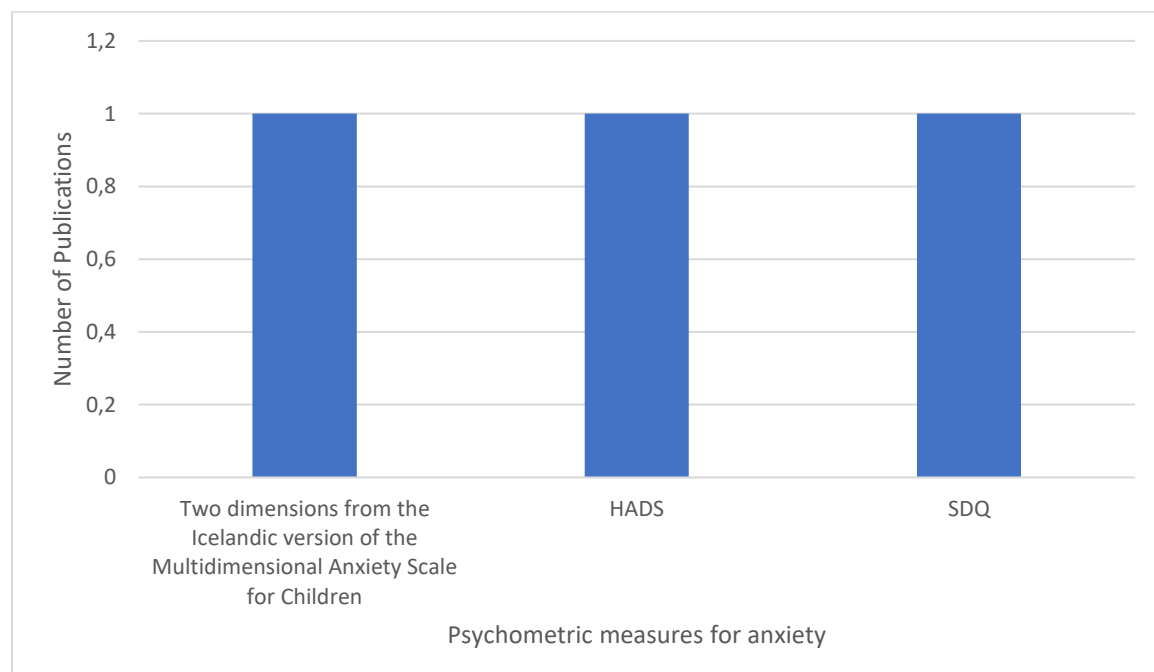


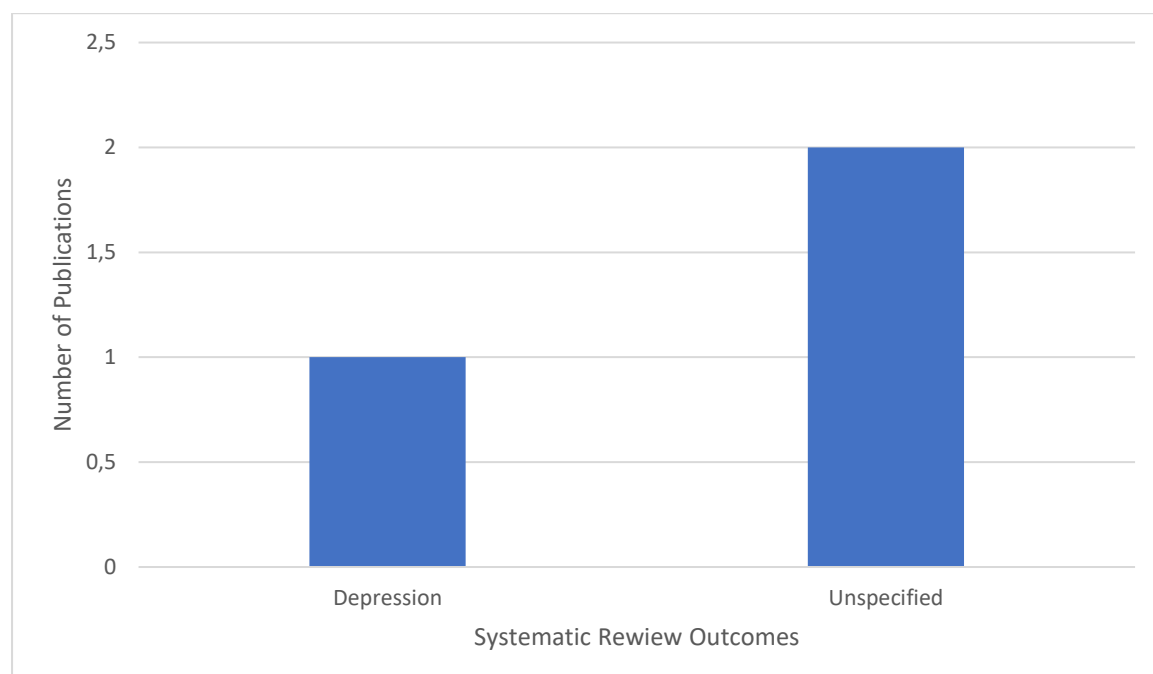
Figure 10. Psychometric measures for anxiety



### *Systematic Review Outcomes*

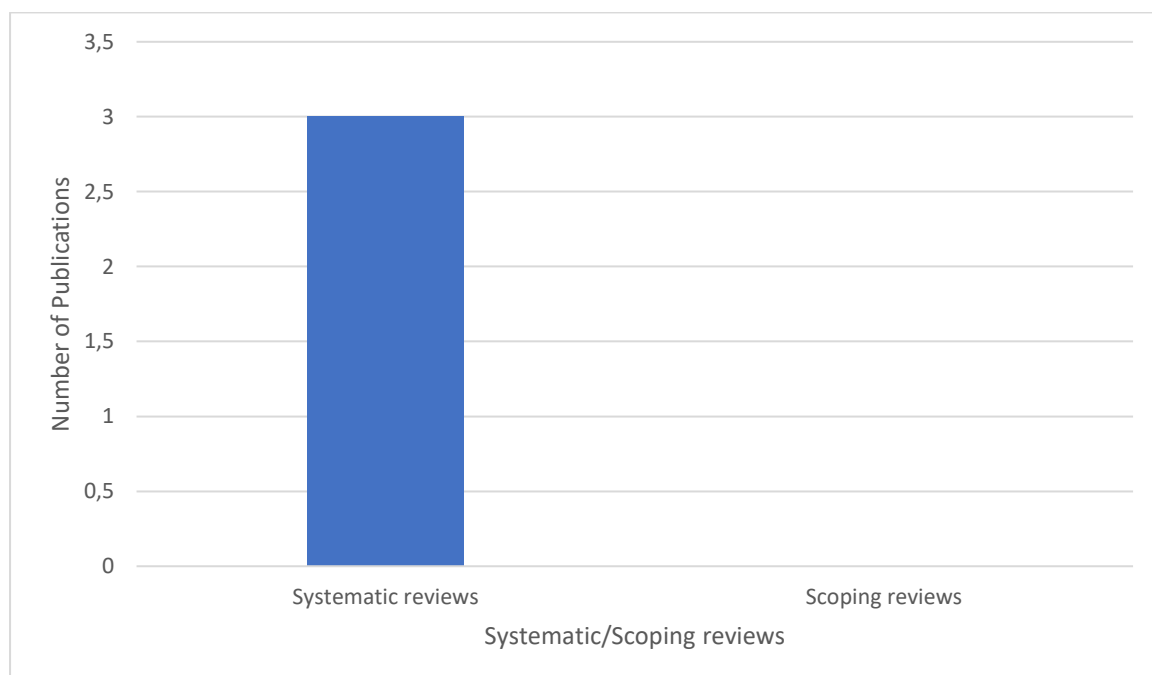
The following studies drew their outcomes and conclusions based on systematic reviews that were done through accessing secondary data from large samples (e.g., Twenge and Campbell, 2019; N = 221 096). Systematic reviews of literature make use of secondary data which is derived from other studies in the same areas of study, in order to obtain study findings and outcomes. The outcomes of the systematic reviews included in the present study ( $n = 3$ ) found correlations between social media overuse and compromised psychological well-being. One of the studies identified depression as an adverse outcome, while two studies did not specify the adverse outcomes, describing them as “low/lower psychological well-being” (Twenge & Martin, 2020; Twenge & Campbell, 2019). These outcomes are illustrated in figure 11 below.

Figure 11. Systematic review outcomes



The findings of systematic reviews were included in the present study because the authors of the included systematic reviews found that analysing datasets using large sample sizes was useful in providing a comprehensive view of the correlation between social media use and adolescent psychological well-being, as well as comparing effect sizes between light and heavy usage (Twenge & Campbell, 2019). Keles et al. (2020) stated that the findings of their systematic review were intended to inform policy and practice, and to promote further research in this area of study. Systematic reviews of literature were proven to be useful in achieving this because they are conducted with rigour. They made use of methods which minimised bias and aimed to provide findings that were reliable. Systematic reviews also follow a structured process which employed rigorous methods in order to ensure meaningful and reliable results (Munn, Peters, Stern, Tufanaru, McArthur & Aromataris, 2018). Therefore, it is beneficial to the present research to include the outcomes of studies that have conducted in-depth reviews of the existing literature in this area of study.

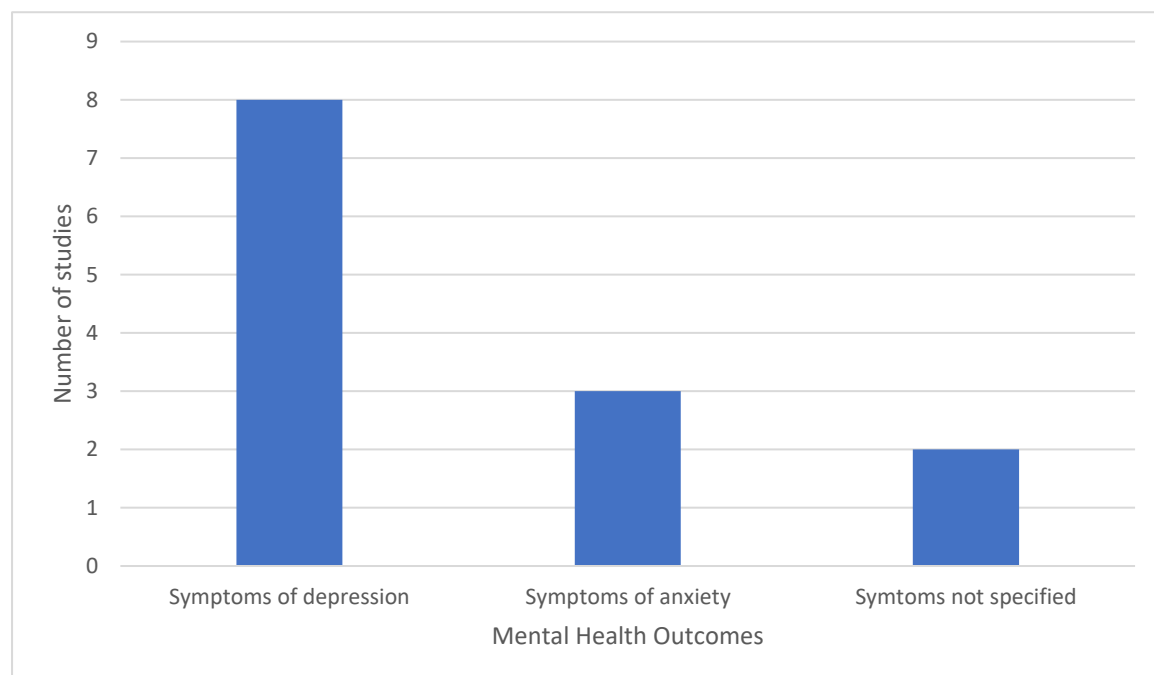
Figure 12. Systematic/Scoping reviews



### *Summary of Study Outcomes*

All of the reviewed studies ( $n = 11$ ) found a correlation between social media overuse and compromised psychological well-being among the adolescent population. Most studies explicitly stated having found a relationship between social media overuse and symptoms of depression ( $n = 7$ ) and social media overuse and symptoms of depression *and* anxiety ( $n = 1$ ), while the 2 remaining studies did not specify exactly which symptoms were identified in the findings ( $n = 3$ ). These are illustrated in figure 13 below.

Figure 13. Summary of study outcomes



### *Identified Gaps in the Literature*

All of the studies included in this scoping review were located globally (Europe, United Kingdom, North America, South America and Asia), meaning that there were no studies conducted locally (i.e., African/South African context) in this area of research which



were eligible for the present study as per the inclusion criteria. Furthermore, during the process of identifying eligible studies for this review, it was noted that there was a shortage of articles in this study area done in the South African or African context. Majority of the articles included in the present study were conducted in developed countries, meaning that it is likely that these countries are among those with access to basic resources such as food, water and shelter. Because of this, it may be assumed that the shortage of studies conducted locally (i.e., Africa/South Africa) could be a result of various factors (e.g., basic needs/resources) taking precedence over access to online communication and investigating such activities. Therefore, study location was identified as a gap in the existing literature with regard to this area of research. The studies that were identified locally in this area of research were few, focusing mostly on investigating social media use in general, social media use in health promotion, and how social media can be utilised by health professionals in South Africa (Budree, Fietkiewicz & Lins, 2019; Kubheka, Carter & Mwaura, 2020; Noakes, 2017). However, these studies did not necessarily focus on how social media use relates to psychological health and well-being. Therefore, these studies did not meet the inclusion criteria of the present study.

Another gap that was identified in the literature was with regard to study design. In the process of analysing the studies that were eligible for inclusion, it was apparent that there seemed to be a shortage of studies available in this area of research which made use of study designs other than quantitative designs and systematic reviews. Furthermore, there were no studies using qualitative designs and measures that were eligible for inclusion in the present study. This was identified as a second gap in the literature that is available in this area of study.

While the reviewed studies were found to have various strengths and produced results that contributed to existing body of knowledge in this area of research, there were some

limitations that were identified by the respective authors/researchers. These limitations included concerns regarding data collection methods (reliance on self-report measures) and sample sizes (making use of relatively small, homogeneous sample sizes and convenience sampling) (Thorisdottir et al., 2019; Pantic et al., 2012; Keles et al., 2020; Raudsepp, 2019). Bearing this in mind, future research done in this area of study could address these shortcomings in several ways. Firstly, by making use of various psychometrically sound test scales and measures with high test-retest validity, in order to reduce the potential towards recall and desirability bias which may be present when responding to self-report assessment protocols. And secondly, researchers could aim to obtain larger sample sizes using various sampling methods (a combination of selective and random sampling) in order to increase overall population representation and garner results with greater generalisability in different contexts.

### **4.3 Discussion**

The 11 articles that were reviewed for the present study had similar operational definitions, aims and objectives, and study designs. Social media overuse was described using fairly similar terms, and some studies further described what was meant by problematic/maladaptive/excessive social media use. Some of the studies reviewed ( $n = 3$ ) included variables such as specific social media applications (e.g., Facebook, Instagram and Snapchat) to determine the influence these had on users. What was important to note when reviewing the studies was the fact that social networking sites are a relatively new technological advancement spanning just a decade (Pantic et al., 2012), and have fast become popular amongst all population groups, from children to adults.

*Participants, Concept and Context of Reviewed Studies*

All identified studies were located globally. These were studies that were conducted in developed and well-resourced countries, including Europe, North America and the United Kingdom. This means that during the scoping phase of the present study, there was an absence of studies identified which related to the South African/African context. This may have been due to a number of reasons including: a lack of resources in a country with high unemployment and poverty rates, the prioritising of other studies which focused on different aspects of internet use, as well as the high cost of internet use and data in South Africa (Meyer, 2017; Budree et al., 2017; Kubheka et al., 2020; Healing, 2020). These are all factors that should be considered when conducting research of this nature in developing countries which are likely to be poorly resourced. Furthermore, the studies included in this review made use of either a quantitative or systematic review study design. Therefore, the present study identified two gaps in the existing literature: a shortage of studies located locally, and a shortage of studies conducted using study designs other than quantitative methodologies and systematic reviews of literature.

A methodological gap in the literature of this nature implies a shortage of studies that result in understanding the subjective meaning attributed to experiences and perceptions of participants, which is what qualitative studies aim to investigate (McCusker & Gunaydin, 2015). Such research would be useful in this context because while the literature demonstrates a relationship between excessive social media use and adverse mental health outcomes, there is limited literature which expands on the extent, nature and direction of that relationship. To bridge this gap, researchers could utilise both quantitative and qualitative approaches (i.e., mixed method study designs), which would serve 2 purposes: 1) demonstrate the nature of the relationship between variables and 2) develop an understanding of the individual, social and contextual factors that influence such relationships within the same study (Doyle, Brady & Byrne, 2009).

While it is useful to have literature available in the greater global context, it cannot be said that the findings of such studies are generalisable across samples and populations all over the world due to contextual disparities. If there is an absence of literature in these areas of research in the South African context, it may be disadvantageous to the South African population for various reasons. The use of social media is a global phenomenon, meaning it is an activity that adolescents all over the world (including in African countries) take part in and engage with in their everyday lives. Not having access to information pertaining to the ways in which this daily activity may impact their psychological well-being, specifically in the context of their daily lived experiences, may result in these populations being uninformed and at a disadvantage compared to other populations around the world. Because these local adolescent populations may not necessarily be aware of the potential risks to their mental health through social media overuse, they are less likely to be aware of the measures that they can undertake to prevent the development of potentially adverse psychological outcomes.

Because cultures across populations vary so greatly, it is important to consider the culture of a particular population in order to understand how that population may experience different constructs. Zimmermann (2017) describes culture as the characteristics of a population which include their language, beliefs and understanding of society, behaviours and certain constructs based on socialisation. Culture also informs the way that people conceptualise and experience mental health in their cultural contexts (Swartz, 1998). Because South Africa is a country that is particularly rich in diverse culture, it is expected that meaning surrounding mental health vulnerabilities (e.g., symptoms of depression and anxiety) will differ across populations. Western conceptualisations of such vulnerabilities differ from African conceptualisations in multiple ways. For example, in Western cultures there is an emphasis placed on biological and intrapersonal factors on the aetiology of

depressive disorders, whereas in African cultures there is more emphasis placed on environmental and interpersonal factors (Chentsova-Dutton, Ryder & Tsai, 2016).

While it is of great benefit to have studies in this area of research conducted using quantitative and systematic measures and designs, it may be useful to consider how the use of alternative data collection and analysis methods might add value to the existing literature. For example, if there were to be studies carried out using qualitative or mixed method designs, it would provide the opportunity for findings and outcomes to be reached through obtaining the in-depth perspective of the study participants. This would allow for the data to be collected using means such as interviews and focus groups, providing an opportunity for the participants to share about their lived experiences with depth and meaning regarding personal opinions and beliefs. Participants would be given an opportunity to describe the ways in which they are affected by excessive social media use. They would be able to give accounts of their experiences of overuse, why they feel they use social media excessively, and the impact or influence that it has had on their psychological well-being. Study participants being able to share detailed information would allow for researchers to gain a greater understanding of the relationship between the variables from multiple perspectives. This supplement numerical and statistical results, enriching the findings and outcomes of their studies.

This would be especially useful when investigating and exploring concepts such as mental health vulnerabilities as it correlates with social media overuse, because the study participants would be given the opportunity to provide a detailed and nuanced account of their personal experiences regarding topics that may otherwise not be very well understood. As mentioned previously, different cultures across populations vary greatly in their understanding and conceptualisations of mental health and psychological well-being. Because of this, it cannot just be assumed that psychometric measures conducted on global populations will have the same accuracy and reliability when conducted on local populations.

For this reason, it is of great importance that there is an increase in support of initiatives aimed towards the adaptation, standardisation and norming of mental health assessment tools for use in the South African context. This would be beneficial for the study findings and outcomes as it would ensure accuracy in the collected data, and thus ensuring that valid and reliable results are obtained.

For the present study, a thorough search of various electronic databases was done, and 11 publications met the inclusion criteria. The findings/outcomes of the studies were more or less similar throughout, corroborating with the findings of the studies presented in the literature review (chapter 2). In reviewing these studies, 5 overarching themes were identified: 1) conceptualisations of overuse, 2) developmental and social factors, 3) gender differences, 4) study designs and 5) psychometric measures. These themes are illustrated in tables 7, 8, 9, 10 and 11, and are further discussed below each table.

#### 4.3.1 Conceptualisations of Overuse

Table 7.

Conceptualisations of overuse

Conceptualisation of Overuse	Source author(s)
<b>Heavy/problematic social media use</b>	Raudsepp, 2019; Twenge & Campbell, 2019; Twenge & Martin, 2020; Li, Mo, Lau, Su, Zhang, Wu, Mai & Chen, 2018; Keles, McCrae & Grealish, 2020; Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante & Sigfusdottir, 2019; Pantic, Damjanovic, Todorovic, Topalovic, Bojovic-Jovic, Ristic & Pantic, 2012; Beeres, Andersson, Vossen & Galanti, 2020; Nishida, Tamura & Sakakibara, 2019

<b>Active and Passive Social Media Use</b>	Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante & Sigfusdottir, 2019
<b>Maladaptive Social Media Use</b>	Raudsepp, 2019
<b>Online Social Media Addiction</b>	Li, Mo, Lau, Su, Zhang, Wu, Mai & Chen, 2018

The first theme that was identified in the present study was how each of the reviewed studies conceptualised social media overuse. These conceptualisations were categorised into several components: *heavy/problematic* social media use, *active and passive* social media use, *maladaptive* social media use and online social media *addiction*.

#### *Heavy/problematic Social Media use*

The concept of social media overuse was described in various different ways by the authors of the reviewed studies, these are discussed in further detail in the following section.

Problematic and heavy social media use has provided an umbrella term to conceptualise the act of using social media for extended periods of time. This extended use leads to patterns that can be characterised as maladaptive and even potentially addictive. The terms ‘heavy’ and ‘problematic’ use were employed by various studies ( $n = 3$ ) as a category to describe excessive social media use. The studies in this area found varying degrees of associations between these variables by making use of methodological designs and psychometric measures that were assessed to be acceptable with regard to validity and reliability. The study designs and psychometric measures used to obtain these outcomes are discussed further in sections 4.3.4 and 4.3.5, respectively.

Most studies found that the problematic or heavy use of social media had a significant correlation with symptoms of anxiety and/or depression among adolescents (Raudsepp, 2019; Twenge & Campbell, 2019; Twenge & Martin, 2020). In their study, Twenge and Martin

(2020) make a distinction between light social media use and heavy social media use by classifying these by means of time spent on social media per day. Thirty minutes per day was regarded as light social media use, and five or more hours per day was regarded as heavy social media use. Keles et al. (2020) noted that at least 92% of adolescents were active users of social media, which they describe as various networks accessed using the internet that enabled users to connect with one another both visually and verbally. Furthermore, in the same study it was noted that the adolescent age group of 13 – 17 years was considered to partake in particularly heavy social media use when compared to other age groups.

According to the results of the majority of the studies that were reviewed, the most frequent correlation between social media use and adverse psychological outcomes was the *time* that adolescents spent using social networking applications. Study findings (Twenge & Campbell, 2019; Pantic, Damjanovic, Todorovic, Topalovic, Bojovic-Jovic, Ristic & Pantic, 2012) demonstrated a significant correlation between the time spent on social media and symptoms of mental ill-health, as the adolescents who spent more hours on social media per day displayed a higher incidence of depressive symptoms than their counterparts who spent fewer hours per day engaging on social networking sites. It was also found that the longer the hours spent on online chatting or social networking sites, the stronger the correlation to depressive symptoms, with higher risk towards developing clinical depression and anxiety among adolescents (Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante & Sigfusdottir, 2019; Beeres, Andersson, Vossen & Galanti, 2020; Nishida, Tamura & Sakakibara, 2019).

The data suggests that a correlation among adolescent populations is significantly influenced by temporal factors (e.g., time spent on social media) (Nishida et al., 2019; Thorisdottir et al., 2019). Adolescents who were assessed to be heavy users of social media, specifically those individuals who spent more than five hours each day engaging on social networking platforms, had a significantly higher chance of experiencing mental health



challenges than those who were light users (Twenge & Campbell, 2019; Twenge & Martin, 2020). Problematic use was also found to have features that were similar to those of addiction, such as the compulsive use of social networking sites (Li et al., 2018). Furthermore, most of the studies demonstrated that the most common mediating factor between social media use and psychological ill-health was the amount of time spent using the social networking sites, and the results indicated a correlation between excessive social media use and increased symptoms of mental ill-health (e.g., depression and anxiety) (Pantic et al., 2012).

The studies that were reviewed with regard to this theme all had similar findings which were consistent and demonstrated a significant relationship between heavy social media use and the likelihood of developing mental health vulnerabilities in the adolescent population. Following the analysis of the results, the influence of temporal factors were consistently evaluated in determining the effect social media use had on adolescents' mental health. The various studies investigating this relationship found a correlation between the two variables. Therefore, it can be concluded that these findings were consistent and reliable.

#### *Active and Passive Social Media Use*

A further distinction regarding social media use included active and passive use (Thorisdottir et al., 2019). Both of these involved interacting with social media platforms, but in slightly different ways. Active use involved users chatting with one another, posting pictures, updating their statuses and sharing other personal content with other users. Whereas passive use involved an individual scrolling through their feed, browsing through others' content, reposting media links and more so consuming information rather than participating in it more actively.

Thorisdottir et al. (2019) found that while both of these forms of use can lead to unfavourable psychological outcomes, emerging evidence suggested that passive use may be more significantly associated with depressive symptom outcomes than active use. This is because active use better reflects an individual's self-concept, thoughts and opinions. These can be linked to a greater sense of self and improved self-esteem. Passive use, on the other hand, involves less personal input and effort, while also involving greater exposure to the lives and personal perspectives of others. This is considered a potential risk factor for emotional and psychological distress because it could promote upward social comparison amongst users, which may negatively impact an individual's life satisfaction and compromise their self-esteem (Thorisdottir et al., 2019).

#### *Maladaptive Social Media Use*

Raudsepp (2020) described social media use as problematic once an individual begins to exhibit an excessive concern for social media, which leads to maladaptive use. This maladaptive use was characterised by; becoming increasingly driven by the motivation to use social media and spending so much time on social media that it begins to infringe on other daily activities such as social interactions, schoolwork or studies, personal relationships, and mental well-being. Therefore, heavy use of social media has been associated with maladaptive use that leads to adverse mental health outcomes such as symptoms of depression and anxiety among adolescent populations.

#### *Online Social Media Addiction*

However, a more serious outcome of excessive social media use has been identified as social media addiction. This was conceptualised by Li, Mo, Lau, Su, Zhang, Wu, Mai and Chen (2018) in their study, who made use of the term "online social networking addiction (OSNA)". They described this to be a fairly recent addictive behaviour that has been

emerging among adolescents, which involves the compulsive use of online social networking sites. This can be considered a more extreme outcome of social media overuse because it goes beyond heavy or maladaptive use and crosses over into addictive and compulsive use. This suggests a lack of an individual's ability to control, regulate or restrict the urge to engage with and make use of social media platforms.

#### 4.3.2 Developmental and Social Factors

Table 8.

Developmental and social factors

Developmental and Social Factors	Source author(s)
<b>Stages of development</b>	Keles, McCrae & Grealish, 2019; Twenge & Campbell, 2019; Twenge & Martin, 2020; Beeres, Andersson, Vossen & Galanti, 2020; Puukko, Hietajärvi, Maksniemi, Alho & Salmela-Aro, 2020

##### *Stages of Development*

The second theme that was identified in the reviewed studies was developmental and social factors, and how these factors can influence an adolescents' susceptibility to developing adverse mental health outcomes as a result of excessive social media use.

At this stage of development, adolescents are going through a number of transitions including social, biological and psychological changes as they develop from children to adults (Manning, 2020). Developmental theory helps us to conceptualise this process by understanding the various changes that an individual undergoes during this stage, and how these changes lead this population group to be especially vulnerable to psychological challenges (Richards et al., 2015). These involve physical changes, personality changes,

emotional and mental changes and well as social development. Because these changes affect an individual's identity, self-concept, self-esteem, life satisfaction and general worldview, adolescents may be particularly vulnerable to developing adverse mental health outcomes during this stage of development.

The adolescent stage is a crucial one for identity formation, social interaction and peer relationship building (Erikson, 1950), and it is also the stage where this population group is particularly vulnerable to social influences and pressures. Consequently, adolescents could be at a greater risk of developing adverse mental health outcomes as a result of over-reliance in social media use, because a large part of these socialising activities now take place digitally (Keles et al., 2020; Twenge & Martin, 2020; Twenge & Campbell, 2019). Excessive social media use among adolescents has the potential to negatively influence levels of self-esteem, ability to expand social networks, overall psychosocial well-being, and put them at risk for developing anxiety and depressive symptoms (Beeres et al., 2020; Puukko et al., 2020).

There are many challenges that individuals face which influence how they experience their daily lives. These factors occur on multiple levels and have varying effects on this population, physically, mentally, emotionally and psychologically. These issues occur on an individual level with regard to the perception of oneself, difficulties with body image and dissatisfaction, and overall issues related to low self-esteem and self-confidence. Difficulties can also occur at a social level regarding victimization of an individual, difficulties forming and maintaining meaningful relationships, bullying and rejection among peers, and violence within households and families. At a community level, difficulties may occur with regard to financial and social status, living in dangerous neighbourhoods, the realities of child-headed households, a lack of access to quality education, resources and experiences of poverty. Such factors can cause individuals to be at risk for poor emotion regulation which may contribute to the development of anxiety symptoms (Kliwer, Pillay, Swain, Rawatlal, Borre, Naidu,

Pillay, Govender, Geils, Jäggi, Drazdowski, Wright & Vawda, 2017). If researchers were to assess for the presence of anxiety and depression in an already vulnerable population (adolescents in Africa) living under these circumstances, it would be difficult to differentiate the relationship between social media usage and adverse mental health outcomes because this population may face other challenges that contribute towards these states.

Furthermore, social media can also provide adolescents with a 'safe space' to escape many of the difficult realities that they may face on a daily basis. Social media can provide a sense of community and interaction where many users can find comfort, support and access to help when it is needed. Communities created on social media platforms have the potential to give adolescents a space where they can be themselves, free of judgement and without consequence. They can share their personal experiences and in return, receive love, compassion, care, acknowledgement and empathy (Reid & Weigle, 2014).

It is for such reasons that it is important to establish ways in which adolescents can make use of social media in a manner that is more beneficial to their development and mental health. For example, future research in this field could consider understanding the role of developmental and systemic factors when conceptualising the relationship between excessive social media use and psychological outcomes. Because adolescents express psychological distress in various different ways (Zimmer-Gembeck & Skinner, 2008), it may be difficult to establish clear cause effect relationships between these two variables.

At the adolescent stage of development, individuals have a limited capacity to self-regulate (Keles et al., 2020), and they are vulnerable to external influences which affect behaviours in response to environmental difficulties. Therefore, having a better understanding of how adolescents respond and react to psychologically challenging situations from a

developmental standpoint, might help to facilitate useful interventions at multiple levels as opposed to primary preventative measures.

In conclusion, it can be said that in this present time there are a number of reasons that contribute to excessive use among adolescents. As mentioned in previous chapters, the last few years have seen an exponential growth in digital, technological and social media use (Kuss et al., 2014). Because of the rapid growth in these areas, it is not surprising that the majority of populations across societies would have been impacted in one way or another. According to Keles et al., about 92% of this generation's adolescent population are active users of social media. Not only is this population group the most active users of social media, but they are also the most at risk for developing mental health vulnerabilities at this stage of development (Strickland, 2014; Boer et al., 2020).

There are a number of reasons that could contribute to such levels of social media engagement, including: social interconnectedness, leisure and entertainment, boredom, and more recently due to the COVID-19 pandemic, online distance learning. However, as a result of such excessive exposure, one may expect that adolescents are more susceptible than other population groups to developing maladaptive patterns of use and potentially developing adverse psychological outcomes as a result.

### 4.3.3 Gender Differences

Table 9.

Gender differences

<b>Gender Differences</b>	<b>Source author(s)</b>
<b>Social media use in different genders</b>	Nishida, Tamura & Sakakibara, 2019; Thorisdottir, Sigurvinsdottir, Asgeirsdottir,

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Allegrante & Sigfusdottir, 2019; Twenge & Martin, 2020; Twenge & Farley, 2020

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### *Social Media Use on Different Genders*

Of the reviewed studies, there were a few which had a common theme: *Gender*. The differences in the results and outcomes of the studies, were reported based on the distinction between male and female participants. This was a significant area as it posed the question of whether the impact of social media use on mental health was influenced by the gender of the users, thus the third theme was identified. Based on this, the reviewed studies indicated the following:

- The study conducted by Nishida, Tamura and Sakakibara (2019) exhibited differences in the results based on the gender of the participants. Female participants used their phones for more hours in a day and were found to spend more time on social networking sites, engaging in online chats. Male participants were observed to spend more time playing video games on their devices. Because of the long hours spent on social media, female users were found to be at a higher risk for depression. The time spent actively using social media resulted in a stronger correlation with compromised emotional well-being amongst girls than amongst boys. It can therefore be considered that an association between social media use and depression may be experienced more by female users than male users.
- Thorisdottir et al. (2019) found that the passive use of social media had a great association with symptoms of depressed mood and anxiety in both male and female participants.
- Twenge and Martin (2020) found that male and female participants differed in how much time they spent using digital devices with female participants spending more

time on social media. The study found that the female participants who spent more than seven hours on social media every day (heavy use) were twice as likely to have compromised well-being than those female participants who spent only 30 minutes using social media (light use) per day. Similar findings were also found amongst the male participants. The correlation between heavy social media use (vs light social media use) and lower well-being was stronger among girls, but the relationship between light social media used (vs no social media use) and higher well-being was stronger among boys, meaning that the time spent on social media was more strongly associated with lower well-being among girls than among boys.

Overall, the studies which placed a focus on gender as a variable in their research found that the results for male and female participants were significantly varied, in that females seemed to be more susceptible to depression and anxiety because they exhibited a stronger tendency towards long hours on social media than male participants (Nishida et al., 2019; Twenge & Martin, 2020). These findings echoed the data collected from the literature, which proposed that girls were more likely to experience a lower level of life satisfaction than boys because they spent more time on social networking platforms (Twenge & Farley, 2020).

While this theme was a significant one, only 4 out of the 11 reviewed studies placed a special focus on gender as moderating variable between social media overuse and adverse mental health outcomes. The study conducted by Twenge and Martin (2020) was one of such studies which sought to find whether gender played a role in how adolescents responded to social media and the effects thereof.

The findings obtained indicated that there was a significant role that gender played in this regard, however, the sample accessed by these researchers was done using a systematic approach. In such a case, what might be more beneficial would be a meta-analysis of studies



where gender is specifically identified as a factor influencing such outcomes. This would be useful in identifying and determining overarching trends in data collected from various independent studies in this area of research.

#### 4.3.4 Study Design

Table 10.

Study design

<b>Study Design</b>	<b>Source author(s)</b>
<b>Quantitative methodological designs</b>	Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante & Sigfusdottir, 2019; Pantic, Damjanovic, Todorovic, Topalovic, Bojovic-Jovic, Ristic & Pantic, 2012; Raudsepp, 2019; Li, Mo, Lau, Su, Zhang, Wu, Mai & Chen, 2018; Beeres, Andersson, Vossen & Galanti, 2020; Nishida, Tamura & Sakakibara, 2019
<b>Systematic literature review designs</b>	Keles, McCrae & Grealish, 2019; Twenge & Martin, 2020; Twenge & Campbell, 2019
<b>Benefits and limitations of study designs</b>	Pantic, Damjanovic, Todorovic, Topalovic, Bojovic-Jovic, Ristic & Pantic, 2012; Li, Mo, Lau, Su, Zhang, Wu, Mai & Chen, 2018; Twenge & Campbell, 2019; Twenge & Martin, 2020; Keles at al., 2019; Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante & Sigfusdottir, 2019; Raudsepp, 2019
<b>Reliability and validity of reviewed studies</b>	Keles, McCrae & Grealish, 2019; Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante & Sigfusdottir, 2019; Pantic, Damjanovic, Todorovic, Topalovic,

	Bojovic-Jovic, Ristic & Pantic, 2012; Twenge & Martin, 2020; Beeres, Andersson, Vossen & Galanti, 2020
<b>Limitations of reviewed studies</b>	Keles, McCrae & Grealish, 2020; Pantic, Damjanovic, Todorovic, Topalovic, Bojovic-Jovic, Ristic & Pantic, 2012; Raudsepp, 2019; Oberst, Wegmann, Stodt, Brand & Chamarro, 2017, Li, Mo, Lau, Su, Zhang, Wu, Mai & Chen, 2018; Nishida, Tamura & Sakakibara, 2019; Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante & Sigfusdottir, 2019

The studies that were reviewed for the purposes of researching the present study made use of several methodological approaches to reach their outcomes and conclusions, these are reflected in the fourth theme that was identified. Majority of the studies used a quantitative methodological design ( $n = 8$ ), while the remainder used systematic literature reviews ( $n = 3$ ) as their chosen methodological approach. Based on the inclusion criteria (quantitative and systematic reviews), the studies that were reviewed demonstrated a relationship between excessive social media use and adverse mental health outcomes.

#### *Benefits and Limitations of Study Designs*

From the studies reviewed, which met the present study's inclusion criteria, specific benefits and limitations will be addressed in relation to quantitative study designs and systematic literature reviews. Both of these methodologies have their respective benefits and limitations with regard to how each study design impacts or influences the outcomes of the study.

#### *Quantitative Study Designs*

The benefits of using a quantitative study design is that researchers collect primary data from a population sample and make use of psychometrically sound measures in order to do so. As a result, more often than not, a benefit of this is that the outcomes and conclusions drawn from such studies are achieved through rigorous scientific methods (Li et al., 2018). Based on the inclusion criteria for the present study, the research questions and hypotheses of the reviewed studies were investigating an association between social media use and adverse mental health outcomes (i.e., anxiety and depressive symptoms). Therefore, the psychometric scales used in these studies were selected specifically for their criterion validity regarding the dependent variables (i.e., the presence of depression and anxiety). The psychometric scales/measures used are further discussed in section 4.3.5.

Another benefit of using quantitative data collection designs is that these methods are generally very analytical and make use of constructs that have validity to specific participants and contexts. The use of assessment measures improves validity across diverse samples (Beeres et al., 2020).

However, due to the study design requiring access to a sample from which to collect primary data, often the sample are homogeneous and relatively small (Raudsepp, 2019; Li et al., 2018). The studies that identified this as a limitation used samples ranging from 160 – 5365 participants. While this may not necessarily disadvantage the study with regard to the accuracy of its analysis and results, it may be viewed as a limitation regarding generalisability when considering how a similar investigation may reflect the differing outcomes of a larger population (Beeres et al., 2020; Pantic et al., 2012). Another limitation of using quantitative data collection methods is the reliance on self-report measures, which while valid in assessing subjective experiences, may result in potential report biases based on social desirability and even inaccuracy in timeframe estimates (Thorisdottir et al., 2019; Oberst et al., 2017).

There are also more general limitations of making use of quantitative study designs. With regard to the use of surveys as a data collection tool, one of the limitations that were identified was that the reliability of the data depends on the quality of the participant's responses (Queirós, Faria & Almeida, 2017). Therefore, the data is most reliable when the structure is answered by the participants without bias. Another limitation identified by Queirós, Faria and Almeida (2017) with regard to correlational studies, is that often there are no direct cause and effect correlations that can be inferred. Furthermore, there are often no reasons provided for the existence of said correlation between two variables.

Oftentimes a reason for the correlation is not provided because when a study is conducted, there several contributing factors (i.e., confounding variables) which have an influence on the resulting correlation. In this case, there are many factors faced by adolescent populations (e.g., developmental, social, and systemic factors), which may affect the outcomes of studies in this area of research. These factors include, but are not limited to: pre-existing psychological vulnerabilities, perceived self-esteem levels, religious and cultural contexts, gender and race demographics, education levels and academic performance, family structure and support, social and financial status, and general lifestyle (Thorisdottir et al., 2019; Li et al., 2018; Puukko et al., 2020; Nishida et al., 2019). Therefore, this is considered a shortcoming of this method of data collection because it fails to conceptualise the effect of multiple levels of influences that contribute towards adverse outcomes.

### *Systematic Literature Reviews*

The benefits of making use of systematic reviews of literature is that they are conducted using rigorous methods in order to ensure that the results obtained are meaningful and reliable (Munn et al., 2018). In the reviewed studies, this study design was employed with stringent inclusion criteria of studies that accessed population based or representative

samples of adolescents (Twenge & Campbell, 2019; Twenge & Martin, 2020), allowing them to perform a comprehensive analysis of the data to reach their study conclusions. The researchers found the use of these data collection methods to be beneficial to the studies because relying on representative samples across two countries (the US and the UK) potentially provided more stable and generalisable conclusions, than previous studies might have done before. Accessing data from over 200,000 adolescents was considered by Twenge and Martin (2020) to be a strength of their study. Accessing representative samples is beneficial in such studies because it ensures that the study sample is closely representative of the entire population. This implies that data collected from such samples will yield outcomes and conclusions that are meaningful, reliable and likely to be replicated in other contexts.

However, there are limitations when using this study design, and one of them is not being able to collect primary data. Essentially, these studies rely on the findings of various studies in order to draw their conclusions. Some limitations of this which were flagged by Keles et al. (2019) was that some of the studies they reviewed had small sample sizes and made use of convenience sampling which may have impacted the representativeness and generalizability of the results, and secondly, not all of the studies that they reviewed answered their study question because they were unable to determine a direct, causal relationship between the variables under investigation. Such limitations identified in the study may have affected the outcomes of the literature which they reviewed in order to draw their study conclusions.

There are also more general limitations of systematic literature reviews. These were identified by Rees and Ebrahim (2001) who found that the external validity of systematic review findings is a concern because there are often issues with generalisability in such studies, which also impacts the relevance of such findings to clinical practice. “The external validity of systematic reviews is dependent on the external validity of the trials included

within them” (p. 247). Furthermore, they found that there have been various discrepancies which emerge between the findings of systematic literature reviews and the findings of studies conducted using large clinical trials, but it is noted that these discrepancies might solely be a result of biases related to publication (i.e., an overestimation of the treatment effect of meta-analyses what were poorly conducted).

Therefore, it can be said that the above-mentioned limitations, especially those identified by Keles et al. (2019), may have contributed to their overall conclusion that the findings of the studies were not entirely consistent, even though they did find an association between social media overuse and adverse mental health outcomes. It can also therefore be noted that most of the reviewed studies (in the present study) which made use of quantitative study designs were better able to draw more conclusive findings and outcomes regarding the association between the variables of interest (Thorisdottir et al, 2019; Pantic et al., 2012; Raudsepp, 2019). For the purposes of the present study, it may then be concluded that with regard to determining the relationship between variables, quantitative study designs proved to be more beneficial.

The studies discussed above indicate that in terms of methodological approaches, most of the studies reviewed made use of quantitative study designs with the remainder being systematic reviews of literature. Therefore, the complete findings of these studies are outcomes gathered using these methodological designs exclusively. An identified shortcoming of this is the significant shortage of existing literature in this area which makes use of alternative methodological designs. This means that there is limited knowledge as to whether studies conducted using qualitative measures and study designs may yield differential results to those yielded using quantitative study designs and systematic reviews of literature.

*Reliability and Validity of Reviewed Studies*

Regarding the reliability and validity of the reviewed studies, the following was found:

- SLR1 cited that although an association was found between the observed variables, this was on the basis of a reality which was socially constructed, meaning that it did not necessarily make the findings scientifically valid (Keles et al., 2020).
- Q1 found that while the cross-sectional nature of their findings indicated a relationship between social media use and compromised mental well-being in adolescents, it did not indicate the directionality of this relationship. This means that it is unclear which of the two variables has an influence on the other (Thorisdottir et al., 2019).
- In Q2, the authors found that although they used a relatively small sample, it was large enough for a valid statistical analysis representative enough for the results and conclusions to be considered valid and reliable (Pantic et al., 2012).
- In SLR2, the researchers noted that a strength of their study was that it made use of a large population sample across two countries, and that this potentially provided more generalisable results and conclusions (Twenge & Martin, 2020).
- Q6 further reported that a strength of the study was its longitudinal design and its analytical method. In addition to this, they made use of validated mental health assessment tools thus strengthening the reliability of their findings (Beeres et al., 2020).

*Limitations of Reviewed Studies*

With regard to significant limitations, there were a few which appeared to be a prevalent in most of the studies reviewed. In several studies (SLR1, Q2, Q3, Q4, Q5 and Q8),

the authors identified a number of limitations which included small sample sizes and the use of convenience sampling which may have led to limited representation (use of a homogenous sample). Therefore, this potentially limited the generalisability of the findings. Additionally, the measures used were largely self-report measures which may have led to the risk of reporting biases in the participants' responses (Keles et al., 2020; Pantic et al., 2012; Raudsepp, 2019; Oberst et al., 2017, Li et al., 2018; Nishida et al., 2019).

Other limitations that were identified in the reviewed studies (Q1) were that of the outcome measures used, as the researchers measured different types of social media use using a scale that was designed to capture active and passive Facebook use (Thorisdottir et al., 2019). Because of this, it was possible that this measure did not accurately capture what the difference between active and passive social media use were. Another limitation which was found (Q2) was that although studies found a correlation, it did not necessarily prove causality between the variables. In order to test causality, a number of confounding variables would need to be investigated (Pantic et al., 2012).

The limitations outlined above are of significance because when considering future research in this area, existing limitations should ideally be considered. If there is to be a well-studied body of literature on this topic, there is a need for the studies conducted to be well-rounded and reflected on from multiple perspectives. Therefore, regarding this theme it may be concluded that these limitations, compounded with the methodological shortcomings of some reviewed studies, may have influenced some of the inconsistencies in their outcomes. When studies, such as the one done by Keles et al. (2019) (SLR1) identifies various limitations and garners somewhat inconsistent findings, one cannot help but wonder whether differential results may have been obtained had the researchers conducted the study using a different study design.



A qualitative methodological design or a mixed methods approach may better assist researchers in establishing the relationship between variables and offer a basis for further investigating the nature and extent of such relationships (e.g., contextual factors). As mentioned earlier in this section, there are various advantages of qualitative study designs which could address some of the limitations that were identified in the reviewed studies.

There are a number of qualitative data collection methods such as structured interviews, in-depth interviews and focus groups (Queirós, Faria & Almeida, 2017), which are beneficial when a researcher wishes to collect data that is rich in detailed information based on personal and group experiences. Structured interviews are a qualitative data collection method which is fairly efficient and easy to conduct, and they provide researchers with an opportunity to reach large samples and obtain responses that are easy to replicate and are easily comparable. Some of the limitations identified in the reviewed studies (Q1) were small sample sizes, non-clinical population samples, and inaccurate measures testing various constructs (i.e., social media use and psychological vulnerabilities) (Thorisdottir et al., 2019). Making use of structured interviews to collect data could potentially address these issues.

#### 4.3.5 Psychometric Measures

Table 11.

Psychometric measures

Psychometric Measures	Source author(s)
<b>Studies that made use of psychometric measures</b>	Thorisdottir, Sigurvinsdottir, Asgeirsdottir, Allegrante & Sigfusdottir, 2019; Pantic, Damjanovic, Todorovic, Topalovic, Bojovic-Jovic, Ristic & Pantic, 2012; Raudsepp, 2019; Beeres, Andersson, Vossen & Galanti, 2020; Nishida, Tamura & Sakakibara, 2019; Li, Mo, Lau, Su,

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Zhang, Wu, Mai & Chen, 2018; Oberst, Wegmann, Stodt, Brand & Chamarro, 2017; Puukko, Hietajärvi, Maksniemi, Alho & Salmela-Aro, 2020

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The fifth and final theme that emerged from the reviewed studies was psychometric measures used. Out of a total of 11 studied that were reviewed, 8 (i.e., Q1 – Q8) of them made use of one or more psychometric measures to demonstrate an association between social media overuse and psychological vulnerabilities in the adolescent population. This is useful because the measures have sound psychometric properties.

*Studies that made use of psychometric measures*

The study by Thorisdottir et al. (2019) (Q1) made use of two dimensions from the Icelandic version of the Multidimensional Anxiety Scale for Children (Olason, Sighvatsson & Smári, 2004), a scale that was tested among Icelandic adolescents and was assessed to have be both reliable and valid, to measure anxiety. The same study measured depressed mood using 10 items of the depression dimension scale of the Original Symptom Checklist (Derogatis, Lipman & Covi, 1973), a scale that also demonstrates good internal consistency and test-retest reliability, with reliability being high in their particular sample.

Three of the reviewed studies (Q3, Q5 and Q8) made use of the Center for Epidemiology Scale for Depression (CES-D) to measure depression, a scale that comprises of 20 items which are answered using a four-point Likert scale ranging from 0 – 3, and it measures symptoms of depression of a general population. The scale demonstrates good internal reliability and validity (Raudsepp, 2019; Nishida et al., 2019). For their study, Li et al. (2018) used the Chinese version of this scale, and the psychometric properties were validated among Chinese adolescents and it also demonstrated good internal reliability

Pantic et al. (2012) (Q2) measured symptoms of depression using Beck's Depression Inventory II (BDI-II) (Beck et al., 1996) which is a well-known and widely used inventory, of sound psychometric properties. Oberst et al. (2017) (Q4) measured symptoms of anxiety and depression using the Spanish version of the self-report Hospital Anxiety and Depression Scale (HADS) (Quintana et al., 2003) which they reported to have demonstrated good psychometric properties across various validation studies

Puukko et al. (2020) (Q7) used the Finnish version of the Depression Scale (DEPS scale) to measure depressive symptoms. It was described as a widely used self-rating questionnaire which screens for depression, and in their study, it proved to have good internal consistency. Lastly, in their study, Beeres et al. (2020) (Q6) used the strength and Difficulties Questionnaire (SDQ) (Goodman & Goodman, 2009) which is also a valid and reliable self-report scale used to screen for a variety of mental health symptoms including symptoms of depression and anxiety.

Overall, regarding this theme, majority of the studies that were reviewed the made use of valid and reliable psychometric scales to measure associations between social media overuse and adverse mental health outcomes. This was found to be useful with regard to the reliability and consistency of the outcomes and conclusions reached in this area of study. Using valid psychometric measures and scales to collect data strengthened the scientific rigour with which these studies were assessed and further increased the confidence that one may have in the findings and results of such studies.

However, while there are various benefits of using psychometric measures when collecting data, there are also a variety of limitations when making use of such scales. For example, psychometric measures may yield inaccurate or misleading responses from study participants which may be due to various biases in participant responses, ultimately altering the reliability of the test outcomes. Furthermore, participants may respond inaccurately in

psychometric measures due to several test-taking anxieties (Srivastav, 2018). For example, in diverse population samples, these anxieties may be a result of cultural differences or language barriers, disadvantaging some participants more than others. Because not all psychometric measures are applicable across populations, the test results may be somewhat skewed and therefore not entirely accurate and representative of the population sample.

Additionally, some symptoms of psychological presentations can be better understood in a developmental context. According to Thapar and Riglin (2020) there is an ever-growing appreciation for the developmental perspective in the field of psychiatry. For example, the development of mental health vulnerabilities such as depression and anxiety, may be influenced by a number of different factors in childhood and adolescence (i.e., genetic predisposition and environmental factors). Because of this reality, it cannot be determined with absolute certainty that the presentation of symptoms measured by these psychometric scales are representative of pre-existing vulnerabilities or vulnerabilities that were influenced by a particular study variable (i.e., social media overuse). This is a limitation of psychometric scales that may be countered by administering the measure before participants are exposed to the independent variable and readministering it again after exposure. Comparing the two sets of collected data may help to obtain more accurate results in this regard.

To conclude the discussion, all of the studies that were reviewed found varying degrees of association between the overuse of social media and compromised psychological well-being amongst the adolescent population. Multiple themes were identified and outlined throughout this section, critically discussing the various factors that contributed to these findings. The findings of the present study demonstrated greater evidence of adolescents experiencing adverse psychological distress (i.e., symptoms of depression and anxiety) as a result of excessive social media use. These social media platforms require and involve a high intensity of social connectedness and social interaction from and by its users. These results

build on the existing evidence that there are various negative implications with regard to adolescents spending what could be considered an unhealthy amount of time connected through social media. The data found in the present study also contributes to a clearer understanding of the ways in which these negative implications may occur in adolescents living in a technologically advanced, digitally-driven information age. Such findings could be helpful by providing an awareness to parents and caregivers of the need to closely monitor and censor the material that young people are exposed to, and engage with, on the internet. Moreover, these study findings should be considered when considering how rapidly the use of social media has grown over the last 10 years, and how much more it can be expected to grow over the next 10 years. Simultaneously bearing in mind that due to being in the midst of the COVID-19 pandemic, many people have found themselves working, socialising and connecting through social media now more than ever before. It is possible that the increased exposure to social media could have even greater implications for the emotional and mental well-being of not only adolescents, but the global population at large.

## **Chapter 5: Conclusion, Limitations, and Recommendations**

### **5.1 Conclusion**

The present study aimed to map and synthesise studies that demonstrated the effect of excessive social media use on adolescents' psychological well-being. This was achieved through the analysis of the following:

- Existing evidence of the effects of social media overuse on adolescents' psychological health/well-being
- Factors (e.g., type/s of social media engagement) that contribute towards adverse psychological outcomes
- Study characteristics (i.e., psychometric measures) that demonstrated an association between excessive social media use and adverse psychological outcomes
- Key gaps in literature on the effects of social media overuse on adolescents' psychological health/well-being

Eleven articles met the inclusion criteria for the present study, and these were included in the scoping review. These studies demonstrated similar focus areas (i.e., operational definitions, aims, objectives and study designs). Specific themes in relation to the current study objectives were identified:

- 1) Conceptualisation of social media overuse. The first theme identified addressed the first outlined objective. The studies reviewed conceptualised excessive social media use in the following ways: heavy social media use behaviours, excessive time spent on social networking platforms, active and passive social media use, maladaptive social media use and online social media addiction. These maladaptive use patterns were found to contribute significantly to the development of adverse mental health outcomes among the adolescent population,

across various global contexts. Contributing factors influencing the excessive use of social media, such as stages of development and difficult/challenging life experiences, were also explored.

- 2) Developmental and social factors that influence and contribute to excessive social media usage. The second identified theme addressed the second study objective. The first aspect that was explored in this theme were stages of development, and how the vulnerable adolescent stage of development can impact an individual's susceptibility to developing adverse psychological outcomes due to excessive social media use. The stages of development process were conceptualised using developmental theory to better understand the various transitions and changes that an individual undergoes at this stage. Social and environmental factors were also indicated as determinants that contributed to affectual changes experienced by adolescents' psychologically. However, it was quite apparent that investigating the influence of developmental and social factors was not prioritised, with relatively few studies addressing these influences ( $n = 4$ ). The studies that addressed systemic factors highlight at the individual level, that adolescence is a critical stage for establishing social interactions in the development of identity. Therefore, this population can be vulnerable to compromised psychological well-being as a result of excessive social media use, as a bulk of social interactions now take place online and these individual vulnerability factors can influence possible negative effects on adolescents in terms of their social development and identity formation (Erikson, 1950). From a biological perspective, the adolescent brain undergoes several structural changes at this stage of development, thus causing this population to be particularly vulnerable to the potential adverse effects of social media use. Studies found that excessive time spent on social media

applications such as Facebook, Twitter and Instagram (i.e., platforms where individuals engage in online chats) predominantly influenced adverse mental health outcomes, more so than spending time on other digital activities such as playing video games and watching television (Twenge & Martin, 2020; Twenge & Campbell, 2019; Oberst et al., 2017; Beeres et al., 2020). In this theme, the benefits of social media use were also explored.

- 3) Gender as a mediating variable. The third identified theme also addressed the second outlined study objective. The present study explored the comparisons that were drawn with regard to social media use behaviour, based on gender differences. The studies that included gender as a mediating variable, found that social media use patterns and the effects thereof differed according to the gender of the participants. The outcomes of these studies found that girls spent more time (average of 5 - 7 hours per day) using social media than boys, and that girls engaged in different media activities (i.e., preference for online chatting vs. boys who engaged in gaming). As a result, female participants were more psychologically affected by social media overuse than male participants (i.e., greater risk of depression and lower levels of life satisfaction).
- 4) Study design. The fourth identified theme addressed the third outlined objective. A review of the research methodologies used in the selected studies was conducted. It was found that the selected studies made use of quantitative study designs and systematic reviews of literature to draw their outcomes and conclusions. The benefits and limitations of both study designs were discussed in detail (see chapter 4, section 4.3.4), including a discussion on the reliability of such study designs. The potential use of alternative study methods to address



certain identified gaps, such as study design limitations and contextual limitations, was also explored in section 4.3.4 of the discussion.

- 5) Psychometric measures used. The final theme identified was the use of psychometric scales and measures in order to identify meaningful associations between the two variables, this theme also addressed the third study objective. The various scales used in the respective studies were identified, outlined and explored with regard to conceptualisations, uses, and statistical validity and reliability. The studies that made use of such measures (Q1 – Q8) found a significant correlation between social media overuse and adverse psychological outcomes and were assessed to have sound psychometric properties. The use of valid psychometric scales to collect data proved to be a strength in the reviewed studies as it increased the confidence in the subsequent results and findings. However, it was concluded that while there are several benefits of using psychometric scales and measures when collecting data, there are also various limitations including response biases and contextual, contextual and developmental differences. The benefits and limitations of using these scales was explored in further detail in section 4.3.5.

The fourth objective of the present study was to identify key gaps in the existing literature regarding the effects of social media use on the psychological well-being of the adolescent population. Firstly, it was noted that all of the studies included in the present study as per the inclusion criteria, were located globally. There was a shortage or absence of studies in this area, done in Africa and more specifically in South Africa. Possible explanations for this include the following: a general lack of resources in African countries, and prioritising studies that focused on areas or aspects of technology/social media other than psychological well-being, for example how social media can be used for health promotion in South Africa (Kubheka et al., 2020). Secondly, it was noted that all of the studies included in the present

study, as per the inclusion criteria, subscribed to quantitative or systematic literature reviews as their preferred methodological designs. There was a paucity of studies in this research area that made use of other study designs such as qualitative or mixed methods designs. With regard to studies that were eligible for inclusion in the present study, there were none that made use of qualitative or mixed methods study designs. The strengths and limitations of both quantitative methodologies and systematic literature review designs are outlined in section 4.3.4.

## **5.2 Limitations**

The final yield of the studies that were eligible for inclusion for this scoping review were rather limited (due to the specific inclusion criteria), which subsequently presented limitations with regard to the generalisability of the outcomes. The methodological approach of the present study, regarding the very specific inclusion and exclusion criteria, may have posed some constraints with regard to how many articles were finally selected for the scoping review. Moreover, one of the variables involved in this study (i.e., social media), is a fairly recent construct and because of this, there is not an abundance of literature available on both the positive and negative outcomes of its use. While it is clear that a relationship exists between excessive social media use and adverse mental health outcomes amongst adolescent populations, it is unclear whether this relationship is influenced by factors beyond the use of online communication platforms (e.g., stages of development, social and/or environmental stressors and triggers) when determining adverse mental health outcomes.

It was beyond the scope of this study to assess various other implications of social media overuse on adolescents, such as the higher exposure to cyberbullying, cyberaggression and violence, and to assess other mental health vulnerabilities outside of depression, anxiety and personality vulnerabilities. This study also focused only on the adolescent population. It did not assess in depth how social media overuse could potentially affect other population

groups, and whether social media would have less detrimental impacts on population groups that are not at such a vulnerable stage of psychological and emotional development.

### **5.3 Recommendations**

The outcomes of this scoping review identified specific themes that allude to the state of investigations done in this area. Based on its conclusions, it would be invaluable to consider that, in this time of widespread online interconnectedness, today's youth are faced with challenges that have never before been faced by any generation prior and that these challenges have significant bearings on their emotional and psychological development and well-being. A better understanding of these challenges will provide opportunities to develop ways to reduce and remediate these effects.

Moreover, in order to better understand and counter these implications, future studies could address ways in which adolescents could better utilise social media in healthier ways so that the effects of social networking are more beneficial than detrimental to them. Because digital interactions are proving to be a significant part of the present-day adolescents' life (Abi-Jaoude, Naylor & Pignatiello, 2020), this population would benefit greatly from having access to interventions at both an individual and systemic level. These interventions could be centred around equipping adolescents to better navigate challenges brought about by social media use so that they are able to undertake preventative measures with regard to potential harm (i.e., adverse mental health outcomes).

With regard to developing context specific interventions, future studies could be conducted in a more inclusive manner. For example, the study design issue identified in section 4.3 could be addressed by the implementation of alternative study design methods when carrying out such studies. These alternative methodological approaches could make use of samples that are more representative across global locations, with regard to the

participants, concept and contexts of the studies. Culture specific measures could be identified or developed, which incorporate the differences of the influence of specific social media platforms and adverse mental health outcomes, across different cultures. By making use of more representative samples, it could be useful in comparing the results of different studies (e.g., comparing the findings and outcomes of studies using clinical samples vs. non-clinical samples, and comparing the outcomes of studies using global populations vs. local populations). The absence of studies conducted in the South African context can be disadvantageous with regard to reliability and generalisability of study findings in this research area. Furthermore, using qualitative or mixed methods studies can be beneficial in assisting researchers further investigate the nature and extent of the relationship between variables.

From an etic perspective, it is assumed that the psychological mechanisms that underlie certain behaviours are universal and similar across cultures, but from the emic perspective it is assumed that the meaning given to certain behaviours is understood in a culturally specific manner. In the case of the present research, with regard to symptoms of depression and anxiety, it is likely that the etic approach is adopted. Because cultures across the globe vary greatly, it is important for research of this nature to be done in a manner that is relatable to adolescents in different contexts using contextually relevant psychometric scales and measures. Additionally, because South Africa is a country that is particularly diverse in culture, it is to be expected that the understanding and meaning of mental health, and issues thereof, also vary greatly (Swartz, 1998). Social media is used amongst adolescents of all populations and backgrounds; therefore, it is important for South African adolescents to be aware of the potential risks that excessive social media use may pose to their psychological well-being and to be made aware of which measures they can undertake to prevent them.

Lastly, in terms of potential reach of mental healthcare, it will be invaluable for future research to determine how practitioners in certain fields such as adolescent psychology, social work, psychiatry, medicine, and others which work closely with adolescents, could utilise social media platforms to strengthen relatability and rapport when working with this vulnerable population.

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## Appendices

### Appendix A: Exemption from Ethics Review Letter



Miss Phumelela Sibusisiwe Hlongwane (214525845)  
School Of Applied Human Sc  
Howard College

30 September 2020

Dear Miss Phumelela Sibusisiwe Hlongwane,

Protocol reference number: 00008857

Project title: The Effects of Social Media Over-use on Adolescents' Psychological Well-being: A Scoping Review

#### Exemption from Ethics Review

In response to your application received on 10/09/2020, your school has indicated that the protocol has been granted **EXEMPTION FROM ETHICS REVIEW**.

Any alteration/s to the exempted research protocol, e.g., Title of the Project, Location of the Study, Research Approach and Methods must be reviewed and approved through an amendment/modification prior to its implementation. The original exemption number must be cited.

For any changes that could result in potential risk, an ethics application including the proposed amendments must be submitted to the relevant UKZN Research Ethics Committee. The original exemption number must be cited.

In case you have further queries, please quote the above reference number.

#### PLEASE NOTE:

Research data should be securely stored in the discipline/department for a period of 5 years.

I take this opportunity of wishing you everything of the best with your study.

Yours sincerely,



Prof Johannes John-Langba  
Academic Leader Research  
School Of Applied Human Sc

UKZN Research Ethics Office  
Westville Campus, Govan Mbeki Building  
Postal Address: Private Bag X54001, Durban 4000  
Website: <http://research.ukzn.ac.za/Research-Ethics/>

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