Bullying in Early Adolescence: The Psychosocial, Emotional Wellbeing, and Academic Outcomes of Victimisation

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Contents

Abstract

Bullying is a global issue, with extensive literature concluding that victimisation leads to long-term mental health complications (Hymel & Swearer, 2015; Moore et al., 2017; Wolke & Lereya, 2015; Zych et al., 2015). Bullying that occurs throughout the adolescent years is of great concern due to the implications associated with healthy and appropriate development. Despite the wealth of knowledge on the impact of adolescent bullying, there remain gaps in the literature. First, there is a lack of work examining the longitudinal psychosocial and academic outcomes of all types of early adolescent bullying (10 to 12 years), especially concerning cyberbullying. Therefore, the first study was a comprehensive systematic review designed to address this limitation and provide guidance for the subsequent two studies to respond. Namely, studies two and three responded to the little work examining the effect early adolescent bullying has on indicators of positive wellbeing (study two), and the impact of cyberbullying on measures of emotional wellbeing and academic achievement over time (study three). This was done by utilising a large, population-based dataset, the Wellbeing and Engagement Collection (WEC), while drawing on the Ecological Systems Theory posed by Bronfenbrenner (1977) and the Complete State Model of Mental Health proposed by Keyes and Lopez (2002).

The WEC represents one of the world's largest population monitoring systems of adolescent mental health and wellbeing through the annual survey administered to considerable numbers of South Australian students (Gregory et al., 2021). The WEC contains many questions on relevant topics, including emotional wellbeing, engagement with school, learning readiness, and health and wellbeing out of school. The South Australian Department for Education funds the WEC, manages the online collection portal, and provides support and

reports to schools, education partnerships, and communities. To complement this approach, the subsequent papers, results, and implications of this thesis are discussed with education and public health perspectives in mind.

The second cross-sectional study examined data from over 9000 participants and aimed to provide new knowledge about the effect of all four types of bullying on positive and negative indicators of emotional wellbeing while controlling for a wide range of child, peer, and school-level covariates. The final study was designed to extend the knowledge gained from study two and address the limitations from study one. Therefore, study three focused on the association between early adolescent cyberbullying and positive and negative emotional wellbeing and academic achievement outcomes in the short- (one year later) and longer-term (three years later) while controlling for child, peer, school, and community-level covariates.

The three studies found that victims of all types of early adolescent bullying experience significantly poorer concurrent, short-term, and longer-term psychosocial, emotional wellbeing, and academic outcomes than students who do not experience any bullying. Therefore, attention should be given to designing appropriate and specific school-level interventions that help advocate for victims of early adolescent physical, verbal, social, and cyber bullying while they complete formal education.

Declaration

I certify that this work contains no material which has been accepted for the award of any other degree or diploma in my name, in any university or other tertiary institution and, to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference has been made in the text. In addition, I certify that no part of this work will, in the future, be used in a submission in my name, for any other degree or diploma in any university or other tertiary institution without the prior approval of the University of Adelaide and where applicable, any partner institution responsible for the joint award of this degree.

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Name: Sarah Halliday

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This thesis is dedicated to Opa, Grandma, and Brent.

Overview

The thesis begins with a literature review examining bullying victimisation in early adolescence with Chapter 1 concluding with the thesis aims. Chapter 2 contains an exegesis that explains the overall thesis in context. Following this, Chapter 3 describes the methodology of the three papers by detailing their design, data sources, and procedures. Chapters 4 through 6 contain the three papers and the respective statements regarding each author's contribution. Finally, Chapter 7 contains discussions and conclusions of the findings while acknowledging strengths and limitations. This final chapter also covers the significance of the work and implications while providing suggestions for future research. The references and appendices for all chapters are included at the end of the thesis.

Chapter 1: Introduction and Review of the Literature

1.1 Preamble

This thesis examines the association between traditional and cyber bullying and the subsequent psychosocial, emotional wellbeing, and academic achievement outcomes throughout the adolescent years. The following chapter provides a comprehensive review of the literature by discussing the developmental period of adolescence, the mental health and wellbeing of adolescents, the construct of bullying, the outcomes of bullying victimisation, school-level interventions for bullying, and the objectives of the current thesis. The review considers articles published up to 29 March 2022.

1.2 Adolescence

Adolescence is a formative time where adaptive development is crucial to grow into a healthy and well-adjusted adult (World Health Organisation, 2019b). Adolescents work to navigate life experiences during this period as they become less dependent on family networks (Robinson et al., 2011). Understanding when this period of development, termed 'adolescence', occurs has evolved throughout history due to related biological, psychosocial, and cultural expectations of the time (Curtis, 2015). In most Westernised societies, it is generally accepted that adolescence follows childhood, precedes adulthood, and can last up to a decade (Ember et al., 2017). Although this thesis adopts a Westernised interpretation, it is important to note that some cultures do not recognise adolescence as a decade-long transition; instead, formal rites of passage or ceremonial rites mark critical life stages (Ember et al., 2017).

1.2.1 Early studies and definition

Despite the term 'adolescence' appearing in the 15th century, derived from the Latin term '*adolescere'* meaning to grow up or grow into maturity, it was not until the early 20th century that the term was introduced into the scientific field by Stanley Hall (1904). Hall viewed adolescence through an evolutionary lens and suggested that this phase of one's life was a period of storm and stress and a time of universal and inevitable upheaval (Lerner & Steinberg, 2009; Miller, 1989). Other scholars have since expanded on Hall's biological reductionism view of adolescence and have described the period of adolescent development from psychoanalytical, psychosocial, and social-cultural points of view (Miller, 1989). From a psychoanalytical perspective, Sigmund Freud believed that adolescence encompassed psychological and emotional conflict due to repressed sexual impulses re-emerging and upsetting the balance between the id, ego, and superego (Miller, 1989). Erik Erikson described the period as a psychosocial crisis of identity versus role confusion, while Margaret Mead emphasised the importance of culture in one's upbringing through her work that examines primitive and modern societies (Mead, 1974; Miller, 1989). In more recent years, the approach is to use an evidence-based and scientific foundation to facilitate appropriate and healthy development, rather than providing a theoretical perspective explaining adolescence (Lerner & Steinberg, 2009).

The definition of the timing of adolescence varies in the literature. In the year 1402, the Oxford English Dictionary defined adolescence as the period lasting between 14 and 25 years in men and between 12 and 21 years in women (Murray et al., 1989). When Hall (1904) began his work, he adapted this definition to encompass both genders between 14 and 24 years old. The World Health Organisation (2019a) suggests that the age of adolescence is easier to define when assessed via biological changes (i.e., puberty); however, for social

transitions that mark the adolescent period, the age range is harder to define. Social transitions (e.g., economic independence, completion of secondary education) differ between time and place, contributing to considerable variance in terms of the age of the adolescent period in research (Sawyer et al., 2018). The most widely used definition of adolescence, given by the WHO, suggests that the adolescent period falls between the ages of 10 and 19 years (World Health Organisation, 2019b), but can also range from 9 to 24 years depending on the source of information (Curtis, 2015). This may be attributed, at least in part, to inconsistencies in definitions, with some studies using 'adolescence', 'young people / young adulthood' and 'youth' interchangeably, and through different interpretations of the age of adolescence for different genders (Curtis, 2015). For example, breast gland development in females is often considered an initial sign of puberty and starts to occur two years earlier than the initial signs of puberty in males (Eckert-Lind et al., 2020). The onset of puberty commonly signals the beginning of adolescence; a time of major biological, psychological, and social changes (Blakemore et al., 2010).

1.2.2 Biological, psychological, and social transitions

During the adolescent period, identities and personalities are forming and actively developing (Dienlin & Johannes, 2020; Erikson, 1994). It has been theorised that, compared to adults, adolescents are more open-minded, participate in more risk-taking behaviours, are more socially oriented, are less conscientious, less agreeable, and derive a large part of their wellbeing and life satisfaction from their peers (Dienlin & Johannes, 2020). Biological, psychological, and social transitions occurring during this period can vary depending on whether the individual is in early or later years of adolescence.

Early adolescence is defined as the period after childhood and ranges from approximately 10 to 14 years old as determined by the World Health Organisation (2019a). As mentioned above, the beginning of adolescence is commonly marked by the onset of puberty, with the mean age of pubertal onset being 11 years (Blakemore et al., 2010; Grumbach & Styne, 1998). Along with puberty, other biological changes that occur during early adolescence include the development of the prefrontal cortex, which influences cognitive ability and efficiency of thought, and changes in neurotransmitters that affect mood, appetite, and sensation seeking preferences (Steinberg, 2014). Changes in mood, appetite, and sensation seeking can contribute to increased risk-taking behaviour and increased symptoms of mood disorders such as depression and anxiety (Blakemore et al., 2010; Steinberg, 2014). The parent-adolescent relationship also begins to change. Increased emotional conflict between parent and child is exacerbated by communication changes and parental monitoring (i.e., knowing the whereabouts, activities, and friendships of the child) while the adolescent tries to individuate through increased peer involvement (Curtis, 2015; Lionetti et al., 2019). During this time, friendships become more important, along with increased sexual curiosity (Curtis, 2015). During the transition from childhood to early adolescence, one can experience different social values and norms, changing roles, increased responsibilities, and higher societal expectations (Curtis, 2015; Nucci, 2001). This is especially relevant during the change from elementary/primary schooling to middle and high school environments. High schools are characterised by relationships with multiple teachers rather than a single class teacher, leading to a less individualised experience and an increased independent and self-directed learning environment (Curtis, 2015; World Health Organisation, 2019a).

In later adolescent years, physical, psychological, and social development continues, with complete sexual maturation occurring (Curtis, 2015). Frontal lobe development progresses and formal cognitive operations emerge, allowing reasoning to become complex, abstract, and logical (Curtis, 2015). Efficiency in cognitive process and impulsivity control remain juvenile, meaning that those in late adolescence have a tendency to participate in risky behaviours such as increased use of drugs and alcohol (Steinberg, 2014; Wulfert et al., 2002). While parental/guardian relationships often become less characterised by conflict, disagreements can become more emotionally intense (Ember et al., 2017; Steinberg, 2014). By these later adolescent years, parent-adolescent communication has developed allowing for progress towards increased adolescent autonomy and independence, while remaining connected to the family (Lionetti et al., 2019). Furthermore, there is less dependence on peer relationships and, instead, intimate relationships increase in prevalence and intensity (Ember et al., 2017; Steinberg, 2014). During this period, adolescents also develop their identity through family, culture, peers, and the media (Backes & Bonnie, 2019). They develop self-awareness and the capability to self-reflect and begin to understand themselves, their place in the world, and their capacity to affect the world (Backes & Bonnie, 2019).

1.2.3 Early adolescence: A key developmental period

Early adolescence is a particularly important developmental period, as life experiences and expectations during this time can shape future behaviours and attitudes in later adolescence and into adulthood (Beal et al., 2016; Marshall & Tanner, 1969). There are many biological, social, and psychological occurrences during this stage of rapid development, which can be influenced by the environment surrounding the individual. For example, social disadvantages (such as poverty) can accelerate the timing of puberty, which is associated with an increased risk of experiencing maltreatment, obesity, conflict-laden

parent-child relationships, and substance abuse (Lee et al., 2014; National Academies of Sciences Engineering and Medicine, 2019). Positive peer connections are also essential, as secure and supportive relationships can act as a buffer between social anxiety and self-criticism tendencies as one develops a clear sense of self (Becht et al., 2017). Given the importance of ensuring a healthy environment for appropriate development into later adolescence and adulthood, it is imperative to ensure disadvantages are addressed in early adolescence (Patton et al., 2016). Such disadvantages can include impacts on educational outcomes, physical health, and the risk of developing mental illness (Kelly et al., 2016; Perou et al., 2013; Zilanawala et al., 2017). The emergence of mental health issues in adolescence further highlights the importance of considering early adolescence as a critical developmental period in research.

1.3 Mental health and wellbeing in adolescence

In adolescence, it is crucial to form and maintain healthy social and emotional habits important for mental health and wellbeing, as this period is when the development of mental disorders is most likely to occur (Jones, 2013; World Health Organisation, 2021). Large-scale meta-analyses and epidemiological studies indicate that most mental disorders develop in adolescents between 11 and 18 years of age, and some continue to persist into adulthood (Jones, 2013; Patton et al., 2016; Solmi et al., 2021). Therefore, the period of early adolescence represents a prime research period to address mental health and wellbeing, as well as the risk and protective factors that impact mental health during this time, to reduce the likelihood of developing mental disorders in later adolescence and adulthood.

1.3.1 Mental disorders in adolescence

Rates of mental disorder diagnoses have increased substantially over recent decades, with a growing number of children and adolescents requiring pharmaceutical and psychological interventions to address psychological ill health (Polanczyk et al., 2015). Based on a retrospective survey of 85,052 participants, it is estimated that 10-20% of adolescents worldwide will experience a mental health condition (Kessler et al., 2007). With many of these illnesses persisting into adulthood, adolescent mental disorders make a greater contribution to adult mental illnesses than ever before (Patton et al., 2016). A 2015 meta-analysis empirically evaluating the global pooled prevalence of mental disorders in adolescents in 27 countries found that 13.4% of adolescents experience a mental disorder, with any anxiety disorder the most common (6.5%), followed by disruptive disorders (5.7%), attention deficit hyperactivity disorder (3.4%) and any depressive disorder (2.6%) (Polanczyk et al., 2015). Furthermore, a recent systematic global analysis reported that suicide was the leading cause of adolescent mortality in 2019, accounting for 20% of all deaths in the population of people aged 15-24 years in the high-income and central Europe, eastern Europe, and central Asia regions (Ward et al., 2021).

Although it is well documented that the presence of mental disorders is one of the greatest causes of disability, lost productivity, and diminished quality of life (Venning et al., 2013), mental health is more than just the absence of mental disorders and there are theories highlighting the importance of overall mental health; one being the Complete State Model of Mental Health (Keyes & Lopez, 2002).

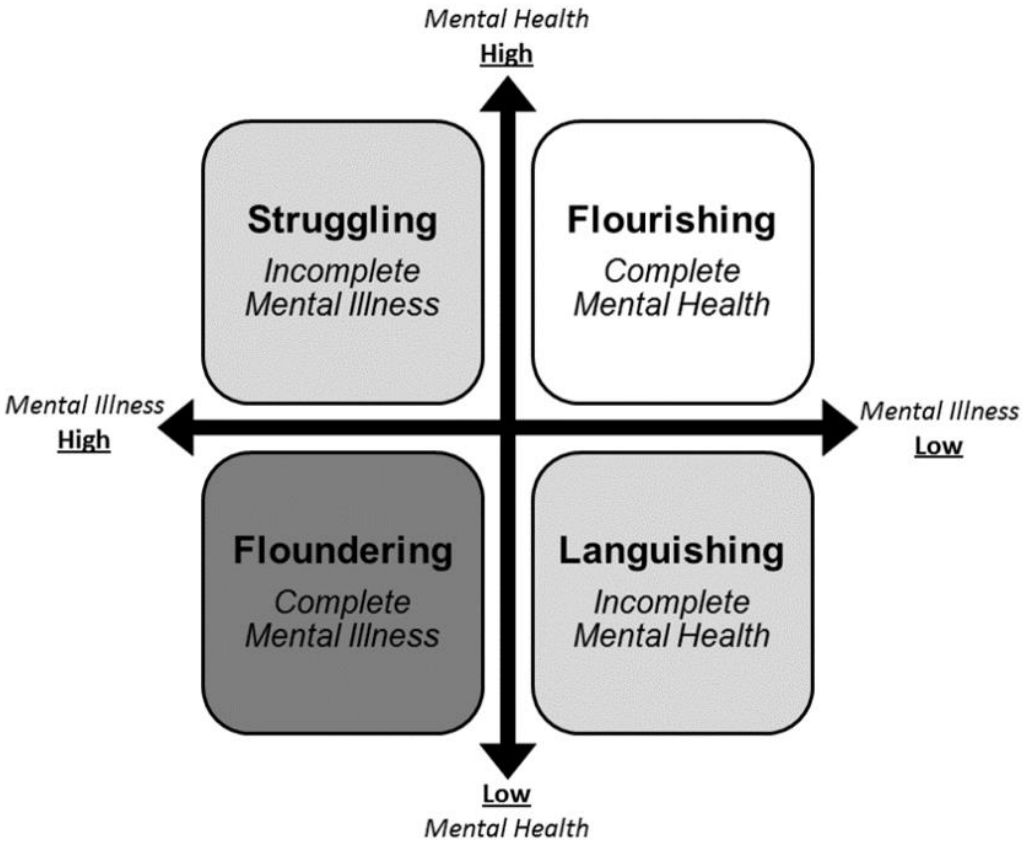
1.3.2 The Complete State Model of Mental Health

The Complete State Model of Mental Health is designed to capture the positive and negative aspects of mental health and classify people into categories according to the level of mental health and mental ill-health they experience (Keyes & Lopez, 2002; Keyes, 2007). The Dual-Factor Model of Mental Health (Greenspoon & Saklofske, 2001) is a similar theoretical model that uses slightly different nomenclature, but the current focus is on the Complete State Model of Mental Health.

The Complete State Model of Mental Health posits that individuals can be classified into four groups based on their level of positive wellbeing and mental illness or psychopathology: flourishing, languishing, struggling, and floundering (see Figure 1) (Keyes & Lopez, 2002). Flourishing (or complete mental health) is the hallmark of optimal mental health, where the individual experiences high levels of emotional wellbeing, high levels of positive functioning (e.g., social and psychological wellbeing), and are free from mental illness (Keyes, 2013; Venning et al., 2013; Wang et al., 2011). Individuals in this group exhibit emotional vitality, have good psychological and social functions, and it can be predicted that they will not suffer mental illness in the near future (12 months) since they are considered to be completely mentally healthy (Keyes, 2007; Wang et al., 2011). Individuals who are considered as languishing are free from mental illness but exhibit low levels of emotional wellbeing, low levels of positive function and are considered at risk of developing future mental health disorders (Keyes, 2013; Venning et al., 2013; Wang et al., 2011). Conversely, individuals who are struggling in life can exhibit symptoms of mental illness but still experience high levels of positive functioning and high levels of emotional wellbeing, while those considered floundering exhibit high levels of mental illness and low levels of positive functioning and emotional wellbeing (Keyes, 2013; Venning et al., 2013; Wang et al., 2011).

Figure 1:

Complete State Model of Mental Health



Note. From "Half full or half empty: the measurement of mental health and mental illness in emerging Australian adults", by E. Teng, A. Venning, H. Winefield, and S. Crabb, 2015, *Social Inquiry into Well-being, 1*(1), p. 4. (doi: 10.13165/SIIW-15-1-1-01). Copyright 2002 by Keyes & Lopez.

Elaborating on this, in a study of over 3,000 adults in the United States (US), between 25 and 74 years old, over 75% of individuals did not report symptomology of major depressive disorder (MDD), panic disorder (PD), or generalised anxiety disorder (GAD); however, only 20% were considered flourishing (Keyes, 2005). This finding suggests the presence of mental illness does not necessarily imply the absence of mental health. In the same group of American individuals, seven out of 10 adults with recent mental illness (MDD,

PD, or GAD) also had struggling or flourishing mental health. Presence in the different categories is also associated with different outcomes for adolescents.

Compared to those in the languishing and struggling categories, adolescents in the flourishing group have been found to have significantly higher scores on social acceptance at school, prosocial behaviour, academic self-perception, attitude towards teachers and school, goal valuation, and motivation with medium to large effect sizes (ranging from d = .581 for goal valuation to d = 1.919 for attitude towards school) (Arslan & Allen, 2020). Additionally, adolescents considered as flourishing have been found to have significantly higher levels of life satisfaction than other groups, followed by adolescents who are struggling, then languishing, and finally the adolescents who are floundering (Kim et al., 2019). These findings are supported in an Australian context, with Venning et al. (2013) (n = 3,913) reporting that there was an increase in engaging in health risk behaviours (such as smoking, drinking alcohol, and exercising and sleeping less) for any adolescent not considered as flourishing. The majority (58%) of adolescents who participated in this study were not considered flourishing, raising concerns about why this is the case and what contributes to the state of mental health of adolescents. The findings of Arslan and Allen (2020), Kim et al. (2019), and Venning et al. (2013) highlight that exhibiting *both* low mental illness and high psychological and emotional wellbeing are important components of mental health, while reporting low mental illness but also low psychological emotional wellbeing can have negative implications for life outcomes. As such, it is important to measure and study psychological wellbeing alongside mental illness to obtain a holistic picture of adolescent mental health, and to consider the related factors that put the mental health of an individual at risk.

1.3.3 Risk factors for poor mental health in adolescence

1.3.3.1 Individual risk factors

At an individual level, adolescents face many developmental tasks, such as accepting bodily changes, separating from parents, and constructing future perspectives, that can increase stress, and potentially contribute to an increased risk of mental health issues (Herpertz-Dahlmann et al., 2013; Silva et al., 2020). In particular, the exploration of sexual identity, identifying as lesbian, gay, bisexual, transgender, and queer (LGBTQ+), and coming out before the age of 16 is associated with the development of a mental illness in adolescence (Gnan et al., 2019; Klasen et al., 2015). The learning and development of social and emotional habits can also determine whether an individual will develop mental health problems in the future. In particular, mental health problems in adolescence can arise from issues associated with certain sleeping patterns and behaviours (Kotagal, 2015; Tesler et al., 2013), exercise habits (Biddle et al., 2019), coping strategies (Compas et al., 1993; Richardson et al., 2021), and interpersonal skills (Skeen et al., 2019).

Good sleep (including sleep quality, sleep length, and sleep efficiency) is important in adolescence due to its association with better cognitive and emotional processing, improved physical health, and better overall mental health (Kopasz et al., 2010; Lin et al., 2021; Tarokh et al., 2016). A cyclical pattern can be observed between mental health and sleep, demonstrating the importance of targeting sleep difficulties during adolescence (Orchard et al., 2020). For example, there is a relationship between mental health issues, such as depression and anxiety, and difficulties with sleep quality and consistent sleeping patterns (Orchard et al., 2020), in addition to insufficient sleep being associated with the development of depressive symptoms, feelings of hopelessness, and greater anxiety (Tarokh et al., 2016).

In addition to creating healthy sleep habits, exercise is another important area related to health to address when identifying determinants of mental health.

There is evidence from systematic reviews and meta-analyses that exercise is positively related to various indicators of mental health in adolescents, such as depression, anxiety, and self-esteem (Biddle et al., 2019; Dale et al., 2019; Lubans et al., 2016). Based on a meta-analytic review (Biddle et al., 2019), there is evidence for a causal association between physical activity and cognitive functioning, and a partial causal association between physical activity and depression in adolescents. Furthermore, a recent longitudinal study suggests an increase in volume or intensity when exercising has no impact on overall mental health (Barth Vedøy et al., 2021). From these findings, it could be said that any form of exercise is beneficial for adolescent mental health, regardless of vigour. Stress is another factor that contributes to mental health concerns, in which exercise and coping strategies can aid in management (Hueston et al., 2017; Richardson et al., 2021).

Coping strategies are often considered to be either problem-focused or emotion-focused (Lazarus & Folkman, 1984). Problem focused coping strategies are designed to address and resolve situations giving rise to stress (e.g., problem solving), while emotion focused coping strategies are employed to modulate emotions (e.g., social support seeking, avoidant coping) (Compas et al., 2017). When faced with situations that cause stress and anxiety, individual differences in the use of coping strategies can alleviate symptoms and increase resilience, or make the individual more vulnerable to developing indicators of mental health issues (Richardson et al., 2021). To avoid developing future mental health problems, researchers are interested in examining what factors contribute to individuals' ability to cope and regulate emotions when stressful events occur (Richardson et al., 2021).

While one strategy that is deemed effective in reducing symptomology is seeking social support to elicit care and esteem, those who do not have the interpersonal skills to develop or improve strong relationships may suffer (Richardson et al., 2021; Skeen et al., 2019).

Interpersonal skills are defined as having the ability to communicate and interact well with other people (Rodriguez et al., 2015). In a recent meta-analysis, Skeen et al. (2019) identified interpersonal skills as the most consistent factor that was associated with improved outcomes for positive mental health and depression and anxiety prevention, with small to medium effects. As assessed by self- and parent reports, depressed individuals exhibit weaker interpersonal skills and report poorer social competence (O'Shea et al., 2014). Developing skills to improve interpersonal relationships is highly relevant for improving adolescent mental health and preventing further risk factors as relationships play a major role in the development of mental health issues (Skeen et al., 2019).

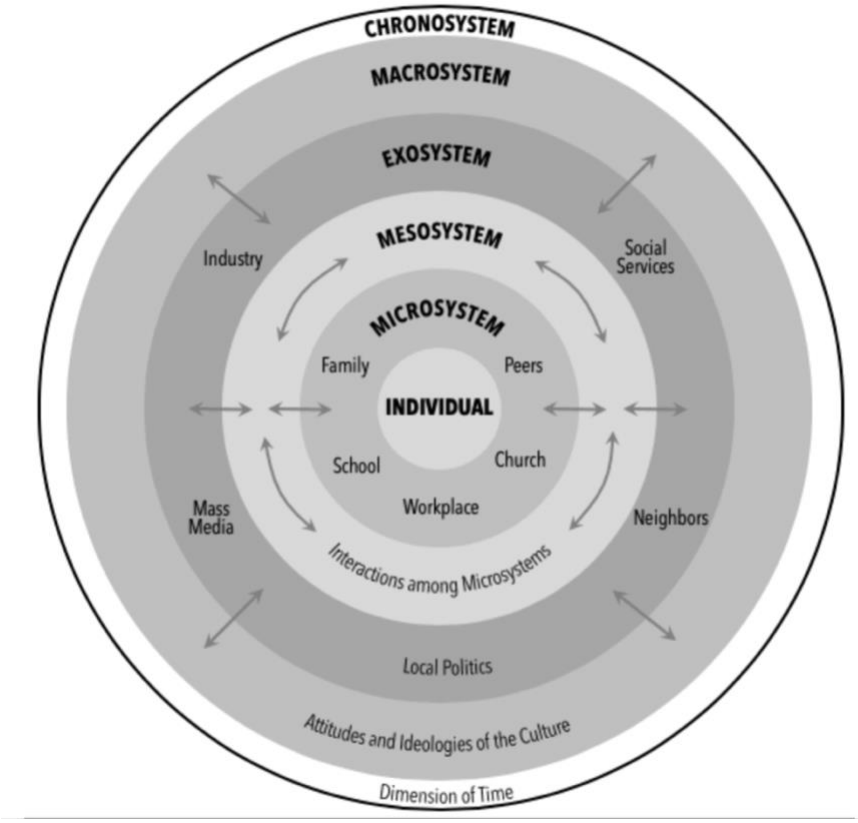
1.3.3.2 Peer and school risk factors and Bronfenbrenner's Ecological Systems Theory

Adolescent relationships can also contribute to poor mental health during adolescence and Bronfenbrenner's Ecological Systems Theory (1977) is a valuable model for examining the role of social environments in adolescent mental health. The Ecological Systems Theory outlines how different 'systems' can influence adolescent development and mental health (Bronfenbrenner, 1977). These systems include: the microsystem, identified as having the most immediate and direct impact on adolescent development; the mesosystem, which includes the interactions among factors in the microsystem; and the exosystem, which is recognised as the settings or events that impact development, but in which the child does not

actively participate (Bronfenbrenner, 1977). Furthermore, when interactions with system factors (such as parents, peers, teachers, and the broader community) are supportive and nurturing, it is more likely to foster positive development in the adolescent. When these interactions are not supportive and nurturing, there is an increased risk of poor mental health and hindered development. Figure 2 further outlines the systems and the encompassing factors. Some notable microsystem and exosystem influences on adolescent mental health and development include socio-economic status, adverse childhood experiences, and the school environment.

Figure 2:

Bronfenbrenner's Ecological Systems Theory



Note. From "Ecological systems theory", by B. Davis, & K. Francis, 2022, *Discourses on Learning in Education.* (doi: http://www.learningdiscourses.com/discourse/ecological-systems-theory/). Copyright 2022 by Discourses on Learning in Education.

Socio-economic status is a major determinant of adolescent mental health, with parental income and education contributing to societal inequalities (Elgar et al., 2015; Loft & Waldfogel, 2021). A global 8-year longitudinal study (n = 492,788 participants in 34 countries aged 11-15 years) examined the health related outcomes of different socio-economic groups, determined by factors such as material assets (e.g., car ownership) and common indicators of wealth (e.g., "how many times did you travel away on holiday with your family?") (Elgar et al., 2015). Results indicated the largest health inequalities between socioeconomic groups was in life satisfaction (p = 0.01), with small but significant differences in the presence of psychological symptoms between socio-economic groups at each timepoint (Elgar et al., 2015). Cross-sectional population-based research (n = 147,994) found that when parental education increases from low (primary and secondary schooling) to tertiary education, adolescents can experience a significant increase in satisfaction with school, social and psychological wellbeing (Loft & Waldfogel, 2021). This trend is mirrored when comparing the lowest quartile of parental income to the highest quartile, again with statistically significant results in all three outcomes (Loft & Waldfogel, 2021). Parental influence, in the form of adverse childhood experiences, can also impact adolescent mental health.

It is well documented that adverse childhood experiences have lasting effects on mental health into adolescence and adulthood (Balistreri & Alvira-Hammond, 2016; Felitti et al., 1998). These experiences may include harmful emotional, sexual, and physical abuse to a child, exposure to drug and alcohol use, and parental mental illness (Balistreri & Alvira-Hammond, 2016; Bethell et al., 2019; Bomysoad & Francis, 2020). In a nationally representative study of US adolescents aged 12 to 17 years (n = 29,617), adolescents who

reported four types of adverse childhood experiences (e.g., parental divorce, economic hardship, household exposure to substance abuse, and parental mental illness), had the highest likelihood of experiencing current depression (OR=10.27; 95% CI, 7.81 - 13.50), anxiety (OR=5.37; 95% CI, 4.27 - 6.76), and behavioural or conduct problems (OR=7.44; 95% CI, 5.00 - 11.06) compared to those who reported no adverse childhood experiences (Bomysoad & Francis, 2020). Additionally, exposure to only one adverse childhood experience was associated with a twofold increase in the odds of experiencing depression (OR=2.38; 95% CI, 1.80 - 3.13) or anxiety (OR=2.00; 95% CI, 1.65 - 2.41) compared to adolescents who did not report any adverse childhood experience. These results demonstrate that exposure to even one adverse experience in childhood is associated with poor mental health in adolescence. Although many of these adverse experiences occur at home, the school environment and the relationships adolescents have with peers and teachers also have direct implications for the development of mental health issues (Bronfenbrenner, 1977).

The World Health Organisation (2009) has identified education as a key area that plays a critical role in addressing the mental health of adolescents, with factors in the school environment identified as risks for the future development of mental health problems (Silva et al., 2020). A 2018 review found that 96% of included studies (n = 46) presented evidence to support the relationship between school climate and adolescent mental health (Aldridge & McChesney, 2018). Factors in the school climate included relationships with peers and teachers, attitude toward diversity, school safety, school connectedness, and academic perceptions (i.e., the demands placed on students to perform well). In the discussion of mental health issues in adolescence, a consistent factor observed within the broader category of school climate is bullying.

Bullying has been identified as a major threat to adolescent mental health, with a strong evidence base indicating that victimisation can lead to subsequent mental health issues and the development of mental disorders experienced in adolescence and later adulthood (Juvonen & Graham, 2014; Moore et al., 2017; Schoeler et al., 2018; Wolke & Lereya, 2015; Zych et al., 2015). In a comprehensive review of systematic reviews and meta-analyses, Zych et al. (2015) identified and summarised 66 reviews and meta-analyses demonstrating that bullying is associated with an increased risk of developing symptoms of depression (r = >.45), anxiety (r = .25), suicidal ideation (OR = 2.34; 95% CI, 2.03 - 2.69), suicidal behaviour (OR = 2.94; 95% CI, 2.36 - 3.67) and psychotic experiences (OR = 2.30, 95% CI, 1.50 - 3.40). Along with the increased risk of developing mental illnesses, victimisation is also associated with low self-esteem (r = .21), increased loneliness (r = .25), psychosomatic problems (OR = 2.39; 95% CI, 1.76 - 3.24) and sleeping problems (OR = 2.21; 95% CI, 2.01 - 2.44). In school environments, the absence of bullying was associated with an increase in adolescents' psychosocial wellbeing and a decrease in the prevalence of mental health problems. Bullying during adolescence is an important and modifiable risk factor for poor mental health outcomes in late adolescence and adulthood, and this topic forms the focus of this thesis.

1.4 What is bullying?

One of the first journal articles in bullying research was published in 1897, and explored the difference between teasing and bullying (Burk, 1897). However, the most noteworthy turning point for bullying research was in the 1970s with the work of Dan Olweus (Koo, 2007). Olweus, a Norwegian research professor in psychology, was the first to conduct an intensive study on bullying in schools among approximately 1,000 male students (aged 12-16

years) (Koo, 2007; Olweus, 1978). Olweus developed and used his own research methods, namely the Olweus Bullying Prevention Program and the Revised Olweus Bully/Victim Questionnaire, and his work helped bring insight about bullying behaviours and safety back into schools (Allanson et al., 2015; Koo, 2007; Olweus, 1978; Olweus, 1996). Despite a substantial amount of effort dedicated to reducing bullying since this time, pooled estimates from a 2020 study suggest 30.5% of 12 to 17 year olds across the globe are still experiencing victimisation (Biswas et al., 2020).

1.4.1 Traditional bullying

1.4.1.1 What is traditional bullying?

When Olweus first defined the construct of bullying, he recognised that physical bullying was most commonly understood among the population, but suggested that bullying could also encompass psychological acts of aggression, including violent verbal and social actions (Allanson et al., 2015). Researchers now consider these three types (i.e. physical, verbal, and social) as traditional bullying. Traditional bullying can involve direct physical harm (e.g., hitting, kicking) (physical bullying), verbal taunts and threats (verbal bullying), and exclusion, humiliation, and spreading of rumours (social bullying) to another individual (Hymel & Swearer, 2015). Olweus considered these types of bullying as a part of his discussion on the definition of bullying in 1994.

1.4.1.2 Definition

The definition of bullying provided by Olweus has since become widely used in research and school settings. He defines bullying as the 'exposure, repeatedly and over time,

to negative actions on the part of one or more other students' (Olweus, 1994, p. 1173). Based on this description, for a behaviour to be considered bullying it must meet three criteria: (1) aggressive or intentional “harm doing” behaviour, (2) that is carried out repeatedly and over time, and (3) involves a power imbalance between perpetrator and victim (Olweus, 1994). These criteria can help identify what behaviour constitutes bullying and what does not, but they can sometimes be ambiguous.

Firstly, for a behaviour to be considered bullying, it has to be repeated over time; however, there are arguments that isolated aggressive acts could also be defined as such. These include single instances of intense violence that aim to inflict psychological or physical harm on the victim (Smokowski & Evans, 2019). The problem with expanding the definition to include isolated incidents is that there is no consensus on what type of one-off experiences or behaviours would be classified as bullying. For example, Lee (2006) asks "what if the bully initiates the negativity with a single exploratory action to see what reaction they elicit from their victim, is it any the less a bullying action than if it were to be repeated?" (p. 66). One could argue that it is not deemed bullying as it is an isolated incident, while others may be inclined to agree with the postulation and consider it as bullying. These types of situations can result in unsuccessful intervention timing due to unclear guidelines on what constitutes bullying behaviours and whether teachers should be involved from the first instance (Lee, 2006).

Furthermore, many school personnel, parents, and students often adopt a subjective interpretation of bullying in conjunction with adopting aspects of the definition highlighted above, possibly due to the lack of clarity in the definition (Slattery et al., 2019; Smokowski & Evans, 2019). Reports from teachers suggest that definition elements (such as ongoing,

consistent, and intentional aggressive behaviours) are used in addition to personal meanings or understandings of what bullying is (Lee, 2006; Slattery et al., 2019). For example, teachers may consider whether the victim provoked the aggression in some way (Lee, 2006; Slattery et al., 2019). As a result, behaviours may be mislabelled as bullying, or not reported when it should be. Therefore, subjective interpretations of what is classified as bullying can result in inaccurate reporting and ineffective school responses.

There is further ambiguity in terms of what constitutes a 'power imbalance' as defining this is difficult because it depends on the perceptions of the victim (Smokowski & Evans, 2019). For example, the power imbalance between the perpetrator and victim could be considered a difference in popularity, a physical or strength difference, based on socio-economic status or income, or a gender difference. The power difference may also not occur until aggression begins, with whoever initiating the act, having the 'power' (Smokowski & Evans, 2019). In addition to the elements that comprise the definition of bullying, uniform measurements of the construct are also lacking.

1.4.1.3 Measurement of traditional bullying

There is a consensus in the field that a lack of consistency in definitions and measures of bullying has resulted in conflicting prevalence rates and the reporting of associated outcomes. A systematic review exploring 41 measures of traditional bullying used in the literature found a range of inconsistencies, including terminology used, the definition adopted, and the content of bullying behaviours (Vivolo-Kantor et al., 2014). Regarding terminology, bullying tended to be the most widely used (70.7%), while peer victimisation (34.1%) and peer aggression (29.3%) were also adopted. In addition, 11 out of 41

measurement tools included a definition of bullying; however, only four captured all components of the definition (i.e., a power imbalance, an intention to harm and the victim experiences harm, which is repeated, and experiences last over time). Additionally, 17 different categories of behaviour content were used in the 41 measures. These ranged from broad (i.e., physical acts, making fun/teasing/embarrassing) to specific (i.e., homophobic teasing, weight-based teasing) descriptions of bullying behaviour. Having inconsistencies in the measurement of bullying limits the ability to make comparisons between studies around the world.

Although Olweus (1996) designed a measure based on his definition of the construct to assess traditional bullying in schools (i.e., the Revised Olweus Bully/Victim Questionnaire), this measure does not always accurately capture bullying in different cultures and languages (Mitchell & Borg, 2013). Vague language and lack of guidelines for interpreting the elements of the definition (i.e., intent, hurt, repetition, power imbalance, and duration) are further examples of issues that reduce the ability to capture global prevalence and effectiveness of interventions (Mitchell & Borg, 2013).

Additionally, the lack of clarity regarding definition elements can contribute to issues with assessment, mainly due to the absence of guidelines and thresholds (Slattery et al., 2019). Although the elements in the definition of bullying (intentionality, repetition, and power imbalance) can help identify bullying, it is possible that bullying occurs unknowingly by teachers or adults in school settings. Instead, self-reports are the most common method of assessing bullying (Solberg & Olweus, 2003), but can be unreliable and inaccurate (Bouman et al., 2012). For example, students may under-report or non-report as they are reluctant to admit victimisation due to the fear of retaliation if caught (Branson & Cornell, 2009) or are

ashamed that it is happening to them (Bouman et al., 2012). Additionally, as there are no efforts to conceptualise elements of the definition, students may incorrectly understand and report behaviours as bullying (e.g., in instances when the behaviour has only occurred once) (Mitchell & Borg, 2013).

Inconsistencies in the definition of bullying across research, legislation or policy, and practice can also impact the way schools respond to the problem (Slattery et al., 2019). In particular, the elements of bullying (i.e., repetition, imbalance of power, intent to harm) lack clear parameters and rely on subjective interpretation by school personnel (Slattery et al., 2019). Without guidance, victimised students may experience different levels of severity before attention is given to their case, and consequences for the perpetrator are implemented (Slattery et al., 2019). For example, it is unreasonable to assume that school personnel will always observe repeated bullying incidents (Slattery et al., 2019). The adult may not intervene when, according to them, the behaviour is occurring for the first or second time; however, the behaviour may have been happening repeatedly and over time for the victim.

Since the Slattery et al. (2019) review, the state of the literature has remained fairly unchanged, and subsequent studies have focused mainly on discussing the problems associated with the definition (Bjereld et al., 2020; Hellström et al., 2021). However, Chang (2021) suggested an alternative perspective. The author proposed that bullying should be considered as a moral issue and suggested that the social domain theory can provide a framework for researchers to understand how individuals evaluate and make judgements about the harm and power imbalance features of bullying. Although the social domain theory can provide guidance on what behaviours are considered playful teasing as opposed to

bullying, the proposition presented by Chang (2021) is in its infancy, with no peer reviewed studies supporting the author's notion.

The ambiguity around conceptualising the elements in the definition of bullying contributes to difficulties in research and practice. Similar to the outcomes associated with the absence of a global measure, differing definitions of bullying make it challenging to compare study findings (Mitchell & Borg, 2013). In school environments, the issues of definition clarity and self-reporting incidents can contribute to inappropriate and ineffective interventions (Slattery et al., 2019). Although the aim of the thesis is not to propose an alternative definition or measurement, it is important to understand the impact of these issues on the current state of the bullying literature. For instance, the recent addition of cyberbullying provides further issues in bullying literature due to the difficulties conceptualising and defining the construct.

1.4.2 Cyberbullying

1.4.2.1 Definition

With the advent of the Internet in the 1990s, online environments have created a new medium through which bullying can occur. The problem has only grown as mobile phones have become more accessible and popular. Cyberbullying is described as unwanted behaviours aimed to cause intentional and repeated harm through the use of computers, mobile phones, or other electronic devices that aim to threaten, humiliate, insult, intimidate, or exclude the victim (Patchin & Hinduja, 2006; Smokowski & Evans, 2019). A commonly used definition is one proposed by Tokunaga (2010). The author describes cyberbullying as "any behaviour performed through electronic or digital media by individuals or groups that

repeatedly communicates hostile or aggressive messages intended to inflict harm or discomfort on others" (Tokunaga, 2010, p. 278). Although this definition is being used more frequently, there is currently no widely accepted definition of cyberbullying. Another popular definition comes from Smith et al. (2008) who describe cyberbullying as "an aggressive, intentional act carried out by a group or individual, *using electronic forms of contact*, repeatedly and over time against a victim who cannot easily defend him or herself" (p. 376). From 2012 to 2017, Peter and Petermann (2018) identified 24 different definitions of cyberbullying proposed by various authors in the field (see Table 1 for examples). While many cyberbullying definitions proposed include the recognised elements of bullying (i.e., intent, hurt, repetition, and duration), the inclusion of a power imbalance element is contentious. This factor contributes to the variation in the definition and measurement of cyberbullying.

Table 1:

Examples of Cyberbullying Definitions from 2012 to 2017

Author(s) (year)	Country	Definition	Definition derived from
Bauman and Newman (2013)	USA	"Using information and communication technology (ICT) to intentionally harm a target by affecting his or her social status, relationships, and reputation" (p.27)	Not reported
Bradshaw et al. (2015)	USA	"Involves threats, harassment, and harmful actions via cell phones and on the Internet" (p.495)	Not reported
Hinduja and Patchin (2014)	-	"Wilful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices" (p. 11)	Theoretical consideration based on a review
Kowalski et al. (2016)	USA	"Bullying that occurs via the Internet or text messaging. [Cyberbullying is] an act of aggression that is often repeated over time (e.g., a single message posted where thousands of people can view it), and that occurs among individuals whose relationship is defined by a power imbalance" (p.416)	Not reported
Slonje et al. (2013)	Sweden	"A systematic abuse of power which occurs through the use of information and communication technologies (ICTs)" (p. 26)	Summary of the definition developed by Smith et al. (2008)
Watts et al. (2017)	-	"Any electronic means to repeatedly harass, intimidate, or embarrass another person" (p. 272)	Conclusion from a literature review

1.4.2.2 Types of cyberbullying

Cyberbullying can occur in the following ways: harassment (repeatedly sending unkind or insulting messages); flaming (arguments using electronic messages with angry and vulgar language); cyberstalking (repeated intense harassment that includes threats and creates fear); denigration (spreading rumours online); impersonation (pretending to be someone else online); outing (sharing one's secrets or personal images online); trickery (tricking someone into revealing secrets, then sharing them online); and exclusion (intentionally excluding someone from an online group) (Menesini & Nocentini, 2009).

There are also many different online platforms where cyberbullying can occur. For example, instant messaging platforms or chat rooms on social media websites (such as Reddit, Snapchat, YouTube, and Facebook) facilitate immediate and constant communication (Bauman, 2010). Texting and phone calls offer the same features, but the phone number must be known for this (Bauman, 2010). Phone calls are not always considered as cyberbullying, but are often examined as a form of cyberbullying victimisation with other forms of mobile phone use (González-Calatayud & Espinosa, 2021; Slonje & Smith, 2008). Mobile phones can also facilitate cyberbullying behaviours through camera features (i.e., photos and videos) that can be uploaded later online. For victims, cyberbullying using photos and videos have been rated as the most impactful, with reasons given for this including the possibility of a large audience viewing the video or photograph of the embarrassing situation (e.g., the video or photo becoming 'viral') and the difficulty associated with removing or deleting photos and videos once they have been uploaded to the Internet or shared between peers (Slonje & Smith, 2008). Social media sites also inadvertently facilitate cyberbullying by providing the option of anonymity, allowing comments to be shared on posts and photos, and offering the

opportunity for wide (or 'viral') sharing or reposting of an uploaded image or video (Bauman, 2010). Although cyberbullying types have been established, there are still uncertainties in measuring the construct.

1.4.2.3 Measurement of cyberbullying

There has not been a single measure identified and used globally that encompasses the characteristics of the definition of cyberbullying, with the difficulty of identifying a power imbalance among limitations (Patchin & Hinduja, 2015). As a result, there are numerous cyberbullying measures utilised in the literature. Indeed, a review conducted in 2020 identified 64 different cyberbullying instruments proposed by different authors in the field (Chun et al., 2020). Only 72% of included studies made efforts to explain the concept of cyberbullying in their proposed scale, with half of those using the word 'cyberbullying' and the other half using alternative words (e.g., cyber aggression, e-bullying, and online harassment). When a definition was provided, Hinduja and Patchin (2014), Tokunaga (2010), and Smith et al. (2008) were the most commonly cited. Furthermore, the review found that only 67.2% of the studies explored the reliability (i.e., internal consistency) of their cyberbullying measures and only 54.7% evaluated one or more aspects of the validity of the measure. The lack of a consistent definition of cyberbullying has resulted in a large number of different measures, which, in turn, can affect estimates of prevalence rates (Chun et al., 2020).

The purpose of this thesis is not to suggest a new and superior definition of cyberbullying, as any definition may require refinement as the online world changes. Specifically, the definition of cyberbullying may need to be adapted as new technologies and

ways of interacting online emerge that create new ways that cyberbullying may occur (Slattery et al., 2019).

1.4.3 Adolescence, the online environment, and phone ownership

In the last two decades, adolescent Internet usage and mobile phone ownership have grown exponentially and have had a notable influence on identity, autonomy, peer relationships, sexuality, and risk taking, along with the occurrence of cyberbullying (Vannucci et al., 2020). The prominence and importance of online environments in adolescence requires further research to ensure that the environment is suitable for healthy development.

A recent survey of 743 randomly sampled US adolescents found that 95% of 13 to 17-year-olds reported having owned or had access to a smartphone, and 45% reported that they were online on a nearly constant basis (Anderson & Jiang, 2018). The study also found that 50% of teenage girls use the Internet almost constantly throughout the day, compared to 39% of boys, while 9 in 10 teenagers reported going online multiple times a day. From 2015 to 2018, the most popular social media site had switched from Facebook to YouTube (85%), Instagram (72%), and Snapchat (69%), with Facebook usage reducing from 71% in 2015 to 51% in 2018 (Anderson & Jiang, 2018). Social media is an important environment to consider, as platforms play an important role in facilitating cyberbullying behaviours (Thorn, 2021). But it is important to note that as technology is constantly changing and new social media sites have surfaced, the results from this US report may now be outdated (Anderson & Jiang, 2018).

In Australia, adolescents use the Internet more than any other age group (Australian Bureau of Statistics, 2016). A recent government report on a survey of 627 adolescents aged 12 to 17 years finds the following about Internet use (eSafety, 2021). In 2020, Australian teenagers spent an average of 14.4 hours a week online, with males spending more time online than females (15 hours and 13.8 hours, respectively). Adolescents were engaging with online environments in various ways, including researching topics of interest, chatting with friends, entertainment purposes (i.e., watching videos), playing online games, and listening to music. Similar to adolescents in the United States, the most popular social media sites included YouTube (72%), Instagram (57%), Facebook (52%), and Snapchat (45%). This report is more recent than the previously discussed study conducted in the US (Anderson & Jiang, 2018) and suggests that other social media sites have become popular in the last three years. One of these is TikTok, which has seen a considerable increase, growing from 12% of users in 2017 to 38% of users in 2020.

Regarding adolescents, social media, and cyberbullying, a 2021 national survey of 1,000 US participants (50% between 9 and 12 years old) investigated the occurrence on different social media platforms, with weighted estimates provided according to age, gender, race, and rural or metro residence, to ensure representativeness of the data (Thorn, 2021). The most popular social media sites for individuals between 9 and 12 years of age included YouTube (80%), Instagram (50%), Snapchat (47%), and TikTok (45%). The survey also indicated that 38% of the participants experienced cyberbullying, with Snapchat (26%), Instagram (26%), and YouTube (19%) the most common social media sites where cyberbullying occurred. This is a concerning finding as it suggests that social media use and cyberbullying experiences are relatively common even for individuals under 13 years of age, despite most social media sites having an age restriction of 13 years old and over. This reason could be contributing to the

limited studies examining cyberbullying in adolescents under 13 years of age, which is why addressing this gap is an objective of this thesis.

1.4.4 Differences between traditional and cyber bullying

Despite being commonly researched under a broad category of ‘bullying’, there are substantial differences between physical, verbal, social, and cyber bullying. First, a power imbalance cannot always be determined for cyberbullying occurrences, as cyberbullies may attack others who may be more physically or socially 'powerful' than them in face-to-face contexts (Thomas et al., 2015; Vandebosch & Van Cleemput, 2008). This is possible due to the anonymity that online environments provide (Thomas et al., 2015; Vandebosch & Van Cleemput, 2008). This perceived anonymity can also explain why those who may not be traditional bullies (potentially due to beliefs of physical or social inadequacies) may participate in cyberbullying (Redmond et al., 2020).

The location in which the bullying occurs is also a significant difference between traditional and cyber bullying. Traditional bullying occurs directly (face-to-face) and is commonly experienced within the school gates, whereas cyberbullying is more likely to occur outside school (Englander et al., 2017). While traditional bullying experiences generally cease once the victim is outside of the school grounds, cyberbullying can occur whenever and wherever due to the accessibility of online environments, and also has the potential to reach a much larger audience than traditional bullying incidences (Englander et al., 2017). In an online environment, cruelty (in the form of videos, photos, and comments) can become ‘viral’ regardless of the intent of the perpetrator, and the possibility of removing or ignoring the incident can become impossible (Englander et al., 2017).

1.4.5 Risk and protective factors associated with bullying

By better understanding the risk and protective factors associated with bullying, school-level interventions can be designed based on empirical evidence. Decisions about the design of the intervention can be informed by factors considered protective, and prevention efforts can specifically target certain individuals identified as more at risk.

Commonly studied individual factors related to bullying include gender, age, internalising behaviours, and externalising behaviours. Although it is understood that males have a higher chance of becoming a victim and females experience poorer psychological outcomes as victims of bullying (Carbone-Lopez et al., 2010; Chester et al., 2015; Cook et al., 2010), it is essential to consider the experience of adolescents who do not identify with being a cisgender male or female. Although research in this field is scarce, preliminary results indicate that identifying as nonbinary or transgender is associated with being four times more likely to experience bullying than cisgender males and females (Atteberry-Ash et al., 2020). Furthermore, non-cisgender students described the bullying experience to include verbal harassment, physical harassment (e.g., pushed, shoved), and physical assault (e.g., punched, kicked, or injured with a weapon) (Atteberry-Ash et al., 2020). Additionally, those identifying as LGBTQ+ are disproportionally more likely to experience traditional and cyber bullying throughout their lifetime than non-LGBTQ+ identifying individuals (Hinduja & Patchin, 2020).

In terms of age, longitudinal evidence suggests younger adolescents report higher levels of victimisation than older adolescents, with a peak in victimisation reported around

early adolescence and then a decline into later adolescence (Babarro et al., 2020; Brown et al., 2005; Waasdorp et al., 2017). The increase in bullying rates from childhood to early adolescence is consistent with puberty, a lack of emotion regulation and social skills, and a major transition of school environments, all of which can increase sensitivity to bullying behaviours (Ryoo et al., 2015; Williford et al., 2011). School transitions (from elementary (primary) to middle (high) school) generally require students to move from a small and supportive school environment to a larger setting that is less personal and encourages student independence (Curtis, 2015; Williford et al., 2011). This change in environment can also disrupt social hierarchy structures and often requires students to establish new friendships and social groups (Pellegrini, 2002; Williford et al., 2011). While many students do not face problems during this transition, some can experience great difficulty in forming new peer relationships, which can put them at risk of experiencing bullying (Pellegrini, 2002; Williford et al., 2011). As such, it is important to consider early adolescence in bullying research, especially in the lead-up to school transitions.

Additional individual risk factors for experiencing bullying victimisation include exhibiting externalising and internalising behaviours (Babarro et al., 2020; Cook et al., 2010). A meta-analysis of 172 articles in this field found that internalising behaviours were among the two strongest individual risk factors predicting victimisation (r = .25); along with social competence (r = -.30) (Cook et al., 2010). Typical internalising behaviours include showing symptoms of depression and anxiety, social introversion, loneliness, and having low self-esteem (Coyle et al., 2017). Though not as strong as a predictor, engaging in externalising behaviours was also an individual risk factor (r = .12) (Cook et al., 2010). Externalising behaviours include exhibiting violent or aggressive behaviour onto others, becoming a perpetrator of bullying, or even carrying a weapon (Eastman et al., 2018).

Regarding individual-level protective factors, Zych et al. (2019) conducted a systematic review of meta-analyses that examined these factors in relation to traditional and cyber bullying. The strongest protective factors for experiencing less traditional bullying included high self-esteem (OR = 4.65; 95% CI, 3.23 – 6.69), high social self-concept (OR = 3.88; 95% CI, 2.74 - 5.48), and high pro-sociality (OR = 3.71; 95% CI, 2.46 - 5.60). For experiencing less cyberbullying, the strongest individual protective factors included the low frequency of cyber activities (OR = 2.45; 95% CI, 1.38 - 4.36), high life satisfaction (OR = 2.27; 95% CI, 0.81 - 6.37), and high self-esteem (OR = 2.27; 95% CI, 1.76 - 2.92).

Family-level characteristics have also been identified as risk or protective factors. Longitudinal evidence suggests there is an increased risk of victimisation for adolescents whose parents have low socio-economic status, if the individual is a victim of physical harm during childhood, if poor parental mental health is present, or if their environment is marked by high family conflict (Babarro et al., 2020; Zych, Farrington, et al., 2020). In contrast, high parental involvement, good supervision, living with both parents, and perceiving a better relationship with them are related to lower rates of becoming a victim (Babarro et al., 2020; Zych, Farrington, et al., 2020). There is conflicting evidence concerning the relationship between parental divorce and bullying. Some studies suggest that divorce is a predictor of antisocial behaviour and offending, but not victimisation (Zych, Farrington, et al., 2020), while other studies suggest that having divorced parents is significantly associated with reporting continued victimisation from lower secondary school (ages 14 to 16 years) to upper secondary school (ages 16 to 18 years) secondary school (Lien & Welander-Vatn, 2013).

It is also important to consider risk and protective factors at the peer and school level, as the school ground is the most common place for traditional bullying to occur (Walters, 2020). Peer-related risk factors include having low-quality peer relationships, lacking adequate social skills, experiencing difficulties solving social problems, and being noticeably rejected and isolated by peers at school (Cook et al., 2010; Zych, Farrington, et al., 2020). Protective peer factors include high peer status (i.e., being more popular among peers) and having a positive influence among others (Cook et al., 2010; Zych, Farrington, et al., 2020).

School characteristics related to risk and protective factors for victimisation can be divided into personal and environmental influences. Personal risk factors associated with bullying include higher levels of absenteeism and lower academic performance (Zych, Farrington, et al., 2020), while strong social support from teachers and adults at school is recognised as a protective factor (Babarro et al., 2020). School environment risk factors include feeling a lack of safety at the school and being a student in a larger populated school, while perceiving the school climate as positive and having trust in the school are recognised as protective factors (Babarro et al., 2020; Zych, Farrington, et al., 2020).

One of the challenges with research in this space is that a predominance of cross-sectional studies makes it difficult to determine the direction of relationships between some individual, peer, and school protective/risk factors and bullying. For example, it is plausible that the experience of bullying leads to adolescents experiencing internalising behaviours, as well as this being a risk factor for subsequent bullying. Although Cook et al. (2010) included studies that focused on predictors of bullies, bully-victims, or victims, there were no indications as to whether the studies were longitudinal in nature. This is a similar concern of Zych et al. (2019), where it was identified that there were no studies that specifically focused

on prospective longitudinal research. These limitations thereby make it challenging to determine the direction of the relationship. Future work in the area of risk and protective factors for bullying should consider implementing a longitudinal study design to accurately report these findings.

1.5 Psychological, social, and educational outcomes of traditional and cyber bullying

It is well established that bullying results in adverse outcomes, both in the short- and long-term, and impacts many areas including the psychological, social, physical, and emotional state of an individual (Iyer-Eimerbrink & Jensen-Campbell, 2019; Ladd et al., 2017; Smithyman et al., 2014; Ttofi & Farrington, 2012; Wolke & Lereya, 2015; Zych et al., 2015). It is also widely known that adolescence is a formative time in which positive development is crucial to growing into a healthy and well-adjusted adult (World Health Organisation, 2019b). Given that impacts of adolescent bullying can continue into adulthood, it is important to address adverse outcomes as early as possible to reduce the likelihood of long-lasting implications.

1.5.1 Psychological outcomes of traditional and cyber bullying

Reviews exploring the association between bullying and psychological outcomes throughout the adolescent period have established that victimisation results in numerous mental health impacts, including an increased risk of developing anxiety disorders, borderline personality disorder, symptoms of depression, and an increase in self-harming and suicidal behaviours and thoughts (Iyer-Eimerbrink & Jensen-Campbell, 2019; Wolke & Lereya,

2015). Australian studies indicate that traditional and cyber bullying is associated with an increased likelihood of depressive disorder, anxiety disorder, an increased likelihood of suicidality, and self-harming behaviours (Islam et al., 2020; Jadambaa et al., 2020). Whether bullying occurs inside or outside of school does not appear to have an impact on negative outcomes for victims (Islam et al., 2020). These negative outcomes can also persist into adulthood (Takizawa et al., 2014; Wolke & Lereya, 2015). By adulthood, 10.8% of depressive disorders and 7.8% of anxiety disorders in Australia can be attributed to adolescent bullying (Jadambaa et al., 2020).

To understand the psychological impacts of experiencing bullying for victims, it is essential to move beyond just focusing on mental illness. The World Health Organisation (2018) and theoretical approaches such as the Complete State Model of Mental Health (Keyes, 2005) state that mental health conceptualisation should encompass positive aspects of mental health (i.e., psychological wellbeing) alongside negative aspects of mental health (i.e., mental illness/distress). However, most of the research in the field of bullying focuses on negative mental health indicators associated with victimisation (i.e., depression, anxiety, and suicidal ideation) (Antaramian et al., 2010; Fullchange & Furlong, 2016). Despite evidence suggesting bullying is associated with lower levels of happiness and life satisfaction, there is still a lack of research this area (Fullchange & Furlong, 2016; Moore et al., 2012; Navarro, Ruiz-Oliva, et al., 2015).

Fullchange and Furlong (2016) highlighted the limited research that examined the impacts of bullying on positive wellbeing and attempted to address this issue. The authors found that any level of victimisation is associated with significantly lower levels of belief-in-self (i.e., self-awareness), belief-in-others (i.e., school and peer support), and engaged living

(i.e., gratitude and optimism), with small effect sizes, compared to not experiencing victimisation. Other studies have also found that victims tend to have lower levels of life satisfaction (Flaspohler et al., 2009; Moore et al., 2012), tend to be less optimistic, and tend to be less happy (Cassidy & Taylor, 2005; Navarro, Ruiz-Oliva, et al., 2015). However, there are shortcomings of the previous work that are worth noting. First, cyberbullying has not been considered separately to traditional bullying in these studies. Second, only one study has examined the association between bullying and happiness and life satisfaction during the early adolescent period while taking into account potential covariate factors such as gender and grade (Navarro, Ruiz-Oliva, et al., 2015). Based on the available literature, it seems that there have been no studies exploring the impact of both traditional and cyber bullying on positive wellbeing indicators, including life satisfaction, happiness, and emotion regulation, that focus on the age period when bullying is most prevalent (early adolescence). The lack of studies considering the relationship between bullying and positive wellbeing outcomes prompts further research.

Although there is a wealth of literature exploring the psychological outcomes of bullying victimisation, there are some key gaps in the literature that need further research. As mentioned above, considering bullying, especially cyberbullying, in early adolescence is necessary, as this is the period during which bullying is most prevalent, in addition to exploring the association between all types of bullying and both negative *and* positive wellbeing indicators to understand the impact of bullying on mental health more holistically.

1.5.2 Social outcomes of traditional and cyber bullying

Bullying also affects social relationships. Adolescent bullying victims report feeling less satisfied with their family, friends, and the environment, and are more likely to report not enjoying being with family and friends (Smithyman et al., 2014). In school settings, victims of bullying experience peer rejection, are less likeable as perceived by peers, and are less popular than non-victims (Hodges & Perry, 1999; Sheppard et al., 2019). Interestingly, Hodges and Perry (1999) found that victimisation occurring at age 11 did not result in a loss of friends over the ensuing year; instead, victims tended to turn to other victimised individuals as friends. Specific to cyberbullying, reviews indicate individuals aged 10 to 14 years report more isolation from parents and peers, increased feelings of loneliness, and report having fewer friendships after controlling for traditional forms of bullying (Nixon, 2014). Social-relations issues also persist into adulthood. Victims of traditional and cyber bullying in adolescence report having trouble making and keeping friends, are less likely to receive social support, and are less likely to live with a partner or spouse at 50 years of age (Wolke & Lereya, 2015).

1.5.3 Educational outcomes of traditional and cyber bullying

Bullying also has a detrimental impact on many areas associated with schooling. Compared to non-victims, bullying victims are more likely to earn lower grades, score lower on standardised tests, and experience lower school performance overall (Juvonen et al., 2011). Bullied adolescents also report lower levels of school belonging, higher school disengagement, lower school attendance, and have a negative attitude toward school (Baly et al., 2014; Davis et al., 2019; Feldman et al., 2014; Juvonen et al., 2011; Waasdorp et al., 2017). Into adulthood, victimised individuals are more likely to have lower educational qualifications and lower earnings, with frequent victimisation in adolescence associated with

poor financial management, unemployment, and difficulty keeping a stable job (Wolke & Lereya, 2015).

Furthermore, meta-analytical and longitudinal research has found that cyberbullying is associated with a higher number of absences, lower overall grades, and lower school belonging than traditional bullying victims (DePaolis & Williford, 2019; Kowalski & Limber, 2013). Compared to the robust literature examining longitudinal academic outcomes of traditional victimisation, the research focused on early adolescent cyberbullying is limited. A better understanding of the academic outcomes for both traditional and cyber early adolescent bullying will help design school-level interventions to avoid the current trends of bullying victims having lower educational qualifications and earnings in adulthood (Wolke & Lereya, 2015).

1.6 The prevalence and cost of bullying in Australia

In Australia, pooled prevalence rates estimate that 12% of children and adolescents, aged 6 to 18 years, experience some form of traditional or cyber bullying monthly, and 19% of students report lifetime prevalence (Jadambaa et al., 2019). Although this meta-analysis of 46 systematic reviews found that cyberbullying victimisation is less prevalent than traditional forms of bullying (7% and 25%, respectively), it is important to note that those experiencing cyberbullying can also simultaneously experience traditional bullying, which may be why lower cyberbullying rates were observed. Although this study is a comprehensive review of bullying in Australia, no analyses were performed to explore prevalence rates for different age groups. Furthermore, the authors did not distinguish between different types of traditional bullying (physical, social, verbal) which means that the prevalence for all types of bullying

could not be determined. Understanding the prevalence of different types of bullying (physical, verbal, social, and cyber) during the period of early adolescence is an important knowledge gap that warrants further investigation.

There are many factors to consider when examining the economic costs that traditional and cyber bullying creates in Australia. A recent review found that economic burdens can arise from a range of factors, including mental health disorders such as depression, anxiety, and intentional self-harming behaviours, to tobacco use, costs experienced by schools, and overall health system costs (Jadambaa et al., 2021). In Australia, prevalence-based estimates suggest traditional and cyber bullying among children and adolescents attributed to an estimated $763 million in 2016, with $750 million dedicated to health system costs (Jadambaa et al., 2021). On further examination, $322 million were for depressive disorders, $147 million for anxiety disorders, $57 million for intentional self-harm, and $224 million for tobacco use. Therefore, a substantial 8% of mental health expenditure in Australia in 2016 was attributable to bullying. For schools, $6 million in costs can be attributed to bullying, since 37% of government school staff and 25% of non-government school staff spend one to three hours per week managing bullying incidents. Based on these findings, authors suggested a reduction of 10% to 20% of victimisation prevalence could result in savings of $100 million to $160 million a year in Australian health care expenditure. The sizeable economic burden that bullying has in Australia prompts future research to focus efforts on developing evidence-based prevention and early intervention programs. These programs should be designed help those who are experiencing victimisation to reduce the risk of developing mental disorders and the associated impact on health care systems.

1.7 Current approaches to bullying in schools

Many researchers have developed prevention and intervention programs to reduce the occurrences of and outcomes associated with traditional and cyber bullying in schools. Prevention approaches aim to reduce bullying and can be designed to target bullies, victims, peers, classrooms, teachers, or the wider school community (Farrington & Ttofi, 2009). Prevention approaches are typically considered proactive approaches, as they are designed to reduce the likelihood of bullying occurring (Menesini & Salmivalli, 2017; Rigby & Johnson, 2016). In situations where bullying has occurred, schools can implement intervention methods to address the situation. These are commonly referred to as reactive approaches and can vary depending on the way the school deals with bullying cases (Rigby & Johnson, 2016). Although school-based social and emotional wellbeing programs are not designed to specifically address bullying outcomes, the focus of these interventions can reduce the negative outcomes associated with victimisation and will also be discussed (Dix et al., 2020).

1.7.1 School bullying prevention programs

To address bullying in schools, the context of prevention programs is usually cognitive behavioural, educational, or peer support in nature (Ng et al., 2020; Nocentini & Menesini, 2016; Trip et al., 2015). Cognitive behavioural programs use characteristics of cognitive behavioural therapy and are generally facilitated by those who have completed specialised training or qualifications (e.g., psychologists or school counsellors) (Ng et al., 2020). These programs aim to teach students how to identify negative perceptions and thoughts (cognitions) related to bullying, in an effort to help students enhance coping skills and regulate emotions, in addition to planning appropriate actions to reduce and prevent

further bullying incidents (Farrington & Ttofi, 2009; Ng et al., 2020). Educational programs do not require specialised training to administer, with educators able to implement the curriculum and activities. These programs aim to teach students about the problem and the long-term negative impacts of bullying, while promoting awareness and potentially increasing motivation for bystanders to intervene. Peer support programs also encourage a sense of responsibility from others and utilise a 'buddy' approach to foster friendship, belonging, and protection (Ng et al., 2020; Tzani-Pepelasi et al., 2019). These peer support programs create opportunities for other students to be proactive in challenging bullying and reporting abusive behaviour when observed during break times (Tzani-Pepelasi et al., 2019).

Meta-analyses suggest that the most effective programs are sustained for a longer period of time (with the most effective programs being >9 months in duration), include the use of videos, encourage parental participation, and include tech-savvy experts who train teachers on how to handle cyberbullying incidents (Ng et al., 2020; Ttofi & Farrington, 2011). Furthermore, these types of prevention programs demonstrate significant, but modest, results, with reported averages of a 19-20% decrease in bullying perpetration (OR = 1.32; 95% CI, 1.27 - 1.38) and a 15-16% decrease in victimisation (OR = 1.25; 95% CI, 1.21 - 1.29) across 67 whole-school based programs (Gaffney et al., 2021a). Despite this, school personnel have reported features that can hinder effectiveness (Vreeman & Carroll, 2007). For example, the age of the students contributes to the varying effectiveness of interventions, with conflicting evidence suggesting decreased efficacy for both younger and older adolescents (Vreeman & Carroll, 2007). Effectiveness can also depend on school and teacher-level engagement and implementation. For instance, inaccurate implementation at the school level and a lack of school staff participation inhibit the effectiveness of bullying interventions (Vreeman & Carroll, 2007). Furthermore, to ensure long-term effectiveness,

schools must focus on preventing further bullying behaviours, even after the interventions have been completed. However, teachers have commented on the difficulty of committing to long-term anti-bullying policies (Ng et al., 2020). Some of the barriers that teachers have identified include the limitations in training, time, and administrative support that contributes to the difficulties associated with mustering the commitment and energy required to successfully implement anti-bullying programs (Cunningham et al., 2016).

A recent systematic review and meta-analysis conducted by Polanin et al. (2021) found 50 studies that had examined prevention programs designed to reduce the perpetration and victimisation of cyberbullying. These programs ranged from skill-building to curricula development and prepared materials, to psychoeducation and school policy. The types of prevention programs that were included have shown to be effective in reducing both cyberbullying perpetration (hedge's g = -0.18) and victimisation (hedge's g = -0.13), but with small effects. Although the review suggested that the included programs were exclusively cyberbullying in nature, a further examination found that some of the programs were aimed at addressing all types of bullying. Prominent researchers in the field have argued that separate consideration of cyberbullying is not warranted in research and when designing prevention programs, as there is a notable overlap between online and offline bullying (Olweus & Limber, 2018). Some authors believe cyberbullying research is inundated with inconsistent findings and exaggerated claims, which can be, in part, related to the difficulty conceptualising the concept (Patchin & Hinduja, 2015). Despite these claims, other researchers in the field argue that cyberbullying should be studied and reported separately from traditional forms of bullying due to its increased pervasiveness, publicity, anonymity, and lack of supervision (Patchin & Hinduja, 2006; Wang et al., 2019).

In Australia, the most recent and comprehensive study that examined bullying in Australian schools identified typical proactive responses that included prevention programs and interventions (Rigby & Johnson, 2016). These included conducting classroom activities related to bullying, encouraging reporting of bullying, promoting peer support, and implementing antibullying policies in line with the National Safe Schools Framework (Ministerial Council on Education Early Childhood Development and Youth Affairs, 2004). Although all 25 schools participating in this study stated that an anti-bullying policy was present, 52% (n = 810) students reported not knowing that it existed or were unsure and 35% (n = 109) of the parents did not believe that the school had one. Approximately half of the students (n = 844) found that the most positive experiences were classroom activities led by teachers on appropriate bullying responses, how to help bullied individuals, and keeping safe online. These findings suggest that Australian schools need to place larger emphasis on bullying preventative programs in addition to having effective strategies to respond to bullying incidents.

1.7.2 School bullying intervention programs

Compared to school prevention strategies, intervention (or reactive) approaches, designed to be implemented once bullying has occurred, have been far less studied (Espelage et al., 2012; Wachs et al., 2019). Current evidence suggests that the success of reducing or eliminating bullying cases in schools depends on teachers (Demol et al., 2021; Rigby, 2020; Wachs et al., 2019). For example, teachers' beliefs about bullying were predictive of their efforts to respond to situations, and those who had more normative beliefs (e.g., believing bullying is a natural part of growing up) were less likely to reprimand students and more likely to use passive response strategies (Troop-Gordon & Ladd, 2015). When teachers

intervened appropriately, supportive-cooperative strategies were deemed more successful in dealing with bullying in the short- and long-term, as reported by students (n = 1996, aged 12 to 15 years) (Wachs et al., 2019). This involved teachers including all students in the class to establish appropriate actions in class and at school, and also including parents and other professionals (Wachs et al., 2019). Other effective ways to address bullying included school sanctions or disciplinary action, informal approaches (where a pupil meeting is held and the incident is investigated, with evidence collected, before formal warnings are issued), and support from school staff and parents (Chan & Wong, 2015; Paul et al., 2012).

A limitation in the current field is the lack of work examining approaches aimed to address cyberbullying specifically, with the exception of Nappa et al. (2021). In a study of 1,406 participants (M_{age} = 13.1 years), Nappa et al. (2021) found that students are more likely to become involved in cyberbullying if teachers do not intervene when traditional forms of bullying occur at school. Inaction by teachers when traditional bullying occurs can reinforce student bullying behaviour in online environments, and therefore, suggests that teachers play an important role in reducing all types of bullying (Nappa et al., 2021; Wachs et al., 2019). Similar to prevention programs, there are inadequate interventions specifically for cyberbullying, which is potentially due to the overlap in approaches when handling bullying situations.

In Australia, Rigby and Johnson (2016) reported that there was no exclusive method for addressing cases of bullying after it had occurred, and there were marked variations between schools in the way they responded to incidents. The authors found that although schools believe that the most effective reactive approach is restorative practice with those involved in bullying, students reported that the most practical and helpful approaches included sanctions

against the perpetrator (reprimands or community service), participation of parents in meetings, and having the bully apologise. Furthermore, only one-third of the bullied students reported the incident to teachers, with apprehension arising from a fear of retaliation, a belief that the bullying was not severe enough, and that the school would not deal with the problem effectively (Rigby & Johnson, 2016). Given that adolescents typically spend most of their time in school settings, this presents a great opportunity to address bullying, as well as related risk factors and outcomes related to mental health and wellbeing.

1.7.3 Wellbeing programs in schools

There is a pool of around 200 different global school-based wellbeing programs at the disposal of schools, varying in quality and effectiveness (Dix et al., 2020). A recent meta-analytic review has examined the effectiveness of these programs on academic achievement and wellbeing related outcomes (Dix et al., 2020). More than half (56%) of the included programs exhibited low-quality evidence and were described as having only a theoretical framework with no studies conducted or published that tested the effectiveness of the intervention. Approximately 1 in 4 (23%) produced evidence in the form of published studies or reports that examined the impact of programs. Based on a meta-analysis of the results, interventions were found to have a very small positive effect on academic achievement (Hedge's $g = 0.17$), social-emotional adjustment ($g = 0.14$), behavioural adjustment ($g = 0.15$), cognitive adjustment ($g = 0.18$), and internalising symptoms ($g = 0.20$) compared to not having any intervention.

According to Dix et al. (2020), the most effective wellbeing interventions were administered in a school-term, delivered by teachers rather than external professionals, and

targeted students in secondary school rather than primary school students. From the results of this meta-analysis and the aforementioned bullying research, the success of both wellbeing and bullying approaches in schools is highly dependent on teachers. To reduce cases of bullying and increase wellbeing among students, efforts should be dedicated to ensuring schools equip their teachers with the required resources and knowledge to address these situations. Furthermore, although there was a plethora of wellbeing programs and interventions, only one Australian study was included in this review. It suggests that this country requires more high-quality and validated wellbeing programs and interventions.

Other meta-analyses which had examined wellbeing interventions specifically addressing the social and emotional learning (SEL) of adolescents have found sustained significant positive impacts on adolescent development and academic achievement (Durlak et al., 2011; Taylor et al., 2017). Taylor et al. (2017) highlighted the dual benefits of SEL interventions in terms of affecting positive and negative indicators of wellbeing. Students who had completed the intervention had stronger SEL skills (g = .17), improved positive attitudes (g = .17), and scored significantly better on the measure of emotional distress (which included assessing symptoms of depression and anxiety) (g = .12). By fostering social and emotional skills and positive attitudes in adolescence, these interventions can serve as a protective factor against the development of negative wellbeing indicators and improve the positive wellbeing of adolescents (Taylor et al., 2017). While these results highlight the importance and benefits of addressing both positive and negative wellbeing in adolescent development, research in the bullying field lacks investigations into associations between victimisation and positive wellbeing outcomes. This thesis aims to provide much-needed knowledge in this area.

1.8 Thesis aims and structure

Although there is a wealth of knowledge on bullying, it is necessary to develop a better understanding of the state of the literature in terms of the early adolescent bullying victimisation. Despite the extensive evidence suggesting that bullying is most prevalent in early adolescence (specifically for individuals aged 10 to 12 years) and decreases over time (Hong & Espelage, 2012; Saarento et al., 2013; Waasdorp et al., 2017), examining the different types of early adolescent bullying is not always considered in research designs, especially in relation to longitudinal studies and cyberbullying. This limitation underpins the first objective, which is to (1) systematically review the available evidence on early adolescent physical, verbal, social, and cyber bullying and the associated psychosocial and academic outcomes that can be experienced up to 18 years of age. The limitations identified in this review form the objectives of studies two and three. In particular, the studies are designed to respond to: (2) the lack of work examining the relationship between early adolescent bullying and positive and negative wellbeing (study two), and (3) the short- and longer-term emotional wellbeing and academic achievement outcomes of early adolescent cyberbullying (study three). These studies will improve the understanding of early adolescent bullying to help inform and develop school-level prevention and intervention programs.

An exegesis (Chapter 2) is now presented to provide additional background and context related to the studies. Following on from this, an overview of the methods is provided (Chapter 3) prior to the respective studies (Chapters 4 to 6) and thesis discussion (Chapter 7).

Chapter 2: Exegesis

2.1 Preamble

The following chapter provides a detailed explanation of the larger text by discussing the rationale for the decisions made in the thesis, the theoretical foundation, and the link between studies. Final comments on the collection of studies and the contribution to the broader literature conclude the chapter.

2.2 The rationale for decisions made in the thesis

2.2.1 Participant age range

The World Health Organisation (WHO) (2019b) defines adolescence as the phase of life between childhood and adulthood, from ages 10 to 19. For this thesis, the age range has been adapted from the WHO definition to include individuals between 10 and 18 years of age. Several factors contributed to the decision that 18 years of age would represent the final year of adolescence. First, extensive literature encompasses the age of 18 in the age range of adolescence, providing a solid basis for its inclusion in the current definition used for this thesis (Sawyer et al., 2018; World Health Organisation, 2019b). Furthermore, this thesis adopts a Westernised view of adolescence, consistent with the conceptualisation of adolescence in Australia. This consideration is important as Australian data are used for studies two and three. In Australia, major role and responsibility changes commence at 18 years old, including the transition to independence from parents and guardians, participation in government elections, and is when students often conclude formal schooling (Dahl, 2004; Jaworska & MacQueen, 2015). Furthermore, 18-year-olds are considered and treated as adults in the following ways: in court when they break the law, are legally allowed to

purchase alcohol in licensed premises such as bars, clubs, restaurants, and bottle shops, are legally allowed to gamble in all states and territories, and can give full legal consent for medical treatment or refuse it (Youth Law Australia, 2020). As these experiences and expectations in Australia occur for individuals at 18 years old and not 19 years old, this thesis considered the age of 18 to be the last year of adolescence.

2.2.2 Bullying role

Although the literature has identified many roles associated with bullying, including bullies (perpetrators), bully-victims (experience both victimisation and perpetration), bystanders, and victims, this thesis exclusively focuses on the experiences of victims. The reason for bully-victims to be excluded is a result of considerably different behaviours exhibited by this group of people when compared to those considered as victims only. For example, bully-victims can be aggressive when attacked, whereas victims tend to be more submissive and non-assertive, making them more vulnerable to future bullying incidents (Perren & Alsaker, 2006; Veenstra et al., 2005; Völlink et al., 2013).

Along with the behaviours shown when attacked, bully-victims and victims may also experience school differently. For example, bully-victims can be more popular and have support among peers, which may reduce the adverse outcomes of victimisation (Perren & Alsaker, 2006). At the same time, victims tend to be withdrawn and demonstrate problems with internalising behaviours, representing a risk factor of further victimisation (Perren & Alsaker, 2006; Veenstra et al., 2005; Völlink et al., 2013). Other students are also more likely to avoid being seen with victims of bullying, fearing that they may be bullied themselves or lose their social status among other peers at school (Veenstra et al., 2005). By narrowing the scope, the current thesis could comprehensively examine the impact of victimisation on

individuals, identify those who may be most at risk, and adequately investigate the differences between all types of early adolescent bullying. An important note to make is that a single-item measure to collect bullying data in studies two and three was worded in a way that only identified victims, and not in a way that could capture those who were also perpetrators. Although the aim of the thesis is to examine the experience for victims of traditional and cyber bullying, the inability to discern victims from bully-victims in the responses may mean the experience of bully-victims is being captured.

2.3 Theoretical foundation

For this thesis, two main theories underpinned the thinking about early adolescent bullying and its impact on mental health and wellbeing. First, the Ecological Systems Theory posed by Bronfenbrenner (1977) was used to organise and examine variables related to adolescent wellbeing. Second, the Complete State Model of Mental Health proposed by Keyes and Lopez (2002) was used to analyse the impact of bullying on mental health from a holistic perspective. Drawing on these theories provided a solid basis for the inclusion and examination of certain variables as part of this thesis.

The Ecological Systems Theory emphasises the role relationships play in fostering appropriate child development (Bronfenbrenner, 1977). While this theory focuses on child development, suggestions that the theory also has application to other outcomes, including child and adolescent wellbeing, makes it well suited for the organisation of variables in this thesis. According to the Ecological Systems Theory, relationships in the microsystem are direct and can include those with family, peers, and school teachers, while the exosystem emphasises the role of the broader community and neighbourhood. These types of variables were discussed and included as covariates in studies two and three due to the potential effect they have either exacerbating or ameliorating the wellbeing of the adolescent. This was done

to ensure, to the extent possible within the available data, that the impact of bullying could be attributed to the experience of bullying itself. Another important factor that was considered to ensure a comprehensive examination of the bullying experience was capturing its impact on both positive *and* negative indicators of mental health and wellbeing.

Past reviews have determined the negative mental health outcomes of victimisation for all types of bullying, with solid evidence indicating that bullying results in depression, anxiety, suicidal harm/ideation, and the development of some personality disorders, such as borderline personality disorder (Clayborne et al., 2019; Fullchange & Furlong, 2016; Moore et al., 2017). Despite this, the impact of bullying on one's positive mental wellbeing is not as often considered, especially in relation to early adolescent traditional and cyber bullying (Antaramian et al., 2010; Fullchange & Furlong, 2016). As highlighted in the Introduction, the World Health Organisation explains that health is a state of complete wellbeing, not just the absence of disease (2018); therefore, it is essential to investigate how bullying impacts positive wellbeing. One theory that considers both positive and negative wellbeing is the Complete State Model of Mental Health (Keyes & Lopez, 2002).

The Complete State Model of Mental Health posits that mental health and mental illness are not opposite ends of a single continuum; rather, they are distinct but correlated constructs, and the absence of mental illness does not equal the presence of mental health (Keyes, 2005). The model is designed to capture both positive and negative indicators of mental health and can classify people depending on their level of (1) positive wellbeing and (2) mental illness or psychopathology (Keyes & Lopez, 2002). The importance of considering positive wellbeing is demonstrated in studies of individuals who are free from mental illness but exhibit low levels of positive wellbeing. For example, individuals with low levels of emotional wellbeing can experience lower levels of social acceptance at school, a

more negative attitude toward teachers and school (Arslan & Allen, 2020), and report lower levels of life satisfaction (Kim et al., 2019) even when a mental illness is not present. Based on available literature, it was determined that there was a lack of studies investigating the effect of traditional and cyber bullying in early adolescent years on measures of positive wellbeing. Therefore, by using the Complete State Model of Mental Health to examine the impact of bullying on indicators of positive (e.g., life satisfaction, happiness, and emotion regulation) and negative wellbeing (e.g., sadness and worries), this thesis provided new information in an area previously less explored.

2.4 Linkage between studies

The overall aim of the thesis was to explore the emotional wellbeing and academic achievement outcomes associated with traditional and cyber bullying in early adolescence, in line with the identified gaps in the literature. In early readings of the literature, it became apparent that bullying was most prevalent during the early adolescent years, exacerbated by puberty and social group changes during school transitions. Despite this, it appeared that there was a lack of studies examining the longitudinal outcomes of early adolescent bullying (namely in relation to cyberbullying), especially while victims were still completing formal schooling. Some reviews had taken this age period into account and established the outcomes of early adolescent bullying (see Moore et al. (2017) for an example), but what remained unknown was the differences between all four types of bullying and the impact of victimisation on outcomes into later adolescence. Therefore, the first study was a systematic review conducted to comprehensively examine and report on the literature regarding early adolescent (10 to 12 years) traditional and cyber bullying and the longitudinal psychosocial and academic outcomes experienced up until 18 years of age. This review allowed for the identification of areas that need further attention. In particular, future work needed to be of

higher methodological quality, with population-based data, and covariates taken into account. Many of the included studies in the review used small samples and non-representative data. Therefore, by using large, population-based data, results are more indicative of the victimisation experience. Also, by adjusting for covariates, the results are less likely to show how extraneous variables can influence the relationship between bullying and the outcomes of interest. An example of a covariate variable is sleep. Bullying victimisation is associated with a decrease in the number of hours slept (Hertz et al., 2015) and increased sleep disturbances when compared to non-victimisation (Donoghue & Meltzer, 2018). Furthermore, poor sleep is related to decreased life satisfaction and happiness and is associated with increased sadness and depression symptomology (Newsom, 2020; Shin & Kim, 2018). By controlling for sleep (among other variables) as part of studies two and three, the results are more likely to demonstrate the effect of bullying on emotional wellbeing, after taking into account extraneous influences.

Moreover, there needed to be a specific focus on what the estimates of prevalence are for early adolescent bullying in an Australian sample, how early adolescent bullying impacts positive wellbeing, and the outcomes associated with cyberbullying for students under 13 years of age. From the limitations identified in the review, a population-based, cross-sectional study (study two) was designed to provide prevalence estimates for, and examine the positive and negative emotional wellbeing outcomes of, early adolescent physical, social, verbal, and cyber bullying. This study clearly identified that cyberbullying was present in students under 13 years of age and victimisation was associated with poorer positive and negative wellbeing; however, the study design did not allow for the understanding of the direction of this association. For example, low emotional wellbeing could predict cyberbullying rather than occurring as an outcome. Consequently, study three was longitudinal in design to help

understand this relationship. Furthermore, while the review (study one) found early adolescent traditional bullying to affect academic achievement over time, no studies were identified that exclusively examined the relationship between early adolescent cyberbullying and long-term academic achievement. Given these literature gaps, study three was designed to examine the longitudinal positive and negative emotional wellbeing and academic achievement outcomes of early adolescent cyberbullying.

2.5 The layout of the remaining chapters of the thesis

The layout of the included studies is as follows. Chapter 3 covers the methodology of the three studies and considers any information omitted from the articles due to journal restrictions. Chapters 4 to 6 comprise the three studies produced for publication. Chapter 4 is a systematic review designed to comprehensively explore the current literature on the associations between experiencing bullying in the early adolescent period and the psychosocial and academic outcomes that persist up to 18 years of age. This review provides a sound understanding of literature gaps and future research requirements. Chapter 5 addresses the identified gaps by adopting a population-based, cross-sectional design to examine the association between physical, verbal, social, and cyber bullying, and positive and negative emotional wellbeing indicators. Chapter 6 explicitly focuses on the experience of cyberbullying in early adolescence and long-lasting emotional wellbeing and academic achievement outcomes using a population-based, historical cohort design. Finally, a summary of the findings of all three studies, the overall conclusions, limitations, and implications for future literature and the education system are provided in Chapter 7.

Chapter 3: Overview of Methodology, Samples, and Measures

3.1 Preamble

The purpose of this chapter is to provide detailed methodological information for the three studies that comprise this thesis. This chapter provides supplementary discussions related to data sources, procedures, and analyses to provide additional context for the approaches taken and to consider any omitted information resulting from the requirements associated with publication in journals.

3.2 Study one

The first study sought to systematically review evidence on the association between early adolescent physical, verbal, social, and cyber bullying and the psychosocial and academic outcomes experienced by victims up to the age of 18 years.

3.2.1 Study design

A systematic review was adopted for this study for its methodological rigour, its ability to provide a reliable basis from which conclusions can be drawn, and its process of systematically identifying, evaluating, and synthesising all relevant evidence (Moher et al., 2015; Oxman & Guyatt, 1993). A systematic review also allows researchers to be confident that most, if not all, papers in the field of interest have been considered, and thus conclusions drawn are based on the most up to date evidence available at the time (Ward et al., 2019). To allow for study replication, the application of methodology for conducting a systematic review is consistent across the literature. This includes a rigorous search protocol, inclusion

and exclusion criteria, data extraction, analysis, synthesis of data, and data reporting that provides solid, robust, and reliable evidence to offer clear guidance for clinical practice and future research (Denyer & Tranfield, 2009). Further discussion of the search strategy and eligibility criteria are presented in Chapter 4.

3.2.2 Data extraction

The review was conducted and reported according to the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines; this is an essential component of the systematic review process and a minimum requirement for publication in many journals (Mandrekar & Mandrekar, 2011; Moher et al., 2015). Following these guidelines makes the review transparent, complete, and accurate and explains to readers why it was carried out, the process involved, and the findings (Page et al., 2021). The PRISMA statement consists of a 27-item checklist and a four-phase flow diagram in which the review process is documented (Moher et al., 2015). This study was also conducted according to a preregistered PROSPERO protocol (registration number: CRD42020137069). The International Prospective Register of Ongoing Systematic Reviews (PROSPERO) is a global database of prospectively registered systematic reviews in health and social care, welfare, public health, education, crime, justice, and international development (Stewart et al., 2012). The key features of the protocol are recorded and maintained as a permanent record to increase transparency, avoid duplication, and reduce the possibility of bias reporting (Stewart et al., 2012). See Chapter 4 for the article selection, exclusion decisions, and the results of the data extraction process.

3.2.3 Data appraisal

The Mixed Method Appraisal Tool v.2018 (MMAT) was selected to assess the methodological quality of the included studies in the appraisal stage of this systematic review (Hong et al., 2018). The tool allows the evaluation of qualitative research, randomised control trials, non-randomised studies, quantitative descriptive studies, and mixed-method research by evaluating studies against a set of criteria specific to their methodology (Hong et al., 2018). For this review, each study was assessed using the 'quantitative non-randomised' study design, as all studies included quantitative data, did not use randomisation for allocation into groups, and examined the outcomes of being exposed to bullying. The methodological quality criteria included seven questions: 'Are there clear research questions?', 'Do the collected data allow to address the research question?', 'Are the participants representative of the target population?', 'Are measurements appropriate regarding both the outcome and exposure?', 'Are there complete outcome data?', 'Are the confounders accounted for in the design and analysis?', 'During the study period, does the exposure occur as intended?'. The included studies received a '✓' if criterion was met, 'X' if it did not meet criterion, or a '?' if reviewers were unsure given the information provided. As it is not recommended to provide an overall score or exclude studies of low methodological quality (Hong et al., 2018), it was decided that the studies were only considered to have 'high' methodological quality if they met the five criteria.

3.2.4 Data synthesis

A narrative synthesis was adopted to summarise the findings of the included full-text studies. In this approach, words and text are relied upon to provide a summary and

explanation of the results (Popay et al., 2006). A framework is provided to guide reviewers through a narrative synthesis process and comprises four elements: developing a theoretical model of how the interventions work, why, and for whom; developing a preliminary synthesis; exploring relationships in the data; and assessing the robustness of the synthesis product (Popay et al., 2006). A narrative approach was taken due to the descriptive nature of the findings and because a meta-analysis was not possible due to the heterogeneous nature of the results and measurements. Based on the included studies, four subthemes emerged under the two main themes of psychosocial outcomes and academic outcomes. Results of this study are presented in Chapter 4.

3.3 Studies two and three

Studies two and three were designed to utilise the Wellbeing and Engagement Collection dataset, and therefore, the methodological processes were somewhat similar. To avoid repetition, the ethics application, descriptions of the included data sources, variables chosen for studies two and three, and the process of data linkage in the South Australian Department for Education will be discussed together before the specific design and data cleaning procedure of each study are described.

3.3.1 Ethics applications

Ethics approval was required from the University of Adelaide Human Research Ethics Committee (HREC) and research approval was required by the South Australian Department for Education in order to access Wellbeing and Engagement Collection (WEC), school enrolment census and National Assessment Program – Literacy and Numeracy (NAPLAN) data. A low-risk ethics review was submitted to the HREC subcommittee in the School of

Psychology at the University of Adelaide, as the proposed research was using pre-existing, deidentified, administrative data from the South Australian Department for Education. The HREC approved this application (#20/02). The research application to the Department for Education submitted as part of studies two and three included a request for linked data from the school enrolment census, the WEC, and the NAPLAN. For this application, information pertaining to the objectives, methodology, potential findings, and how the research will benefit children and young people was required. No risks were identified due to the confidentiality of the requested data. The application from the South Australian Department for Education was approved (#2020-0007).

3.3.2 Data source – The Wellbeing and Engagement Collection (WEC)

The WEC is an annual data collection designed to measure a wide range of student wellbeing and engagement constructs across four domains: emotional wellbeing, engagement with school, learning readiness, and health and wellbeing out of school (Gregory et al., 2021). To measure the constructs relating to each domain, a combination of multi-item scales and single items are used, which are outlined in Figure 3. Originally based on the Canadian Middle Years Development Instrument (Schonert-Reichl et al., 2013a), the WEC survey has been adapted and validated for use in an Australian context. This process involved consultation with Educators, Principals, School Psychologists, Aboriginal Education Officers, Australian Education Union representatives, and academics in the fields of education, psychology, and epidemiology (Gregory et al., 2019). Overall, a general agreement around the scope and content was made, with only minor changes related to 'Australianising' the language (e.g., changing 'pop' to 'soft drink') (Gregory et al., 2019). Over the eight years since the WEC commenced, scales and items have been added or

removed to suit the needs of South Australian schools and the Department for Education (Gregory et al., 2021). For example, in 2016, a different scale was used to measure optimism, but school feedback suggested that students misunderstood the language in the item. The previous scale used from 2014 and 2015 was then reintroduced from 2017 onward (Gregory & Brinkman, 2020).

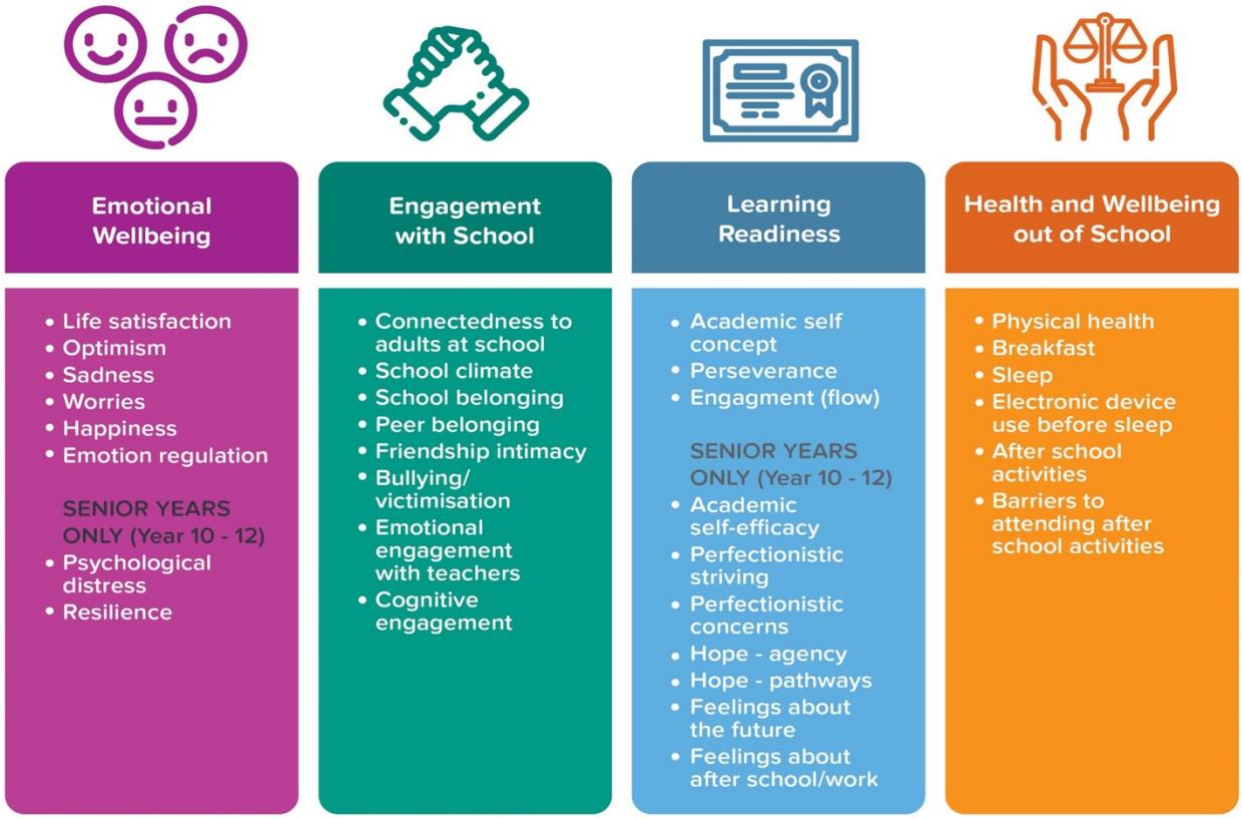
Currently, there are two versions of the survey: one designed for students in Grades 4 through 9 (approximately 8 to 14 years old), and the second for students in senior grades (10 to 12) (approximately 15 to 18 years old) (Gregory et al., 2021). The introduction of new scales specifically for senior school students was due to increased interest in the wellbeing of older students as they complete the final phase of their high school education (Gregory & Brinkman, 2020). The senior years version of the survey includes scales measuring additional wellbeing constructs such as perfectionism, resilience, academic self-efficacy, and feelings about the future (Gregory & Brinkman, 2020).

Although schools are not required to participate in the survey, those that decide to participate give students and their parents or caregivers the option to withdraw if they choose (South Australia Department for Education, 2021a). The survey is conducted online during school hours, under the supervision of the teacher, and takes approximately 25 to 45 minutes to complete (South Australia Department for Education, 2021a). After completion of the survey, students are given the option to request counsellor support if discomfort arises from completing the survey (Gregory & Brinkman, 2020). The results are not reported to parents or schools at the individual child level. Instead, results are summarised at the grade and school-level, and school reports are provided to all participating schools. The survey aims to provide school staff, students, and the broader school community with a better understanding

of the wellbeing and engagement of young people (South Australia Department for Education, 2021a).

Figure 3:

Wellbeing and Engagement Constructs Measured in the 2019 WEC



Note. From "Data Resource Profile: The South Australian Wellbeing and Engagement Collection (WEC)", by T, Gregory, Lewkowicz, A., Engelhardt, D., Stringer, A., Luddy, S., & Brinkman, S, 2021, *International Journal of Epidemiology*, p. dyab103. (doi: https://doi.org/10.1093/ije/dyab103). Reprinted with permission.

3.3.2.1 The WEC variables in studies two and three

For studies two and three, positive and negative emotional wellbeing was measured by emotion regulation, life satisfaction, happiness, sadness, and worries scales. The descriptions, including internal reliability statistics, of these measures are discussed in more detail in Chapters 5 and 6, with additional validity statistics described here. The positive and

negative emotional wellbeing measures showed strong associations with theoretically similar constructs (convergent validity) and low associations with measures assessing theoretically dissimilar constructs (discriminant validity) that were also assessed in the WEC. The range of values for students in Grades 4 to 12 is discussed in relation to convergent and discriminant validity.

Scores on the life satisfaction scale correlated strongly with other theoretically similar scales including optimism (r = .71 to .79) and happiness (r = .68 to .76) which demonstrated high convergent validity, and showed a lower correlation with theoretically distinct scales as shown for academic self-concept (r = .46 to .54), perseverance (r = .44 to .51), and engagement – flow *(*r = .38 to .46), demonstrating low discriminant validity. The happiness scale was similar in that it was highly correlated with optimism (r = .70 to .79) and life satisfaction (r = .68 to .76) and showed a lower correlation with academic self-concept (r = .42 to .50), perseverance (r = .48 to .50), and engagement – flow (r = .38 to .46). Higher scores on the emotion regulation scale were associated with higher levels of happiness (r = .48 to .55) and life satisfaction (r = .53 to .57), with slightly lower correlations shown for theoretically dissimilar constructs such as academic self-concept (r = .31 to .47), perseverance (r = .27 to .45), and engagement (flow) (r = .23 to .45).

The sadness scale showed high convergent validity with scores strongly correlated with worries (r = .69 to .78) and the psychological distress scale for Grade 10 to 12 students (r = .75) and showed low discriminant validity through a lower correlation with perseverance (r = -.32 to -.39) and engagement – flow (r = -.20 to -.34). Scores on the worries scale showed high convergent validity through strong correlations to scores on the scales for sadness (r = .69 to .78) and psychological distress for Grades 10 to 12 students (r = .66) and

low discriminant validity on the scales for academic self-concept (r = -.18 to -.32), perseverance (r = -.21 to -.29), and engagement – flow (r = -.13 to -.25).

In addition to the emotional wellbeing measures, several other variables from the WEC were utilised as covariates of the association between bullying and emotional wellbeing in studies two and three. The variables at the child, peer, and school-level that were considered as covariates were organised in accordance to Bronfenbrenner's (1977) Ecological Systems Theory. Most of the included covariates were considered in the microsystem, as there is a direct relationship between these variables and adolescent emotional wellbeing and development. This included school climate, peer belonging, friendship intimacy, and emotional engagement with teachers. The sleep item was also collected as part of the WEC and included as a child-level covariate in this study due to its relationship to bullying and emotional wellbeing (see page 55). These particular measures were chosen as covariate variables due to consistent associations shown in the literature between these variables and the exposure variable (bullying), as well as with the outcome variables (emotional wellbeing) (see pages 12, 14-17, 31-34 in Chapter 1 for discussion of the contribution of these variables to bullying and wellbeing). A decision was made to include connectedness to adults in school as an additional covariate in study three. This decision came from a review of the WEC variables and an examination of the literature after study two. Previous studies have determined an association between connectedness to adults in school and measures of emotional wellbeing, academic achievement (Niehaus et al., 2012) and risk of cyberbullying (Liu et al., 2020). Table 10 on page 181 further describes the child, peer, and school-level covariates used in studies two and three.

Gregory and Brinkman (2020) determined that all the measures used to assess the constructs included in the present studies as covariate measures demonstrated high internal reliability by evaluating Cronbach's alpha statistics. The peer belonging scale ranged from α=.82 to α=.87 and the friendship intimacy scale ranged from α=.82 to α=.90 for students in Grades 4 to 12. The school climate scale showed high internal reliability for students in all grades, ranging from α=.80 for students in Grades 4 and 5 to α=.84 for those in Grades 10 to 12. The scale measuring emotional engagement with teachers ranged from α=.89 in Grade 10 to 12 students and α=.83 in Grades 4 and 5. As the child-level covariate measure of sleep and the measures of physical, verbal, social, and cyber bullying were single-item measures, internal reliability could not be measured (Wanous & Reichers, 1996). Convergent and discriminant validity for the measures included as covariates has been determined and is presented in Gregory and Brinkman (2020).

3.3.3 Data source – The school enrolment census

When a family accepts an offer for their child to attend a South Australian government school, parents or guardians are required to fill out an enrolment form that asks questions pertaining to the student and themselves (South Australia Department for Education, 2021b). Parents or guardians are required to provide their basic information (given names, age, sex, relationship to the student and employment status and occupation) as well as the highest level of completed education and qualification, country of birth, language spoken at home, and cultural background (South Australia Department for Education, 2021b). For students, parents or guardians provide information on their name, date of birth, sex, place of residence, Aboriginal and/or Torres Strait Islander status, country of birth, cultural background, and language spoken at home (South Australia Department for

Education, 2021b). For a copy of the South Australian government school enrolment form, see Appendix A.

3.3.3.1 School enrolment information used in studies two and three

For studies two and three, information on gender, language spoken at home, postcode of residence, and Aboriginal and/or Torres Strait Islander status was obtained and used to provide socio-demographic information about the student and their family and to be accounted for as covariates in analyses. A decision was made to exclude the level of parent or guardian education in analyses as there was no clear evidence that suggested there was an association between parent/guardian education and bullying, especially in an Australian context (Tippett & Wolke, 2014). In study three, socio-economic status was considered a community-level covariate, rather than a child-level covariate, as it was in study two. This change resulted in socio-economic status categorised in the exosystem, rather than the microsystem (Bronfenbrenner, 1977), which slightly changed the wording of covariates from 'child, peer, and school' in study two to 'child, peer, school, and community' in study three. Changing this wording was a result of re-considering past information regarding the Socio-Economic Indexes for Areas (SEIFA) data used to merge and classify student postcode to socio-economic status. SEIFA classifies *areas* of Australia according to relative socio-economic advantage and disadvantage, rather than an individual household (Australian Bureau of Statistics, 2018).

3.3.4 Data source – The National Assessment Program – Learning and Numeracy (NAPLAN)

The Australian Curriculum, Assessment, and Reporting Authority (ACARA) is an independent statutory organisation established to improve the learning of young Australians (Australian Curriculum Assessment and Reporting Authority, 2016). ACARA became operational in 2009 after the Australian Curriculum, Assessment and Reporting Authority Act of federal parliament was passed in 2008 (*Australian curriculum, assessment and reporting authority act 2008*). Among many things, this act was designed to create a corporate body in charge of developing and administering a national school curriculum to Australian students. To do so, ACARA closely collaborates with a wide range of stakeholders, including teachers, principals, government and education associations at the state and territory level, community groups, and the general public, to develop curriculum, assessment, and reporting for the entire schooling period (Reception to Grade 12). The ACARA also develops the National Assessment Plan (NAP) with direction from the Education Ministers meeting, at which all state, territory, and federal education ministers discuss and plan assessments for implementation in schools. The NAP encompasses three national assessments: the three-yearly sample assessments in science literacy, civics and citizenship, and information and communication technology (ICT) literacy; international sample assessments (including the Programme for International Student Assessment (PISA)); and the National Assessment Program – Literacy and Numeracy (NAPLAN) (Australian Curriculum Assessment and Reporting Authority, 2016).

The NAPLAN is an annual national assessment designed to test the literacy and numeracy skills for students in Grades 3, 5, 7, and 9 (Australian Curriculum Assessment and Reporting Authority, 2016). Assessments are conducted every year in May and include measurements across five domains: numeracy, reading, writing, spelling, and grammar and punctuation. The results indicate to parents, teachers, schools, education authorities,

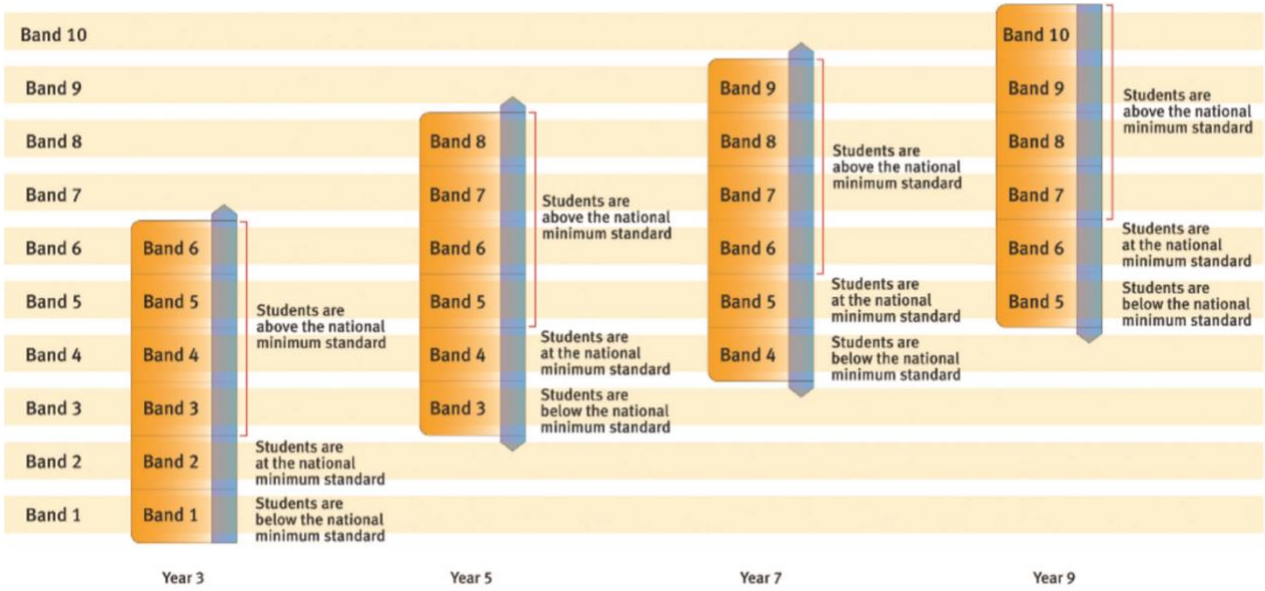
governments, and the broader community whether young Australian students are developing the foundational literacy and numeracy skills that are required for functional participation in the community and serve as the basis upon which more advanced skills can be developed. Assessments also allow parents and teachers to monitor how a student progresses in their development of literacy and numeracy skills over time, while also giving an indication of how the student's achievement compares to other students at their grade level, both within the school community and across the nation. In addition to observing the achievement of the students, NAPLAN results can also be used to monitor and evaluate the performance of schools and school systems, understand which education approaches are working, and indicate which areas are priorities for improvement. It should be noted that the NAPLAN results are not a measure of overall school quality.

All students who participated in the NAPLAN receive an individual report on their results in August to September of the year they were carried out (Australian Curriculum Assessment and Reporting Authority, 2016). For schools, parents, and students, the results are discussed as scores and bands. All scores from Grades 3 to 9 fall on a single scale of 0-1000, so student achievement can be monitored over time as the meaning of a particular score does not change (e.g., a score of 500 means the same in 2019 as it would in 2022). These scales are then divided into ten proficiency bands to cover the full range of achievement in the tests and the complexity of the skills assessed by the NAPLAN. Six of the bands are used for reporting performance at each grade level and reflect increasingly challenging skills and understandings as a student moves from Grade 3 to Grade 9. The Grade 3 report shows bands 1 to 6, Grade 5 shows bands 3 to 8, Grade 7 shows bands 4 to 9, and Grade 9 shows bands 5 to 10. The minimum standards and common scales for the NAPLAN results at all grade levels are illustrated in Figure 4. Before presentation to schools, parents, and students, the

raw scores (the number of marks obtained from that particular test) are converted to the equivalent NAPLAN scale score using score equivalence tables (Australian Curriculum Assessment and Reporting Authority, 2019). For example, a Grade 9 student who scored 36/48 on the numeracy test in 2019 would have an equivalent NAPLAN scale score of 653.8 which would then be displayed on Band 9 (Australian Curriculum Assessment and Reporting Authority, 2019).

Figure 4:

NAPLAN Assessment Scale



Note. From "How to interpret", by the Australian Curriculum, Assessment and Reporting Authority, 2016. (https://nap.edu.au/results-and-reports/how-to-interpret). In the public domain.

3.3.4.1 NAPLAN measures used in study three

To assess academic achievement in the third study, two NAPLAN measures were included that examined numeracy and literacy (reading) ability for students in Grade 7 in 2017 and Grade 9 in 2019. Numeracy assessments encompass three broad strands of

mathematics: number and algebra; measurement and geometry; and statistics and probability (Australian Curriculum Assessment and Reporting Authority, 2016). When completing the assessments, students are required to answer multiple-choice and constructed response questions. In Grade 7, students must demonstrate their ability to perform operations using integers, decimals, and common fractions; calculations (including subtraction, addition, multiplication, and division) with and without the calculator; estimates and approximations; describe and classify 2D and 3D shapes; interpret maps and plans; algebraic relationships; and manually identify more/less/equally likely simple and familiar events. In Grade 9, students must demonstrate an understanding of integers, decimals, key percentages, simple rates, and common fractions; classifying shapes and symmetry; recognising relationships and evaluating simple algebraic expressions to establish equivalences; and identify probability (expressed as a fraction) of a familiar random event.

To capture literacy skills, reading ability was measured as part of this study. In the NAPLAN, reading tests focus on the reading of written English and the knowledge and interpretation of language conventions in context (Australian Curriculum Assessment and Reporting Authority, 2016). In the tests, students are provided with a magazine with a range of texts illustrating different writing styles and are required to answer questions in a separate booklet. Only the results obtained from Grade 7 students in 2017 and Grade 9 students in 2019 were used in the current study. In Grade 7, students must demonstrate their proficiency in reading and understanding a wide range of genres (including narratives, arguments, and poems), infer the main idea in a text, connect ideas within and between sentences, understand the intention of the narrator, and the point of view of the writer in an argument. By Grade 9, texts become more difficult by using less familiar vocabulary, more complex sentences, and incorporating different genres of text into one. Students need to demonstrate their ability to

infer the main idea in complex texts, connect ideas, identify the tone of an argument, and infer the feelings of a character by interpreting descriptive text, figurative language, and dialogue.

3.3.5 Data linkage in the South Australian Department for Education

Although the WEC and NAPLAN are completed by schools across all three Australian school sectors (government/public, independent, and Catholic), data linkage for the research comprising this thesis was only possible for students from government schools. For students attending government schools in South Australia, the Department for Education maintains a unique student identifier number that is used to track records across datasets held by the department. Students from independent and Catholic schools complete the WEC using a random token, which is used to link them to their school for reporting purposes but does not allow linkage back into administrative databases held by the Catholic and independent school sector. The unique identifier held by the Department for Education allows linkage of WEC and NAPLAN data from different collection cycles with information from other administrative datasets, such as the school enrolment census, providing detailed child and family level socio-demographic information.

To create anonymous and confidential identifier numbers, the Department for Education strips the original identifying number and replaces this with a new scrambled ID that represents the student in the system. By doing this, the Department for Education can maintain student confidentiality, prevent the interception of data and the re-identification of records, and to provide data to support research where possible. For studies two and three, the unique student number was used to link information from the school enrolment census, the

results of the WEC survey, and NAPLAN results without the need for complex data matching.

3.4 Study two

The second study was designed to respond to the limitations identified in the systematic review, in particular the limited work investigating the wellbeing outcomes associated with early adolescent physical, social, verbal, and cyber bullying. According to the available literature, this was one of the first studies to examine early adolescent traditional and cyber bullying victimisation and the associated positive *and* negative wellbeing outcomes.

3.4.1 Study design

To understand the aim of this study and the way data were obtained, a brief definition of cross-sectional study designs, population-based datasets, and the process of data linkage is given below.

A cross-sectional study requires that measurement of the outcome and exposure in study participants is recorded at the same time (Setia, 2016). Population-based studies can be cross-sectional or longitudinal (collected over a series of time points) and involve collecting data on a group of individuals taken from the general population who share common characteristics such as age, gender, or health conditions (Canova & Cantarutti, 2020). Researchers use these types of study or data sets to answer specific research questions for a defined population (Canova & Cantarutti, 2020). Often, linkage across different datasets is required to obtain population data that captures a wide range of indicators. Data linkage

refers to the method of identifying, matching, and merging records that correspond to the same individual across different datasets (Kelman et al., 2002). This process is utilised in research to bring information together from different sources to create a richer dataset and is conducted using the separation principle (Kelman et al., 2002). The separation principle involves four distinct steps to ensure individuals' privacy and anonymity, and under this principle, researchers only obtain selected demographic information, activity data of interest, and the deidentified participant ID (Kelman et al., 2002). For this study, the South Australian Department for Education was the data custodian for the WEC and the school enrolment census and provided linked demographic information (i.e., postcode, language spoken at home) with responses in the WEC.

3.4.2 Data cleaning procedure

Data were obtained by accessing the *Kiteworks* secure website, which is used by the Department for Education for its ability to share secure and sensitive documents with third parties. Data were received in a *Microsoft Excel* spreadsheet and imported into *SPSS Statistics* (V.28 IBM) format for data cleaning. Bullying variables (physical, verbal, social, and cyber) were recoded to create new variables with dichotomous 'yes' or 'no' outcomes. The definition provided by Olweus (1994) and Tokunaga (2010) describes bullying as requiring one to experience frequent and continuous intentional harm inflicted by other student(s). Therefore, to align the new variables with the well-recognised definition of bullying used in this study, responses 3, 4, and 5 were recoded to 'yes', indicating that the student was being bullied, and responses 1 and 2 were recoded to 'no', indicating that they were not. Response 2, 'Once or a few times', was considered 'not a victim of bullying'. This

is because choosing the 'once' component of the response does not classify as bullying due to the inability to demonstrate *frequent* and *continuous* experiences, and because it was not possible to separate the 'once' and 'a few times' components of this response. See Figure 5 for a visual representation of this process.

Figure 5:

The Categorisation of Bullying Responses

	Non-Victim (No)		Victim (Yes)		
How often have you been bullied by other students in the following ways?	Not at all this year	Once or a few times	About every month	About every week	Many times a week
Physical bullying (for example, someone hit, shoved, or kicked you, spat at you, beat you up, or damaged or took your things without permission).	☐	☐	☐	☐	☐
Verbal bullying (for example, someone called you names, teased, embarrassed, threatened you, or made you do things you didn't want to do).	☐	☐	☐	☐	☐
Social bullying (for example, someone left you out, excluded you, gossiped and spread rumors about you, or made you look foolish).	☐	☐	☐	☐	☐
Cyberbullying (for example, someone used the computer or text messages to exclude, threaten, embarrass you, or to hurt your feelings).	☐	☐	☐	☐	☐

Note. The figure shows how bullying responses were categorised for the research conducted in this thesis. Wellbeing and Engagement Collection Survey. Copyright 2020 by South Australian Department for Education.

Data on demographics were also cleaned and recoded to examine student characteristics and to be considered as covariates. The WEC survey asks for students to report on gender, and for any missing data on this measure, linked information from the school enrolment data were utilised. The speaking background of the student was recoded into a dichotomous variable that signifies 'English speaking background' and 'non-English speaking background', with a similar procedure performed to create a dichotomous variable indicating whether the student identified as Aboriginal and/or Torres Strait Islander or not. To obtain information on socio-economic status, postcode information data collected by the

school enrolment census were merged with the 2016 *Socio-Economic Indexes for Areas (SEIFA) of Relative Socio-economic Advantage and Disadvantage*. SEIFA is a product developed by the Australian Bureau of Statistics (ABS) that classifies areas of Australia according to relative socio-economic advantage and disadvantage (Australian Bureau of Statistics, 2018). As part of this classification process, postcodes are ranked from '1' through to '10' according to relative socio-economic advantage and disadvantage, with the postcodes ranked as '10' representing the areas with the greatest advantage. For this study, the SEIFA information was presented as deciles, but merged with the student postcode information and used in the analyses as quintiles. To achieve this, '1' and '2' were recoded to '1' and were classified as the most disadvantaged areas. This was repeated for '3' through to '8', and finally, '9' and '10' were recoded as '5' which represented the most advantaged areas in the state. Gender, speaking background, postcode of residence, and Aboriginal and/or Torres Strait Islander status were considered child-level covariates. See Chapter 5 for more information on the data analysis and results.

3.5 Study three

The final study sought to build upon and address the main limitations identified in previous studies conducted as part of the thesis. The systematic review found that there were no longitudinal studies that examined the association between early adolescent cyberbullying and subsequent psychosocial or academic outcomes, and the cross-sectional study found that early adolescent cyberbullying was significantly associated with poor emotional wellbeing. Based on these factors, this study was designed to be one of the first to examine the association between cyberbullying experienced in early adolescence and later emotional wellbeing and academic achievement outcomes.

3.5.1 Study design

A historical cohort study design was conducted using the WEC data and linked school enrolment information and academic performance information collected as part of the NAPLAN assessments. This study is considered a historical cohort design, as pre-existing data were used to identify victims and non-victims of early adolescent cyberbullying in the past and trace the individuals forward to examine follow-up emotional wellbeing and academic achievement outcomes (Klebanoff & Snowden, 2018). Adopting a historical cohort design allowed for the evaluation of Grade 6 students who were cyberbullied in 2016 and subsequent emotional wellbeing and academic achievement outcomes in Grade 7 (2017) and Grade 9 (2019). For this study, the South Australian Department for Education was the data custodian for the WEC, the school enrolment census, and NAPLAN results, and were therefore able to provide linked data. The 2016 WEC data provided information on bullying exposure and child, peer, school, and community covariates in Grade 6. The school enrolment census provided information on child and community level socio-demographic covariates of the bullying and outcome relationship. The WEC and NAPLAN results for 2017 and 2019 provided information on short- and longer-term emotional wellbeing and academic achievement outcomes.

3.5.2 Data cleaning procedure

As mentioned above, the school enrolment census, WEC, and NAPLAN data were requested at once, and all required information for study two and study three was received together via *Kiteworks*. Data were obtained in separate *Microsoft Excel* spreadsheets and were converted and collated to *SPSS Statistics* (V.28 IBM) for data cleaning. First, variables

that were not relevant to this study were removed, leaving only the cyberbullying and covariate measures from 2016 when the students were in Grade 6 and emotional wellbeing and NAPLAN measures from Grade 7 (2017) and Grade 9 (2019). Using these data, emotional wellbeing and academic achievement outcomes for students who were cyberbullied in Grade 6 could be examined after one and three years (Grade 7 and Grade 9, respectively). Value labels were assigned to cyberbullying, emotional wellbeing, and covariate variables as described for study two. The procedure to clean and recode the demographic variables was also the same as that carried out for study two. For academic achievement measures, standard scores for reading and numeracy were used and ranged from 0-1000. The results of this study are presented in Chapter 6.

3.6 Summary

In summary, many methodological approaches were used throughout this thesis. Study one used a systematic review process that included a robust and comprehensive design to examine the literature on early adolescent bullying and longitudinal psychosocial and academic achievement outcomes. Study two utilised a cross-sectional study design and analysed unadjusted and adjusted linear regression models to determine the association between early adolescent bullying and positive and negative emotional wellbeing outcomes. Studies two and three used data linkage within the South Australian Department for Education to include and analyse information from the school enrolment census, the WEC, and the NAPLAN. Finally, study three was a follow-up study which used mixed effect modelling to examine the unadjusted and adjusted relationship between cyberbullying in Grade 6 and emotional wellbeing and academic achievement outcomes in Grade 7 and Grade 9. Overall, this thesis used a wide range of methodological approaches to examine the issue of early adolescent bullying in order to provide appropriate and effective recommendations

for further research and educational settings. Next, Chapters 4 through 6 present the findings from the three studies conducted as part of this thesis. It should be noted that many journals in this field require manuscripts to be presented in American English for publication, which explains the change of dialect.

Chapter 4: Study One

Chapter 4 presents the results of study one. Study one is a published paper that addresses the first objective of the thesis, which is to comprehensively examine the available literature and identify literature gaps for subsequent studies to respond to.

Halliday, S., Gregory, T., Taylor, A., Digenis, C., & Turnbull, D. (2021). The impact of bullying victimization in early adolescence on subsequent psychosocial and academic outcomes across the adolescent period: A systematic review. *Journal of School Violence, 20*(3), 351-373. https://doi.org/10.1080/15388220.2021.1913598

Statement of Authorship

Title of Paper	The impact of bullying victimization in early adolescence on subsequent psychosocial and academic outcomes across the adolescent period: A systematic review
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Contribution to the Paper	Formulated research aims with supervisors. Undertook data analysis and interpretation. Wrote manuscript and revised in response to reviewer comments. Acted as corresponding author.		
Overall percentage (%)	85%		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree byResearch candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	22 March 2022

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that

i. the candidate's stated contribution to the publication is accurate (as detailed above);

ii. permission is granted for the candidate in include the publication in the thesis; and

iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

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Paper

Abstract

Bullying is a widespread global issue, with serious consequences for victimized individuals. The current systematic review is the first to explore the consequences of bullying in early adolescence on psychological and academic functioning across the adolescent period. Five databases were examined, yielding 28 relevant studies. Victimized individuals were found to experience negative psychosocial and academic outcomes, including increased depression and anxiety, increased peer rejection, poorer school performance and school connectedness, both over the short term (12 months), and up to 8 years later. Victimized females suffered worse outcomes than victimized males, specifically for symptoms of depression, anxiety and suicidal ideation. Future research should prioritize developing a globally recognized measure of bullying, and designing targeted interventions addressing specific outcomes for victimized females and males.

Introduction

While bullying has been an important societal issue for many years, it has only been after the pioneering efforts of Olweus (1978) that it has become a consistent focus of research and our understanding of the behaviour has improved. Bullying is described as the negative actions one (or a group) inflicts on another to cause intentional harm or discomfort, with these actions occurring repeatedly and over time (Olweus, 1994). Further, bullying incidents include a power imbalance between the perpetrator(s) and the victim with an abuse of this power present (Hymel & Swearer, 2015; Olweus, 1994). These definitions conceptualize and differentiate bullying from general aggression or violence; however, some research does not emphasise these components, making the distinction between bullying and other forms of violence and aggression less clear (Hymel & Swearer, 2015). It should be noted that the terms 'bullying' and 'peer victimization' are often used interchangeably in the literature to describe this construct.

Bullying can be classified into four distinct types: physical, verbal, social (relational), and cyber (Menesini & Salmivalli, 2017). Physical bullying consists of actions that aim to inflict injury or distress, including hitting, kicking, and damaging property. Verbal bullying involves the use of verbal threats and name calling to intentionally harm another, while relational (social) bullying includes the exclusion from groups and/or starting/spreading rumors (Menesini & Salmivalli, 2017). These three types of bullying are referred to as 'traditional' forms of bullying, as they occur face to face, with cyberbullying included as a separate construct under the definition much more recently (Menesini & Salmivalli, 2017). Cyberbullying describes a harmful form of online victimization that uses email, text, social networking sites, or other online mediums to inflict harm or discomfort on individuals (Hymel & Swearer, 2015; Tokunaga, 2010). An additional feature of cyberbullying that

distinguishes it from traditional forms of bullying is that it can be conducted anonymously. This feature adds to the complexity of conceptualizing cyberbullying as a construct as people can anonymously engage in cyberbullying toward others who are considered more 'powerful' (physically, socially) than them in reality (Cross et al., 2016; Vandebosch & Van Cleemput, 2008). Although bullying can occur at any point in the lifespan, research has indicated adolescence, and particularly early adolescence, as being the most prevalent time for bullying (Brown et al., 2005; Hymel & Swearer, 2015).

Adolescence is known as the period between childhood and adulthood, with major biological and social changes such as puberty, schooling, and fluctuating levels of maturity occurring during this time (Sawyer et al., 2018). The definition of when adolescence occurs varies across the literature. While the World Health Organisation (2019) suggests that adolescence aligns with the period between the ages of 10 to 19, research in adolescent health has identified age 18 as the end of the period. This is because many countries (including Australia, United Kingdom, and United States) consider an individual as an adult at 18 years old, with associated role and responsibility changes including guardian independence, conclusion of formal schooling and participation in government elections (Dahl, 2004; Jaworska & MacQueen, 2015). Adolescence is considered a formative time with positive development crucial for growing into a healthy, well-adjusted adult (World Health Organisation, 2019b). Furthermore, experiences during this time can have considerable consequences, both immediate and ongoing over the life-course, with younger adolescents particularly vulnerable as their capacities are still developing as they begin to be less dependent on family networks (Robinson et al., 2011). Mental health issues, in conjunction with health behaviors, that develop in adolescence can influence how people attain education and employment, develop and maintain relationships in adulthood, and go on to parent their

own children (World Health Organisation, 2019b). As such, it is important to further understand the experiences that can negatively impact on mental health during adolescence, such as bullying.

Previous research has shown that both traditional and cyber bullying is most prevalent during early adolescence (10-12 years old), with the typical trajectory from a developmental perspective showing an increase and peak of bullying during the transition to middle school, and a decline into the high school years and late adolescence (Brown et al., 2005; Hymel & Swearer, 2015; Mitsopoulou & Giovazolias, 2015; Modecki et al., 2014; Simmons, 1987; Waasdorp et al., 2017; Zych et al., 2015). Research has indicated that younger adolescents (aged 8 to 14) report engaging in more bullying behaviors than older adolescents (aged 15 to 25) (Mitsopoulou & Giovazolias, 2015), and it has been suggested that this occurs as youth work to establish their place in the social hierarchy while attending school. Against the backdrop of this research, the current systematic review focuses on this important transitional period (Brown et al., 2005; World Health Organisation, 2019b) which has been overlooked in existing reviews (Arseneault, 2018; Moore et al., 2017; Wolke & Lereya, 2015; Zych et al., 2015).

Reviews of research exploring the impact of childhood bullying across the lifespan have consistently shown that peer victimization is an adverse experience for the victim (Arseneault, 2018; Moore et al., 2017; Wolke & Lereya, 2015; Zych et al., 2015). In a systematic review of systematic reviews and meta-analyses, Zych et al. (2015) found 66 studies demonstrating that bullying can result in an increased risk of developing symptoms of anxiety, depression, borderline personality disorder, suicidal ideation and psychotic experiences across the lifespan. In a similar study Moore et al. (2017) found an association

with adolescent peer victimization and subsequent depression, anxiety, poor mental and general health, suicidal ideation and attempts, and tobacco and illicit drug use. Previous narrative and literature reviews also found similar outcomes (Arseneault, 2018; Wolke & Lereya, 2015). Shortcomings of these reviews which are addressed in the current review are as follows: lack of a systematic review methodology (Arseneault, 2018; Wolke & Lereya, 2015); the inclusion of cross-sectional as well as longitudinal data (Moore et al., 2017; Zych et al., 2015); and the lack of separate consideration for cyberbullying (Arseneault, 2018; Moore et al., 2017; Wolke & Lereya, 2015; Zych et al., 2015). Finally, research has found mixed results about gender differences in bullying victimization. Some studies have found males experience higher frequencies of victimization (de Bruyn et al., 2010), with others showing the opposite (Veenstra et al., 2005). Furthermore, the literature suggests females experience poorer psychosocial outcomes than males, regardless of age or bullying victimization type (Turner et al., 2013); however, research into cyberbullying victimization shows no gender differences in prevalence or outcome, which may be due to the limited research in the area (Salmon et al., 2018). Because of these mixed results, analysis of gender differences is included in an effort to synthesise the findings.

This systematic review is one of the first to comprehensively explore the literature, examining only longitudinal data, to examine the psychosocial and academic outcomes of traditional and cyber bullying in order to overcome the above limitations. Furthermore, the review focuses on bullying in the early adolescent period and the impact on later adolescence, as it is significant for considering the implications in schooling institutions and other paediatric settings. Understanding the impact of bullying at its most prevalent time (early adolescence) on victims in later adolescence may have a positive impact on the psychosocial

and academic wellbeing of young people while they are still involved in educational facilities.

In summary, research has identified adolescence as a critical developmental period (Robinson et al., 2011) with early adolescence considered the most prevalent time for bullying to occur as it aligns with school transitions and adjustments to the social hierarchy (Kowalski et al., 2014; Mitsopoulou & Giovazolias, 2015; Varjas et al., 2009). Therefore, this review examines bullying victimization that occurs during early adolescence (aged between 10-12 years). The aim of the current study is to systematically examine the psychosocial and academic impact of bullying after one year, up to and including 18 years of age, on victims in early adolescence at the time of bullying. Our focus on these outcomes is based on the extensive literature highlighting their relationship with future life opportunities such as employment, non-completion of secondary education, lack of postsecondary education, income, and welfare receipt (Clayborne et al., 2019; Hale et al., 2015).

Method

Search strategy

The following electronic databases were selected for their focus on health, psychology, and social/behavioral sciences: PsycINFO, Ovid MedLine (which encompasses PubMed searches), Embase, Scopus, and Sociological Abstracts. The overall search strategy including the databases selected, the search criteria and search terms, were curated with the assistance of a specialist psychology, health, and medical research librarian (Table 2). Search terms consisted of the key concepts: bullying and adolescence. In order to maximise comprehensiveness, the search terms were kept general and psychosocial and academic outcomes were not included as important terms (e.g. self-harm/self-punishment) could be missed. The search criteria were designed to capture both traditional and cyber forms of early adolescent bullying. All database searching was conducted from the 12th to 16th of August 2019, with each database monitored using alerts until February 2021 to target current peer-reviewed articles. The reference lists of studies that met the inclusion criteria and relevant reviews were examined for additional articles.

Table 2:

Database Search Terms and Indexing Language

Database	Search terms
PsycINFO	**Adolescent** Adolesc*.ti,ab OR teen*.ti,ab OR 200.ag OR youth.ti,ab OR young people.ti,ab OR young person*.ti,ab OR high school student*.ti,ab OR high school students.sh OR secondary school student*.ti,ab **Bullying** bully*.ti,ab OR bullying.sh OR cyberbully*.ti,ab OR cyberbullying.sh OR cyber-bully*.ti,ab OR bullied.ti,ab OR cybervictim*.ti,ab OR aggression.ti,ab OR victim*.ti,ab OR victimization.sh OR harass*.ti,ab OR harassment.sh OR intimidation.ti,ab
Ovid MedLine	**Adolescent** Adolesc*.ti,ab OR adolescent.sh OR teen*.ti,ab OR youth.ti,ab OR young people.ti,ab OR young person*.ti,ab OR high school student*.ti,ab OR secondary school student*.ti,ab **Bullying** bully*.ti,ab OR bullying.sh OR cyberbully*.ti,ab OR cyberbullying.sh OR cyber-bully*.ti,ab OR bullied.ti,ab OR cybervictim*.ti,ab OR aggression.ti,ab OR aggression.sh OR victim*.ti,ab OR harass*.ti,ab OR intimidation.ti,ab
Embase	**Adolescent** Adolesc*:ti,ab OR adolescent/de OR teen*:ti,ab OR youth:ti,ab OR youth/de OR 'young people':ti,ab OR 'young people'/de OR 'young person*':ti,ab OR 'high school student*':ti,ab OR 'secondary school student*':ti,ab **Bullying** bully*:ti,ab OR bullying/de OR cyberbully*:ti,ab OR cyberbullying/de OR cyber-bully*:ti,ab OR bullied:ti,ab OR cybervictim*:ti,ab OR aggression:ti,ab OR aggression/de OR victim*:ti,ab OR victimization/de OR harass*:ti,ab OR harassment/de OR intimidation:ti,ab OR intimidation/de
Scopus	**Adolescent** TITLE-ABS-KEY(adolesc* OR teen* OR youth OR "young people" OR "young person*" OR "high school student*" OR "secondary school student*") **Bullying** TITLE-ABS-KEY (bully* OR cyberbully* OR cyber-bully* OR bullied OR cybervictim* OR aggression OR victim* OR harass* OR intimidation)
Sociological Abstracts	**Adolescent** AB,TI(adolesc* OR teen* OR youth OR "young people" OR "young person*" OR "high school student*" OR "secondary school student*") **Bullying** AB,TI(bully* OR cyberbully* OR cyber-bully* OR bullied OR cybervictim* OR aggression OR victim* OR harass* OR intimidation)

Note. ti = title, ab = abstract, key = keyword, ag = age, sh = subject headings, /de = exact term.

Eligibility criteria

In order to be eligible, studies needed to examine bullying in early adolescence (when the individual was 10, 11 or 12 years old) (World Health Organisation, 2019a) and the subsequent psychosocial and/or academic outcomes at least 1 year post bullying exposure up until 18 years of age (or the final year of formal schooling). Examples of expected outcomes include depression, anxiety, suicidal ideation, peer rejection, dissatisfaction with friends and family (psychosocial), and lower GPA, lower academic performance, lower school connectedness (academic). Studies could be qualitative, quantitative (experimental and observational), or mixed method in design, and must have been published in an English language peer-reviewed journal. No year restrictions were applied.

Studies were excluded if the article reported on bullying occurring outside of when the individual was 10, 11 or 12 years old, and if it explored psychosocial or academic outcomes less than 1 year post bullying exposure. Studies that addressed bullying-related outcomes of adolescents referred to as perpetrators or bully-victims (both a victim and bully) were also excluded as this review aimed to focus on the experiences of victims only. Impacts on health behaviors, such as smoking and alcohol use, were also outside the scope of the study. To ensure methodological quality was high, articles that were not peer-reviewed were also excluded. This eliminated book chapters, dissertations, conference papers and reports. Although reviews were also excluded, the relevant references in each were screened.

Data analysis and methodological quality

The review was conducted and reported on according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (Moher et al., 2015). The citation management software programs *EndNote x7* and *Rayyan QCRI* were used to

identify and remove duplicates, with Rayyan QCRI being used predominately to screen for eligibility. The primary researcher (SH) screened titles and abstracts, and a secondary reviewer (CD) completed a subset of 600 to ensure consistency of decisions. The reviewers discussed any discrepancies and full agreement was reached following these discussions; no third-party reviewer was required during this study. Once the full-text articles were examined and a final number of studies were considered eligible for inclusion, the aim, participants, study design, data collection and procedure, outcomes examined, and key findings were extracted to form the basis for analysis (Table 3). A narrative approach was undertaken due to the descriptive nature of the findings, and meta-analysis was not possible due to the heterogenous nature of results and measurements. Data are presented as a narrative synthesis with common concepts grouped together under similar headings (Popay et al., 2006). Given the small number of included articles, the analysis was done manually in collaboration with an independent researcher who was not otherwise involved in the present study. Along with psychosocial and academic outcomes, gender comparisons were made to explore any differences in outcomes experienced by males and females. The study was conducted according to a pre-registered PROSPERO protocol (registration number: CRD42020137069).

Methodological quality was assessed using the Mixed Method Appraisal Tool v.2018 (MMAT) (Hong et al., 2018). All eligible articles were assessed by the primary researcher (SH), with a 20% subset independently reviewed by the second reviewer (CD) with both authors agreeing on the quality ratings for the studies. To avoid confusion, Question 1, “are the participants representative of the target population?”, refers to whether the bullying had taken place while the individual was aged 10, 11, or 12, with subsequent outcomes measured after 1+ years.

Table 3:

Studies Considering Bullying in Early Adolescence and Subsequent Outcomes in Later Adolescence

Author. (Year). Country	Aim and bullying measurement	Participants	Study design	Key findings
1. Baly, M. W., Cornell, D. G. & Lovegrove, P. (2014). United States **(Baly et al., 2014)**	Examined the academic impact of peer victimization Traditional forms of bullying measured by the School Climate Bullying Survey (Cornell, 2011)	292 students (148 girls). Youngest age at beginning of study was 11.	Data were collected at six time points across 3 years. Victimization was assessed using self- and peer-reports (SR and PR respectively). Outcome variables included school climate and academic achievement.	-PR victimization, but not SR, was associated with lower GPA -PR only associated with lower mathematics GPA -SR associated with aggressive attitudes to school climate
2. Bannink, R., Broeren, S., van de Looij-Jansen, P M., de Waart, F. G. & Raat, H. (2014). Netherlands **(Bannink et al., 2014)**	Examined whether bullying victimization is associated with mental health problems and suicidal ideation Traditional and cyber bullying measured by two author designed questions	3181 individuals (1558 girls). Youngest age at beginning of study was 12.	Peer victimization was assessed at T1, with subsequent outcomes measured 2 years later. Victimization was assessed using self-reports. Outcome variables included mental health problems and suicidal ideation.	-Traditional and cyber bullying were significantly associated with mental health problems (emotional problems, hyperactivity-inattention, peer problems, prosocial behavior) for girls but not boys -Traditional, but not cyber, bullying was related to suicidal ideation
3. Bhui, K., Silva, M. J., Harding, S. & Stansfeld, S. (2017). United Kingdom **(Bhui et al., 2017)**	Tested whether bullying relates to poor mental health and if social support mitigates the effect Traditional bullying measured by a self-report question from the RELACHS studies (Stansfeld, 2001).	Students were followed from age 11 to 14 (this age group participant number is unknown as only total is shown).	Data were collected twice, with 2 years separating collection points. Victimization was assessed using self-reports. Outcome variables included social support and psychological distress.	-Psychological distress increased with age and bullying exposure, and was negatively associated with family social support -Psychological distress associated with bullying was sustained when controlling for socioeconomic disadvantage, family structure and religion

4. Bowes, L., Joinson, C., Wolke, D. & Lewis, G. (2015). United Kingdom **(Bowes et al., 2015)**	Investigated the association between peer victimization and depression Traditional bullying measured by the Bullying and Friendship Interview Schedule (Wolke et al., 2012)	2668 participants (54.5% female) from the Avon Longitudinal Study of Parents and Children (ALSPAC) cohort. Youngest age at beginning of study was 10.	Peer victimization was assessed at 10 years old, with subsequent outcomes assessed at 18 years old. Victimization was assessed using self-report. Outcome variables included depression.	-8.2% of individuals who were occasionally bullied at 10 were depressed at 18 -10.3% of individuals who were frequently bullied at 10 were depressed at 18 compared to non-victims -Victimization decreased from age 10 to 13
5. Davis, J. P., Dumas, T. M., Merrin, G. J., Espelage, D. L., Tan, K., Madden, D. & Hong, J. S. (2018). United States **(Davis et al., 2018)**	Addressed the longitudinal relationships between bullying victimization, depression and academic achievement Traditional bullying assessed using the 4-item University of Illinois Victimization Scale (Espelage & Holt, 2001).	1875 participants (953 female) followed for 2 years. Youngest age at beginning of study was 12.	Data were collected at four time points across 2 years. Victimization was assessed using self-reports. Outcome variables included depression and academic achievement.	-Bullying victimization was associated with worse academic achievement and higher depression
6. Davis, J. P., Merrin, G. J., Ingram, K. M., Espelage, D. L., Valido, A. & El Sheikh, A. J. (2019). United States **(Davis et al., 2019)**	Explored the relationship between bullying victimization, school belonging and depression Traditional bullying assessed using the 4-item University of Illinois Victimization Scale (Espelage & Holt, 2001).	2177 students (1311 female) followed for 2 years. Youngest age at beginning of study was 12.	Data were collected at four time points across 2 years. Victimization was assessed using self-reports. Outcomes variables included depression and school belonging.	-Bullying victims reported higher levels of depression and lower levels of school belonging -School belonging buffered long-term problems for girls but not boys
7. Feldman, M. A., Ojanen, T., Gesten, E. L., Smith-Schrandt, H., Brannick, M., Totura, C. M., Alexander, L., Scanga, D. & Brown, K. (2014). United States **(Feldman et al., 2014)**	Examined the effects of middle school bullying and victimization on academic achievement and school attendance through high school Traditional bullying measured by the Olweus Bully/Victim Questionnaire (Olweus, 1996)	2030 participants (1016 female) were followed for a 4-year study period. Youngest age at beginning of study was 12.	Victimization was assessed at T1 using self-reports and subsequent outcomes were assessed each year for 5 years. Outcome variables included school attendance and academic achievement	-Younger students report more bullying victimization than older students -Victimization was negatively associated with academic achievement and school attendance -Girls experienced a more dramatic decrease in achievement and attendance from middle to high school as a result of bullying victimization

8. Forbes, M. K., Fitzpatrick, S., Magson, N. R. & Rapee, R. M. (2019). Australia **(Forbes et al., 2019)**	Explored the bidirectional relationships between depressive symptoms, anxiety, school connectedness, quality of life and peer victimization Traditional and cyber victimization measured by the Olweus Bully/Victim Questionnaire (Olweus, 1996)	3956 participants (48% female). Youngest age at beginning of study was 10.	Data were collected at both time points with peer victimization assessed using self-reports. Outcome variables included depressive symptoms, anxiety, school connectedness, and quality of life.	-Peer victimization at age 10-11 predicted depressive and anxiety symptoms at age 12-13 -Peer victimization predicted low levels of school connectedness and quality of life.
9. Heilbron, N. & Prinstein, M. J. (2010). United States **(Heilbron & Prinstein, 2010)**	Examined associations among peer victimization and self-injurious thoughts and behaviors Traditional victimization measured by author designed questions	493 adolescents (51% girls). Youngest age at beginning of study was 12.	Peer victimization was assessed at T1, with subsequent outcomes assessed at 1- and 2-years post T1. Victimization was assessed using peer-reports. Outcome variables included suicidal ideation and non-suicidal self-injury.	-Girls' experience of victimization was associated with suicidal ideation -Traditional bullying was associated with male victims reporting of non-suicidal self-injury
10. Henrich, C. C. & Shahar, G. (2014). United States **(Henrich & Shahar, 2014)**	Examined the effect of peer victimization on depressive symptoms Traditional bullying was measured by the Kids in My Class at School questionnaire (US Department of Health and Human Services, 2010).	1081 participants were followed from fifth to sixth grade. Youngest age at beginning of study was 10.	Bullying was assessed in fifth grade, with subsequent outcomes assessed 1 year later. Peer victimization was assessed using self-reports. Outcome variables included depressive symptoms.	-Peer victimization was associated with depression symptoms -Those who were bullying victims and had depressive symptoms at baseline experienced higher levels of depressive symptoms at T2.
11. Hodges, E. V. & Perry, D. G. (1999). United States **(Hodges & Perry, 1999)**	Determined whether the personal and interpersonal difficulties that characterise victimized children are antecedents, consequences or both Traditional bullying measured by the Peer Nomination Inventory (Wiggins & Winder, 1961)	173 participants (87 girls) were followed for 1 year. Youngest age at beginning of study was 11.	Data were collected twice, with 12 months separating collection points. Bullying victimization was measured using peer-reports. Outcome variables included internalizing behaviors (depression and anxiety) and peer rejection.	-Victimization predicted increases in internalizing behaviors and rejection by peers -Victimization did not predict a loss of friends over the ensuing year but lead them to turn to other victimized individuals as friends

12. Iyer-Eimerbrink, P.A. & Jensen-Campbell, L. A. (2019). United States **(Iyer-Eimerbrink & Jensen-Campbell, 2019)**	Examined whether social and physical peer victimization led to changes in psychological health outcomes Traditional bullying assessed by the Direct and Indirect Aggression Scales (Bjorkqvist et al., 1992)	120 adolescents (66 girls) were followed for 2 years. Youngest age at beginning of study was 12.	Data were collected twice, with 2 years separating the collection points. Peer victimization was assessed using self-reports. Outcome variables included anxiety, depression and PTSD.	-Social victimization was related to anxious depression, withdrawn depression, and PTSD symptoms -No evidence of physical victimization leading to internalizing problems
13. Juvonen, J. Nishina, A. & Graham, S. (2000). United States **(Juvonen et al., 2000)**	Investigated the relations between peer harassment and psychological adjustment Traditional forms of bullying assessed by author designed questionnaire based off a Nishina & Juvonen (1998) questionnaire assessing peer harassment	106 students (62 girls) were followed for 1 year. Youngest age at beginning of study was 12.	Data were collected at two time points, with 1 year between collection times. Victimization was assessed using self-reports. Outcome variables included self-worth, loneliness and depressive symptoms.	-Students who were bullied did not show psychological adjustment difficulties (loneliness, self-worth, depression) one year later
14. Juvonen, J., Wang, Y. & Espinoza, G. (2011). United States **(Juvonen et al., 2011)**	Examined whether bullying experiences are associated with lower academic performance Traditional bullying measured by a modified six-item version of the Peer Victimization Scale (Neary & Joseph, 1994).	Approximately 2300 students (54% females) followed for 3 years. Youngest age at beginning of study was 11.	Data were collected annually for 3 years. Victimization was assessed using self- and peer-reports. Outcome variables included GPA and academic engagement.	-Bullying was associated with academic disengagement and poor grades regardless of self- or peer-reported victimization
15. Ladd, G., Ettekal, I. & Kockenderfer-Ladd, B. (2017). United States **(Ladd et al., 2017)**	Profile trends in peer victimization across Grades K-12 Traditional bullying measured by a 4 item peer victimization scale (Kochenderfer & Ladd, 1996)	383 children (193 girls) followed from kindergarten through Grade 12 (using data from aged 10 onwards).	Data were collected once a year from K - Grade 12 and self-reports were used to assess victimization. Outcome variables included school engagement, perceived academic competence and academic achievement.	-Peer victimization was most prevalent in earlier school years -Students became less positive over the course of formal schooling -Victimized children had lower estimates of their academic competence -Peer victimization was associated with lower academic achievement
16. Lee, K., Vaillancourt, T. (2018). Canada **(Lee & Vaillancourt, 2019)**	The concurrent and longitudinal relationships between peer victimization, BMI, and body dissatisfaction	631 individuals (341 girls) followed from ages 10 to 16/17.	Data were collected once a year from ages 10 to 16/17 and self-reports were used to assess victimization. Outcome variables included	-Peer victimization and body dissatisfaction were related -Childhood peer victimization at 10 years was positively associated with adolescent BMI

	Traditional and cyber bullying measured by an 5-item adapted version of Olweus Bully/Victim Questionnaire (Olweus, 1996)		body mass index and body dissatisfaction.	-Bullied children were at greater risk of body dissatisfaction and weight misperception
17. Lereya, S. T., Copel, W, E., Zammit, S. & Wolke, D. (2015). United Kingdom **(Lereya et al., 2015)**	Identified the impact of bullying victimization on mental health problems Traditional forms of bullying measured by the Bullying and Friendship Interview Schedule (Wolke et al., 2012)	4101 individuals (55.7% female) were followed from age 10 until 18.	Bullying was measured by child and mother reports at 10 years old with outcome variables assessed at 18 years old. Outcome variables included psychotic experiences, depression and anxiety.	-Victims at aged 10 were at increased risk of developing mental health problems (psychotic experiences, depression and any mental health problems) at 18 -No significant association was found between victimization at 10 and anxiety problems at 18
18. Lereya, S. T., Winsper, C., Heron, J., Lewis, G., Gunnell, D., Fisher, H. L. & Wolke, D. (2013). United Kingdom **(Lereya et al., 2013)**	Assessed whether being bullied between 7-10 years old is associated with self-harm in late adolescence Traditional forms of bullying measured by the Bullying and Friendship Interview Schedule (Wolke et al., 2012)	4810 individuals who are a part of the Avon Longitudinal Study of Parents and Children (ALSPAC) study (ages 7 to 10 through to 16-17).	Victimization was assessed at 10 years using self, mother, and teacher reports and self-harm was assessed at 16/17 using self-reports. Outcome variables included self-harm, depression and Borderline Personality Disorder.	-Being a victim of bullying was associated with increased risk of self-harm -Being bullied indirectly increased the risk of self-harm via depression -Being bullied was associated with subsequent depression symptoms which in turn increased risk of self-harm -No association with Borderline Personality Disorder and self-harm
19. Lester, L., Dooley, Cross, D. & Shaw, T. (2012). Australia **(Lester et al., 2012)**	Investigated the relationship between peer victimization and internalizing symptoms Traditional and cyber bullying assessed by a nine-item sale adapted from Rigby and Slee (1998), Olweus (1996) and the 2004 Youth Internet Survey (Ybarra & Mitchell, 2004).	3462 students were followed across 3 years. Youngest age at beginning of study was 11.	Data were collected at the end of Grade 7, start of Grade 8, end of Grade 8 and the end of Grade 9. Peer victimization was assessed using self-reports. Outcome variables included depression and anxiety.	-Victimization at 11 was associated with symptoms of depression and anxiety at 14 -No significant difference between girls and boys
20. Loukas, A. & Pasch, K. E. (2013). United States **(Loukas & Pasch, 2013)**	Examined the role of school connectedness as a moderator of the associations between overt and relational forms of peer victimization and subsequent adjustment problems	490 students (53% female) were followed across 1 year. Youngest age at beginning of study was 11.	Peer victimization was assessed at T1, with subsequent outcomes measured 1 year later. Peer victimization was assessed using self-reports. Outcome variables included school connectedness, conduct	-Overt (physical/verbal) victimization (not relational) predicted increases in boys' and girls' conduct and social anxiety symptoms 1 year later -The 'overt victimization and depressive symptoms'

	Traditional victimization assessed by the Social Experience Questionnaire – Peer Report (Crick & Brigbee, 1998)		problems, depressive symptoms and social anxiety.	association was significant only for girls
21. Paul, J. J. & Cillessen, A. H. (2003). United States **(Best et al., 2014)**	Addressed peer victimization and the short-term consequences Traditional bullying assessed by author designed questions	Approximately 624 participants (approx. 50% girls) were followed across 4 years. Youngest age at beginning of study was 10.	Data were collected annually for 4 years, with peer victimization assessed using peer nominations. Outcome variables included internalizing symptoms, anxiety withdrawal, peer sociability, self-efficacy and prosocial behavior.	-Victimization was associated with depression, anxiety-withdrawal, teacher-rated peer sociability, self-rated peer sociability, social self-efficacy, and perceived prosocial behavior 1 year later -Victimized girls scored higher than boys for depression, and anxiety-withdrawal
22. Perren, S. Ettekal, I. & Ladd, G. (2013). United States **(Perren et al., 2013)**	Investigated the short- and long-term consequences of bullying victimization Traditional bullying assessed through peer reports (Ladd & Kochenderfer-Ladd, 2002).	478 participants (49.8% female) were followed for 2 years. Youngest age at beginning of study was 10.	Peer victimization was assessed at T1 and subsequent outcomes were assessed across a 3-year period. Peer victimization was assessed through peer-reports. Outcome variables included attributions and maladjustment	-Short-term = victimization was associated with hostile attributions -Long-term = victimization predicted increases in internalizing problems (anxiety, depression, withdrawn behavior)
23. Risser, S. (2013). United States **(Risser, 2013)**	Investigated the relationship between peer victimization and school performance Traditional bullying assessed through teacher reports adapted from the Peer Victimization Scale (Kochenderfer & Ladd, 1996)	1067 participants (531 female) were followed over 1 year. Youngest age at beginning of study was 10.	Data were collected twice, separated by 12 months, with peer victimization assessed using teacher-reports. Outcome variables included school performance.	-Fourth grade overt (physical) victimization was significantly negatively associated with fifth grade school performance for boys only -Fourth grade relational victimization was significantly negatively associated with fifth grade school performance for girls only
24. Salmivalli, C., Sainio, M. & Hodges, E. V. (2013). Finland **(Salmivalli et al., 2013)**	Examined the consequences of electronic and traditional victimization Traditional and cyber bullying assessed by the Olweus Bully/Victim Questionnaire (Olweus, 1996)	7850 students (51% female) were followed over 1 year. Youngest age at beginning of study was 10.	Data were collected twice, separated by 12 months, with victimization assessed using self-reports. Outcome variables included depression.	-Only victims of traditional bullying and traditional+cyber bullying (not cyberbullying alone) contributed significantly to increases in depression -Traditional+cyber bullying victims experienced the highest levels of depression

25. Sheppard, C. S., Giletta, M. & Prinstein, M. J. (2019). United States **(Sheppard et al., 2019)**	Explored the associations between peer victimization and subsequent adjustment Traditional bullying assessed by author designed questions	653 participants (48% female) were assessed annually for 3 years. Youngest age at beginning of study was 12.	Data were collected once a year for 3 years from age 11 to 13 with victimization assessed using peer-reports. Outcome variables included peer status, internalizing and externalising symptoms.	-Victims bullied in Grade 6 experienced less peer likability and were considered less popular than non-victims in Grade 9 -Victims bullied in Grade 6 experienced higher levels of internalizing behaviors than non-victims in Grade 9
26. Singham, T., Viding, E., Schoeler, T., Arseneault, L., Ronald, A., Cecil, Cm., McCrory, E., Rijsjijk, F. & Pingault, J. (2017). United Kingdom **(Singham et al., 2017)**	Explored the mental health outcomes of bullying victimization Traditional bullying measured using the Multidimensional Peer-Victimization Scale (Mynard & Joseph, 2000)	11,108 participants (5894 girls) were assessed at 5 years after bullying incident. Youngest age at beginning of study was 11.	Bullying was assessed using self-reports at 11 and mental health outcomes were assessed at 16. Outcome variables included anxiety, depression and psychotic-like experiences.	-Bullying at 11 was significantly associated with an increase in anxiety, depression and psychotic-like experiences (paranoid thoughts, hallucinations, grandiosity, anhedonia) at 16 years old.
27. Smithyman, T., Fireman, G., Asher, Y. (2014), United States **(Smithyman et al., 2014)**	The long-term relationship between peer victimization and psychosocial adjustment Traditional forms of bullying measured by the Social Experience Questionnaire (Paquette & Underwood, 1999)	From 3,636 participants at T1 (9-11 y.o.), 72 students (34 girls) provided data at T2 (16-17 y.o.).	Victimization was assessed at 10- and 17-years using self and peer reports observing current and retrospective accounts of bullying. Outcome variables included psychological distress, life satisfaction, school connectedness and school performance.	-Self-reported victimization in elementary school can result in the victim being at risk of psychological distress and lowered life satisfaction -Peer-nominated victims did not report higher levels of maladjustment in areas such as life satisfaction and psychological distress
28. Waasdorp, T. Pas, E. Zablotsky, B. & Bradshaw, C. (2017). United States **(Waasdorp et al., 2017)**	The prevalence of bullying, school climate, and other indicators across a 10-year period Traditional and cyber bullying measured by the Olweus Bully/Victim Questionnaire (Olweus, 1996)	Data were collected once a year from ages 10 to 17 and self-reports were used to assess victimization	Data were collected once a year from ages 10 to 17 and self-reports were used to assess victimization. Outcome variables included perceptions of school climate which included belonging and safety.	-Bullying had remained prevalent, although declining, experience for school-aged youth -Relational bullying was common and consistent across years -Ratings of safety, but not belonging, significantly improved over time for those who experienced bullying - Reduction in bullying across high school years -Bullying peaks in middle school

Results

A total of 28 studies met the inclusion criteria (See Figure 6 for PRISMA flow chart); all studies used a prospective, longitudinal design with the exception of one which incorporated prospective and retrospective data (Smithyman et al., 2014). The time to follow up ranged from 1 year to 8 years post bullying incident, with most (n = 7) reporting on outcomes after 2 years, followed by outcomes after 1 year (n = 6). Most (n = 18) studies were conducted in the United States, with five from the United Kingdom, two from Australia, and one each from the Netherlands, Canada, and Finland. Out of the total, 50% of studies (14/28) met all five criteria demonstrating high methodological quality (Table 4).

Most studies (n = 22) focused on only traditional forms of bullying (physical, verbal, social) (Table 3 references; 1, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17, 18, 20, 21, 22, 23, 25, 26, 27) and six focused on all forms of bullying (traditional and cyber) (Table 3 references; 2, 8, 16, 19, 24, 28). No studies reported on cyberbullying exclusively. Regarding outcomes explored, three studies discussed both psychosocial and academic (Table 3 references; 5, 6, 8), six focused only on academic (Table 3 references; 1, 7, 14, 15, 23, 28), and 19 reported on only psychosocial (Table 3 references; 2, 3, 4, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27). Bullying was measured by self-reports (n = 17), peer-reports (n = 6), both self- and peer-reports (n = 2), child and mother reports (n = 1), child, mother and teacher reports (n = 1), and teacher reports (n = 1). Overall, 14 different bullying scales were used across the 28 studies, with five authors designing their own questions to measure the construct (Bannink et al., 2014; Best et al., 2014; Heilbron & Prinstein, 2010; Juvonen et al., 2000; Sheppard et al., 2019).

Figure 6:

Article Selection and Exclusion Process, Based on the PRISMA Framework

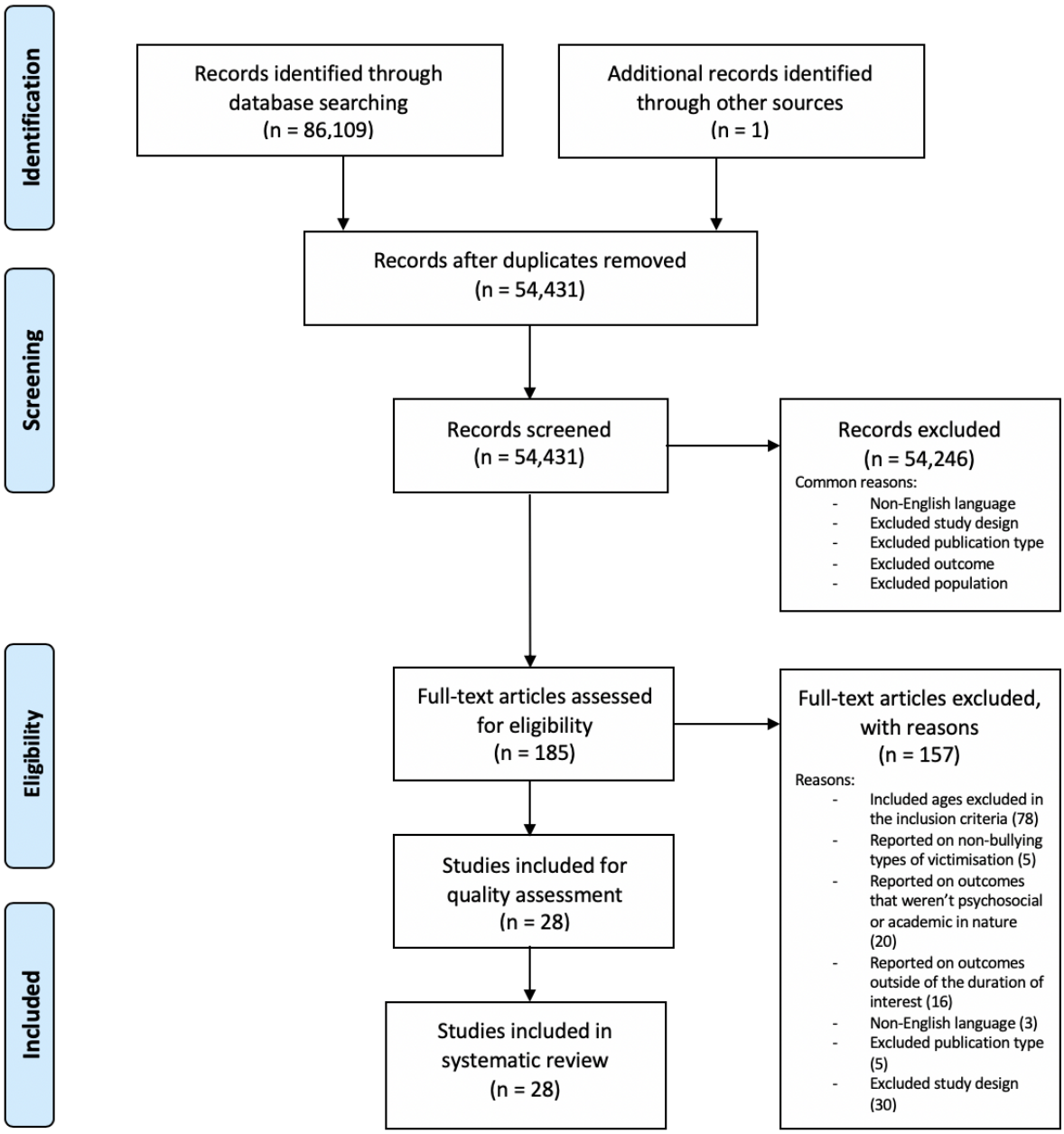

Table 4:

Summary of Quality Assessment using the Mixed Methods Appraisal Tool

	(Baly et al., 2014)	(Bannink et al., 2014)	(Bhui et al., 2017)	(Bowes et al., 2015)	(Davis et al., 2018)	(Davis et al., 2019)
Quantitative Non-Randomised						
3.1 Are the participants representative of the target population?	✓	✓	✓	✓	✓	✓
3.2 Are measurements appropriate regarding both the outcome and intervention (or exposure)	✓	X	✓	✓	✓	✓
3.3 Are there complete outcome data?	✓	X	✓	✓	✓	✓
3.4 Are the confounders accounted for in the design and analysis?	✓	✓	✓	✓	✓	✓
3.5 During the study period, is the intervention administered (or exposure occurred) as intended?	✓	✓	✓	✓	✓	✓

	(Feldman et al., 2014)	(Forbes et al., 2019)	(Heilbron et al., 2010)	(Henrich et al., 2014)	(Hodges et al., 1999)	(Iyer-Eimerbrink et al., 2019)
Quantitative Non-Randomised						
3.1 Are the participants representative of the target population?	✓	✓	✓	✓	✓	✓
3.2 Are measurements appropriate regarding both the outcome and intervention (or exposure)	✓	✓	X	✓	✓	✓
3.3 Are there complete outcome data?	✓	✓	✓	✓	✓	x
3.4 Are the confounders accounted for in the design and analysis?	X	X	X	✓	✓	✓
3.5 During the study period, is the intervention administered (or exposure occurred) as intended?	✓	✓	✓	✓	✓	✓

	(Juvonen et al., 2000)	(Juvonen et al., 2011)	(Ladd et al., 2017)	(Lee et al., 2019)	(Lereya et al., 2015)	(Lereya et al., 2013)
Quantitative Non-Randomised						
3.1 Are the participants representative of the target population?	✓	✓	✓	✓	✓	✓
3.2 Are measurements appropriate regarding both the outcome and intervention (or exposure)	✓	✓	✓	✓	✓	✓
3.3 Are there complete outcome data?	x	✓	✓	✓	✓	✓

3.4 Are the confounders accounted for in the design and analysis?	✓	✓	✓	✓	✓	✓
3.5 During the study period, is the intervention administered (or exposure occurred) as intended?	✓	✓	✓	✓	✓	✓

	(Loukas et al., 2013)	(Paul et al., 2003)	(Perren et al., 2013)	(Risser, 2013)	(Salmivalli et al., 2013)	(Sheppard et al., 2019)
Quantitative Non-Randomised						
3.1 Are the participants representative of the target population?	✓	✓	✓	✓	✓	✓
3.2 Are measurements appropriate regarding both the outcome and intervention (or exposure)	✓	X	X	✓	✓	X
3.3 Are there complete outcome data?	✓	✓	?	?	X	✓
3.4 Are the confounders accounted for in the design and analysis?	✓	X	✓	X	✓	X
3.5 During the study period, is the intervention administered (or exposure occurred) as intended?	✓	✓	✓	✓	✓	✓

	(Sigham et al., 2017)	(Smithyman et al., 2014)	(Waasdorp et al, 2017)
Quantitative Non-Randomised			
3.1 Are the participants representative of the target population?	✓	✓	✓
3.2 Are measurements appropriate regarding both the outcome and intervention (or exposure)	✓	✓	✓
3.3 Are there complete outcome data?	?	X	✓
3.4 Are the confounders accounted for in the design and analysis?	✓	X	✓
3.5 During the study period, is the intervention administered (or exposure occurred) as intended?	✓	✓	✓

Note. ✓ Met criterion, X Did not meet criterion, ? Unsure

Two themes were identified for psychosocial outcomes, and two pertained to academic outcomes. Psychosocial outcomes encompassed psychological and social relationships; 14 papers reported exclusively on psychological outcomes (Table 3 references; 4, 9, 10, 12, 13, 16, 17, 18, 19, 20, 22, 24, 26, 27), and five reported on psychological outcomes as well social relationships (Table 3 references; 2, 3, 11, 21, 25). Academic outcomes included the themes performance and attitude; one study discussed performance (Risser, 2013), one examined attitude (Waasdorp et al., 2017), and four discussed both (Table 3 references; 1, 7, 14, 15). One study examined psychological and academic achievement outcomes (Davis et al., 2018); one study assessed psychological outcomes and academic attitude (Forbes et al., 2019); and one study examined psychological, academic performance and academic attitude (Davis et al., 2019).

A total of 10 studies examined gender differences in bullying victimization and the outcome of interest (Table 3 references; 2, 6, 7, 9, 16, 18, 20, 21, 23, 27). Eight studies examined gender differences and psychosocial outcomes (Table 3 references; 2, 6, 9, 16, 18, 20, 21, 27) and two studies assessed gender differences in academic outcomes (Feldman et al., 2014; Risser, 2013). Boys were more likely to be victimized than their female counterparts in all traditional types of bullying (social, verbal, and physical) (Ladd et al., 2017; Lereya et al., 2013; Rosen et al., 2017). None of the included studies investigated gender differences in relation to cyberbullying.

Psychosocial Outcomes

Psychological

Overall, there was an association between being a victim of bullying and subsequent psychological symptomology. Bullying victimization was associated with developing

symptoms of depression (Table 3 references; 4, 5, 6, 8, 10, 12, 17, 18, 19, 20, 21, 24, 26); anxiety (Table 3 references; 8, 12, 19, 20, 21, 26); psychological distress (Table 3 references; 2, 3, 22, 27); and psychosis (Lereya et al., 2015; Singham et al., 2017). Victimization was also associated with suicidal ideation and/or self-harming injuries (Table 3 references; 2, 9, 18); internalizing problems (Table 3 references; 11, 22, 25); social anxiety (Loukas & Pasch, 2013); conduct problems (Davis et al., 2019); and body dissatisfaction (Lee & Vaillancourt, 2019). Conversely one study of 106 participants found no difference in psychological distress in victims compared to non-victims (Juvonen et al., 2000).The one study that distinguished between traditional and cyber bullying found only traditional bullying was related to suicidal ideation after controlling for baseline suicidal ideation, age, gender and mental health (Bannink et al., 2014). Similarly, Salmivalli et al. (2013) found victims of traditional only and traditional and cyber bullying combined, but not cyber bullying alone, experienced depression after controlling for gender and baseline depression. This study also found those who were victims of combined traditional and cyber bullying experienced the highest levels of depression (Salmivalli et al., 2013).

Studies reporting on gender differences in psychological outcomes found victimized females experienced higher levels of depression (Table 3 references; 6, 18, 20, 21); anxiety (Paul & Cillessen, 2003); psychological distress (Bannink et al., 2014); body dissatisfaction (Lee & Vaillancourt, 2019); and suicidal ideation (Heilbron & Prinstein, 2010) with all studies except one (Paul & Cillessen, 2003) accounting for confounders, such as baseline mental health levels. In comparison, victimized males reported more non-suicidal self-injury than victimized females (Heilbron & Prinstein, 2010).

Social Relationships

Early adolescent bullying victims reported feeling dissatisfied in the domains of family, friends, and their living environment (Smithyman et al., 2014). Victims were more likely to report not enjoying being with family or friends; felt as though friends and family did not treat them fairly; did not enjoy living where they resided; and did not like their neighborhood (Smithyman et al., 2014). Studies that examined peer relationships in a school setting found those who were bullied in early adolescence experienced subsequent peer rejection (Hodges & Perry, 1999), and were perceived to be less likeable and less popular among peers than non-victims (Sheppard et al., 2019). Self-perceived peer problems at school (assessed through how participants felt their peers considered them in measures of prosocial behavior, aggression, and social withdrawal) were experienced by victimized individuals after controlling for gender and ethnicity (Bannink et al., 2014; Best et al., 2014). In contrast, Hodges & Perry (1999) found that victimization did not result in a loss of friends over the ensuing year, although victims tended to turn to other victimized individuals as friends. It should be noted that none of the included studies investigated gender differences in relation to bullying impacts on social relationships.

Academic Outcomes

Performance/Achievement

Being a victim of bullying was associated with a lower grade point average (GPA) (Baly et al., 2014; Feldman et al., 2014); a lower Math GPA (Baly et al., 2014; Ladd et al., 2017); lower grades (Davis et al., 2018; Juvonen et al., 2011); and overall lower school performance (Risser, 2013). Ladd et al. (2017) further studied the impact of bullying on GPA by exploring academic trajectories while controlling for gender, race, socio-economic status, and middle school transition. Bullied victims demonstrated a decrease in mathematics performance, slight decrease in independent performance (i.e. shows initiative, works

independently), and unexpectedly, a slight increase in reading performance (Ladd et al., 2017). Comparing peer-reported victimization to self-reported victimization, Baly et al. (2014) found that only peer-reported victimization was associated with a lower overall GPA and lower mathematics GPA, as opposed to reading GPA; however, Juvonen et al. (2011) determined victimization was associated with poor grades regardless of whether it was self- or peer-reported.

With regards to gender differences in academic outcomes, Risser (2013) found that 4th grade overt victimization (physical and verbal bullying) was significantly negatively associated with 5th grade school performance for boys. Conversely, this same study established that 4th grade relational victimization was significantly negatively associated with 5th grade school performance for girls only (Risser, 2013). Additionally, victimized girls experienced a more dramatic decrease in academic achievement from middle school to high school when compared to victimized boys (Feldman et al., 2014).

Attitude/School engagement

Bullied adolescents reported lower levels of school belonging (Davis et al., 2019; Waasdorp et al., 2017); a negative attitude towards school (Baly et al., 2014; Ladd et al., 2017); lower school connectedness (Forbes et al., 2019); higher school disengagement (Juvonen et al., 2011); lower school attendance (Feldman et al., 2014); and lower levels of self-perceived academic competence than adolescents who did not experience bullying (Ladd et al., 2017). Distinguishing between self- and peer-reported victimization, Baly et al. (2014) found that only self-reported victimization was associated with subsequent feelings of negativity towards school; however, Juvonen et al. (2011) found students who were victimized felt a sense of disengagement towards school irrespective of reporting measure.

No studies investigated differential impacts according to gender for school engagement or attitude.

Discussion

This review provides a unique evaluation of longitudinal data, as opposed to cross-sectional data, and demonstrates that all types of early adolescent bullying victimization is associated with subsequent adverse psychosocial and academic outcomes, with half of the included studies found to be of high quality in terms of methodological rigour. The review contributes a unique perspective to the literature by exclusively examining bullying victimization at a time during adolescence when it is most prevalent, i.e. in early adolescence. The review produced results mirroring that of previous reviews on the psychosocial outcomes of bullying in adolescence and adulthood (Wolke & Lereya, 2015; Zych et al., 2015) including: depression; anxiety; psychological distress; psychotic symptoms; suicidal ideation; self-harming injuries; and feeling dissatisfied in the domains of family, friends and living situations. These outcomes were observed irrespective of the time period after the bullying incident, a factor previously questioned in the literature. While Olweus (1993) reported negative outcomes of bullying victimization could subside over time, the present review determined effects can still be experienced up to 8 years after the initial bullying incident, highlighting that each victim's experience is unique and that negative consequences may not always diminish over time (Goldbaum et al., 2003; Smithyman et al., 2014).

High quality studies that explored victims' peer relationships found victimization was negatively associated with subsequent popularity, likeability and more peer rejection (Hodges & Perry, 1999; Sheppard et al., 2019). Unfortunately, these factors also contribute to one being targeted by bullies, with the victimization cycle continuing (Cook et al., 2010). Interestingly, Hodges & Perry (1999) found that those who were victimized found friendships with other victimized peers. This could be due to victimized individuals finding others who share similar characteristics and experiences (victimization, psychological distress, peer

rejection) to feel a sense of belonging and inclusion at school (Hamm & Faircloth, 2005). The present study also replicated and strengthened the findings of previous reviews on the academic impact of bullying during adolescence. Specifically the decline in bullying victims' GPA, grades and overall school performance could be attributed to the stress of victimization negatively influencing school performance (Akgun & Ciarrochi, 2003) or to school avoidance, common in victimized students (Feldman et al., 2014). Overall, research consistently shows adolescents who are bullied experience concerning psychosocial and academic outcomes.

Another key outcome is that girls and boys can experience bullying differently. Some studies found boys in the early adolescent age range of 10 to 12, were more likely to be victimized than their female counterparts in all traditional types of bullying (social, verbal, and physical) (Ladd et al., 2017; Lereya et al., 2013; Rosen et al., 2017). This is reflected in previous research (Turner et al., 2013); however there is contradictory evidence suggesting females are victimized more through social bullying methods and males victimized more through physical and verbal means (Hinduja & Patchin, 2014; Nabuzoka, 2003; Van der Wal et al., 2003). Analyses by Risser (2013) demonstrated that girls experienced negative impacts on school performance after experiencing relational bullying only, while boys' school performance was negatively associated with overt bullying only; however, other potential covariates (e.g., psychosocial wellbeing) were not accounted for in this study, thus it cannot be determined whether the impacts on school performance were explained by the differential impacts of bullying type according to gender alone. Stereotypical characteristics of masculinity and femininity may also explain the outcomes seen in Risser's (2013) study; boys tend to be known for more physical types of aggression and victimization in girls

stereotypically associated with more social forms of bullying (Carrera Fernández et al., 2013).

Of note, victimized girls were observed to experience more negative psychological outcomes including: depression (Best et al., 2014; Davis et al., 2019; Lereya et al., 2013; Loukas & Pasch, 2013); anxiety (Best et al., 2014); psychological distress (Bannink et al., 2014); body dissatisfaction (Lee & Vaillancourt, 2019), and suicidal ideation (Heilbron & Prinstein, 2010) than victimized boys. Previous work has hypothesized that adolescent females may internalize problems more than adolescent males as a result of dispositional characteristics including heightened reactivity, rumination styles, and socialization experiences (Gutman & Codiroli McMaster, 2020; Zahn-Waxler et al., 2008). While one study found victimized boys experienced more non-suicidal self-injury than victimized girls (Heilbron & Prinstein, 2010), this study did not use psychometrically robust measures of bullying victimization and did not take into account potential covariates, thus these findings should be interpreted with caution.

By exclusively examining the time period of early adolescence, findings from this review have implications for the development of school-based interventions to intervene early to help prevent potential long-term negative outcomes. The review identifies specific areas that can reduce subsequent negative outcomes, namely facilitating peer connections at school and improving the school climate. Social isolation has been recognized as a risk for one being bullied, due to the victim being perceived as an ‘easy target’ (Hodges & Perry, 1999). Designing interventions that take account of friendships and the support they provide could reduce the likelihood of ‘targets’ being without social support and at the risk of the negative mental health effects of bullying (Foody et al., 2019). High levels of school

belonging and feeling safe at school have been identified as buffering effects of victimization (Davis et al., 2019; Waasdorp et al., 2017) thus, designing school-based interventions that target improving school climate, particularly safety and belonging, could decrease negative psychosocial and academic outcomes. Lastly, it was observed victimized females experience more negative psychological outcomes than victimized males (Table 3 references: 2, 6, 9, 16, 18, 20, 21). This result suggests that females may be at higher risk for experiencing negative psychological outcomes of bullying and points to the need for female specific interventions for preventing and reducing symptoms of depression that arise as a result of bullying.

Limitations of current research

The review highlights several shortcomings in the extant research, notably the frequent lack of distinction between early adolescent traditional and cyber bullying victimization, which was made in only two studies. Previous research has demonstrated cyberbullying is more pervasive as technology can be accessed even outside of school hours, making it harder for the victim to escape (Hymel & Swearer, 2015). Despite this assertion, both studies that explored the differences between traditional and cyber bullying victimization found that cyberbullying alone did not show stronger negative effects. Instead, traditional bullying along with a combination of traditional and cyber bullying was associated with higher levels of depression and suicidal ideation, with the combination of traditional and cyber bullying victimization showing the highest levels of depression (Bannink et al., 2014; Salmivalli et al., 2013). Future research exploring victims' experiences of cyber and traditional bullying victimization and the outcomes of these different types of bullying is needed.

A lack of consistency in bullying measurement was noted throughout the data analysis component of this review. Across the 28 included studies, 14 different types of measurements were used to measure the construct, and five authors measured bullying using their own designed questions with no reference to a validated measure. The most frequently used measurement was the Olweus Bully/Victim Questionnaire (Olweus, 1996), used in five studies, followed by three studies using the Bullying and Friendship Interview Schedule (Wolke et al., 2012). The plethora of different bullying measures presents a number of challenges. Firstly, the author-designed questions may have poor psychometric properties. Secondly, the abundance of different measurements indicates there is no globally recognised scale to measure bullying.

Methodological quality varied considerably across the studies included in the present review. While half of the studies were determined to be of high methodological quality, a number of the included studies failed to meet numerous methodological quality criteria, as assessed in the present review. Eight studies failed to report complete data for their outcome measure, seven did not account for relevant covariates in the design and analysis, and five did not use measures considered appropriate for the outcome variable. These types of issues, in particular utilising bullying measures that are psychometrically sound and consistently applied, and ensuring that research practices are of high rigor, need to be considered in future work.

Strengths and limitations of this review

This review has a number of strengths. The search terms were broad in order to capture all possible articles about bullying throughout adolescence. This was done to ensure no studies were omitted if different terms were used, for example ‘peer

victimization/victimisation' instead of 'bullying'. While this resulted in a large number of records for screening, it ensured that a wide range of different psychosocial and academic outcomes were captured. The review also used a well-recognised definition of adolescence adapted from the World Health Organisation (2019).

A limitation is that all studies were conducted with children living in high income countries including the United States, United Kingdom, Australia, Netherlands, Canada, and Finland. This has implications for the findings, as bullying and the successive outcomes may differ for children living in other settings. More research is required that includes other cultures, so interventions are appropriately designed and implemented. On a related note, this review did not include papers published in languages other than English and some relevant papers may have been excluded due to this restriction. In addition, the term 'bully-victim' was purposefully omitted during the screening phase in order to only capture victims' experience of bullying which may have resulted in us including studies that also included bully-victims as well as those deemed as being victims alone. Finally, not all studies (only 20/28) took potential covariates into account and future research should ensure to do this.

Conclusion

This is the first systematic review that specifically considers how early adolescent bullying victimization can impact an individual's subsequent psychosocial and academic outcomes up to the age of 18 years. The systematic review also adds to current understandings through its separate consideration of cyberbullying and its restriction to longitudinal studies. This review demonstrated bullying around the age of 10-12 is associated with negative outcomes in the areas of psychological, social relationships, academic performance, and attitudes towards school, with these outcomes persisting over time and up

to 8 years after the experience of victimisation. Given that all studies were conducted in high income countries, the findings from this review should be treated with caution as they may not generalize to other populations. Future research would benefit from the development of a universally recognized bullying measure to robustly capture the construct, as well as separate consideration of the impact of early adolescent cyberbullying. Designing interventions aimed at increasing the quality of friendships, making schools a positive and supportive place, and targeted interventions for victimized female and male students may mitigate the negative effects of bullying.

Technical Note:

When this thesis went through the revision process, one examiner suggested minor editorial changes for the already published study one manuscript. The current study presented in this thesis reflects the most recent version, including the suggested changes from the examiner. The original version can be viewed online.

Halliday, S., Gregory, T., Taylor, A., Digenis, C., & Turnbull, D. (2021). The impact of bullying victimization in early adolescence on subsequent psychosocial and academic outcomes across the adolescent period: A systematic review. *Journal of School Violence, 20*(3), 351-373. https://doi.org/10.1080/15388220.2021.1913598

Chapter 5: Study Two

Chapter 5 presents the findings of study two. Study two is designed to respond to the limitations identified in the review and therefore addresses the second objective of this thesis. This study examines the relationship between early adolescent physical, verbal, social, and cyber bullying and indicators of positive *and* negative wellbeing. Study two has been submitted for publication.

Halliday, S., Taylor, A., Turnbull, D., & Gregory, T. (2022). *The relationship between traditional and cyber bullying victimization in early adolescence and emotional wellbeing: A cross-sectional, population-based study*. Manuscript submitted for publication.

Statement of Authorship

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Overall percentage (%)	60%		
Certification:	This paper reports on original research I conducted during the period of my Higher Degree byResearch candidature and is not subject to any obligations or contractual agreements with a third party that would constrain its inclusion in this thesis. I am the primary author of this paper.		
Signature		Date	22 March 2022

Co-Author Contributions

By signing the Statement of Authorship, each author certifies that:

i. the candidate's stated contribution to the publication is accurate (as detailed above);

ii. permission is granted for the candidate in include the publication in the thesis; and

iii. the sum of all co-author contributions is equal to 100% less the candidate's stated contribution.

Name of Co-Author	Professor Deborah Turnbull		
Contribution to the Paper	Formulated research aims, assisted with statical analysis and interpretation, supervised development of work, provided feedback on manuscript.		
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Paper

Abstract

Despite the wealth of knowledge about the impact of bullying victimization, information gaps exist about how traditional and cyber bullying in early adolescence is associated with emotional wellbeing, namely indicators of positive wellbeing. Therefore, this study investigated associations between different types of bullying victimization and positive and negative emotional wellbeing indicators, in addition to examining the prevalence of different types of bullying in conjunction with child, peer, and school factors. The study used data from an annual survey of student wellbeing conducted in South Australian schools. The sample comprised of 9,019 Grade 6 students aged 10-13 years (49.6% female). One third of students experienced bullying victimization. Verbal bullying was most prevalent in this sample (24%), followed by social (21%), physical (10%), and cyberbullying (7%). Males were significantly more likely to experience physical and verbal bullying, and students living in more socioeconomically disadvantaged communities were significantly more likely to experience physical, verbal, social, and cyber bullying victimization. Additionally, all types of bullying victimization were significantly associated with lower scores on positive emotional wellbeing indicators (happiness, life satisfaction and emotion regulation), and significantly higher scores on negative indicators (sadness and worries), all with small effect sizes after accounting for child, peer, and school level factors. This research suggests that bullying is associated with both positive and negative aspects of emotional wellbeing, and both aspects of wellbeing are crucial to consider when developing school-based interventions.

Bullying victimization is a topic of global public health concern and is marked by long-term psychological, social, and behavioral consequences (David-Ferdon et al., 2014). Bullying is defined as the negative actions one (or a group) inflicts on another to cause intentional harm or discomfort. These actions occur repeatedly, over time, and involve an imbalance of power (Hymel & Swearer, 2015; Olweus, 1994). Traditional bullying is experienced physically, verbally, and socially, and with the growing use of online means to interact, cyberbullying has become more common (Wolke & Lereya, 2015). Cyberbullying is a harmful form of online victimization that uses text, social networking sites, or other online mediums to inflict harm or discomfort on another individual and is often considered more pervasive than traditional forms due to its 24/7 nature (Hymel & Swearer, 2015). Previous work has used the term 'bullying' to describe the actions of the perpetrator (bully), the outcomes for the victim, or to explain the experience of the 'bully-victim' (one who is both a bully and a victim) (Zych, Ttofi, et al., 2020). This study exclusively examines the experience for victims of physical, verbal, social, and cyber bullying.

Prevalence of Traditional and Cyber Bullying Victimization

There is high variability in the reported prevalence rates of traditional and cyber bullying victimization for children and adolescents. Recent reviews indicate that rates of traditional bullying range from 8.4% to 45.1%, and rates of cyberbullying range from 1.0% to 61.1%, with these reported rates dependent on the age of the sample and the country where the study was conducted (Biswas et al., 2020; Brochado et al., 2017). These variations can also be partly explained by the lack of a consistent bullying measure, differences in students' understanding of what constitutes bullying as opposed to general violence or aggression, and the lack of a consensus in the literature regarding the definition, which raises issues with conceptualizing the construct (Jadambaa et al., 2019; Juvonen & Graham, 2014). Although

prevalence rates vary for different types of bullying, a meta-analysis of 80 studies indicated that the prevalence of cyberbullying is lower than that of traditional bullying, with traditional bullying about twice as common; however, it should be noted that different types of bullying also often co-exist, making it difficult to obtain precise prevalence estimates of specific types of bullying (Modecki et al., 2014; Thomas et al., 2017).

It is widely accepted that bullying victimization rates peak in early adolescence (10-12 years old) and decrease with age (Hong & Espelage, 2012; Saarento et al., 2013; Waasdorp et al., 2017). Early adolescence is a crucial developmental period with notable changes in the physical, social, and psychological domains. An individual's life experiences and expectations shape future behaviors and attitudes in later adolescence and adulthood (Beal et al., 2016). Relationships with family and friends are especially important during this stage (Kingery et al., 2011; McKinney & Renk, 2011). When these relationships are not constructive and positive for the formation of identities, this can contribute to the development of internalizing and externalizing behaviors (McKinney & Renk, 2011), poorer social and emotional wellbeing, and lower peer acceptance (Oberle et al., 2010), which are all considered risk factors for bullying (Cook et al., 2010; Zych, Farrington, et al., 2020).

Although research has indicated that early adolescence is a time when bullying is most prevalent, a recent systematic review examining longitudinal studies found that different types of bullying (e.g., physical, verbal, social) are not always separately considered, and little is known about the longer-term impacts of experiencing cyberbullying during early adolescence (Halliday et al., 2021). Reviews have also highlighted that cross-sectional research on cyberbullying in adolescents under 13 years old remains limited in comparison to adolescents over 13 years (Bottino, 2015; Kowalski et al., 2014). Possible explanations for a lack of

research on cyberbullying in this age bracket include the belief that these young adolescents do not have access to a personal smartphone or device, and that the minimum age requirement for creating accounts on many social media and online gaming websites is 13 years old (Rideout & Robb, 2019). However, one 2020 report (n = 2,500) found one third of children aged 6 to 13 years owned the smartphone they use (Roy Morgan Research, 2020), with another report (n = 1,440) finding 44% of children aged 0 to 8 years owned their own tablet (Rideout & Robb, 2020). More recently, results from a 2021 United States (US) survey (n = 1000) demonstrated that 45% of participants aged 9 to 12 years were using Facebook daily, 40% were using Instagram and Snapchat daily, 30% were using Twitter daily, 23% were playing the online game 'Minecraft', and 22% were playing the online game 'Fortnite' daily (Thorn, 2021). A total of 38% of participants in this study reported experiencing cyberbullying on these platforms (Thorn, 2021). These findings suggest that access to or ownership of personal devices that can access the internet is considerably prevalent, cyberbullying is indeed a concern during early adolescence, reinforcing the need for further study of the experiences of all forms of bullying (physical, verbal, social, cyber) during the critical early adolescent period.

Outcomes Associated with Bullying Victimization

Although victimization can be experienced in many ways, research suggests that the results are always adverse. Several systematic reviews have investigated the outcomes of traditional and cyber bullying, with findings suggesting associations with higher levels of depression, anxiety, psychological distress, internalizing problems, somatic problems, psychosis, suicidal ideation and self-harming injuries, lower levels of life satisfaction, lower school performance, lower grade point average (GPA), and lower levels of school belonging

(Halliday et al., 2021; Juvonen & Graham, 2014; Kowalski et al., 2014; Moore et al., 2017; Schoeler et al., 2018; Wolke & Lereya, 2015; Zych et al., 2015).

While the World Health Organisation (WHO) constitution states, "health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity" (World Health Organisation, 2018, p. 1), most studies investigating the impact of bullying victimization focus on negative outcomes (depression, anxiety, suicidal ideation), with limited research investigating the association with positive wellbeing indicators, such as happiness, emotion regulation, and life satisfaction (Fullchange & Furlong, 2016; Schoeler et al., 2018). The Complete State Model of Mental Health considers mental health and mental illness to be related but distinct constructs, where individuals can experience high levels of positive mental health even with a diagnosis of a mental illness (Keyes & Lopez, 2002). The importance of considering positive wellbeing indicators is demonstrated in various studies in which adolescents who are free from mental illness but exhibit low levels of emotional wellbeing and positive functioning differ considerably from those who are free from mental illness and exhibit high levels of emotional wellbeing (Keyes & Lopez, 2002). For example, adolescents who do not have mental illness but have low levels of mental health are more likely to engage in more health risk behaviors such as increased alcohol intake, smoking cigarettes, and less exercise and sleep (Venning et al., 2013), and are more likely to be socially isolated (Knoesen & Naudé, 2018) than those who have low mental illness and high mental health. Studies have also established that students with low wellbeing have poorer academic outcomes than those with high wellbeing, even in the absence of mental illness. For example, Antaramian et al. (2010) found that adolescents who demonstrated low psychological distress (e.g., free from mental illness) but also low wellbeing (e.g., low levels of emotional wellbeing and positive functioning) had significantly lower GPAs than those

with low psychological distress and high wellbeing, with a medium effect size (d = .55). These results suggest that both positive wellbeing *and* the absence of psychological distress are necessary for the most advantageous school performance. Given that mental health is not limited to the reduction of symptoms of mental ill-health, it is important to develop an understanding of how all forms of bullying can affect both positive *and* negative emotional wellbeing indicators to inform effective and holistic school prevention and intervention programs. In the current study, the term 'emotional wellbeing' takes into account positive psychological indicators such as life satisfaction and happiness, as well as negative outcomes such as sadness and worries (Keyes, 2007).

Risk Factors Associated with Bullying Victimization

Longitudinal and trajectory studies indicate that individual risk factors associated with victimization include exhibiting internalizing and externalizing behaviors, increased depression and anxiety symptoms, social withdrawal, emotional dysregulation, and loneliness (Babarro et al., 2020; Paul & Cillessen, 2007; Zych, Farrington, et al., 2020). Previous research suggests that boys are more likely to be victims of physical or verbal bullying, and girls are more likely to be victims of social bullying (Berkowitz, 2020; Hinduja & Patchin, 2014; Nabuzoka, 2003; Risser, 2013; Van der Wal et al., 2003). Peer and school risk factors associated with bullying include low-quality friendships, less supportive peers, the teacher's attitude towards bullying, and the school climate about bullying (Paul & Cillessen, 2007; Saarento et al., 2013; Zych, Farrington, et al., 2020).

One limitation of previous research, including reviews and meta-analyses, is that the effect of risk factors (referred to here as bullying risk factors) is rarely considered and discussed in relation to the different types of bullying. Instead, results for all types of bullying

are generally grouped and analysed as a whole (Cook et al., 2010; Ladd et al., 2017; Menesini & Salmivalli, 2017; Ttofi & Farrington, 2012; Zych, Farrington, et al., 2020); or make reference to traditional and cyber bullying (Cappadocia et al., 2013; Li et al., 2019); or do not include all types of bullying (i.e., focus solely on cyber and social bullying) (Navarro, Yubero, et al., 2015). Therefore, the current study was also motivated by this lack of existing work that distinguishes risk factors for physical, verbal, social, and cyber bullying victimization.

The Present Study

Despite extensive research establishing a range of negative impacts of bullying in later adolescence (Wolke & Lereya, 2015), some gaps in the literature need further attention. The gaps that will be addressed in the current paper include: focusing on the early adolescent time period to examine the prevalence of different types of traditional bullying *and* cyberbullying victimization, examining emotional wellbeing outcomes using indicators of positive *and* negative wellbeing, and considering the school-level implications of addressing bullying during this age period. The research questions are as follows: (1) What is the prevalence of each type of bullying in a sample of early adolescent Australian students? (2) What are the risk factors (child, peer, and school level) for early adolescent traditional and cyber bullying victimization? and (3) What is the association between different types of early adolescent bullying and positive *and* negative indicators of emotional wellbeing, before and after adjusting for a wide range of child, peer and school-level covariates?

Methods

Data Source

The Wellbeing and Engagement Collection

The Wellbeing and Engagement Collection (WEC) is an annual survey that has been administered to South Australian students by the South Australian Department for Education since 2013. The WEC aims to capture the non-academic factors relevant to learning and participation in order to assist schools, community, and government to determine opportunities and resources that may help students reach their full potential (South Australia Department for Education, 2021a). In 2016, 717 schools were invited to participate in the WEC; of the 500 schools who participated, 466 were South Australian government schools, 26 Catholic schools, and 8 independent schools (Gregory & Brinkman, 2020; Gregory et al., 2021). For the present study, student results from South Australian government schools were used, as this allowed WEC data to be linked to demographic characteristics collected as part of the school enrolment census.

The WEC measures four broad areas of a student's life: (1) emotional wellbeing (2) engagement with school (3) learning readiness and (4) health and wellbeing out of school (Gregory & Brinkman, 2020). Some of the specific areas that are measured include students' breakfast and sleep habits, connectedness to others (teachers, adults, and peers at school), school climate, bullying victimization experiences, and levels of happiness, sadness, life satisfaction, and worries (Gregory et al., 2021; South Australia Department for Education, 2021a). For additional details, see Gregory et al. (2021).

The Current Study

Participants

The sample for this study consisted of all Grade 6 South Australian government school students, who completed the Wellbeing and Engagement Collection in 2016 (n=10,061). A total of 9,109 students (82.4%) had complete data on all measures and formed the analysis sample for this study (see Statistical Analysis section for information on missing data and a comparison of the response sample and the analysis sample). In the analysis sample (n = 9,109), 49.6% were female, 70.8% were 12-13 years old, 4.4% identified as Aboriginal and Torres Strait Islander and 26.2% lived in the most socio-economically disadvantaged communities in the state (see Table 5).

Table 5

Demographic characteristics of participants (n = 9019)

Variable	*n*	*%*
Gender		
Male	4543	50.4
Female	4476	49.6
Age (years)		
10-11	2630	29.2
12-13	6389	70.8
Non-English-Speaking Background		
No	6874	76.2
Yes	2145	23.8
Aboriginal and Torres Strait Islander		
Yes	396	4.4
No	8623	95.6
Socio-Economic Status (SES)		
1 – Most Disadvantaged	2366	26.2
2	1471	16.3
3	1438	15.9
4	1881	20.9
5 – Most Advantaged	1863	20.7

Note. SES was measured using a community-level indicator (SEIFA = Socio-Economic Index for Areas) based on the postcode of residence of students. SEIFA is derived from Australian Bureau of Statistics census information that summarise different aspects of socioeconomic conditions in an area.

Measures

Bullying. The frequency of four different types of bullying victimization (physical, verbal, social, and cyber) was measured using a single item for each type of bullying. In 2016,

students were asked 'This school year, how often have you been bullied by other students in the following ways?' and then the type of bullying was provided along with a description. Physical bullying included the description “for example, someone hit, shoved, or kicked you, spat at you, beat you up, or damaged or took your things without permission”. Verbal bullying was described as “for example, someone called you names, teased, humiliated, threatened you, or made you do things you didn’t want to do”. Social bullying included the following description: “for example, someone left you out, excluded you, gossiped and spread rumours about you or made you look foolish”. Cyberbullying was described as “for example, someone used the computer or text messages to exclude, threaten, humiliate you, or to hurt your feelings”.

Responses were made on a Likert response scale with 1 indicating “not at all this school year”, 2 “once or a few times”, 3 “about every month”, 4 “about every week”, and 5 “many times a week”. To meet the definition of bullying victimization relating to the experience of intentional harm inflicted by other students, victimization must be *frequent and continuous* (Olweus, 1994). Bullying victimization in the present study was therefore defined as the experience of bullying at least once every month (responses 3, 4, and 5). As the bullying measures were single-item, a measurement of internal consistency could not be obtained (Wanous & Reichers, 1996).

Emotional Wellbeing. Emotional wellbeing was measured using five scales from the Emotional Wellbeing section of the WEC: life satisfaction, emotion regulation, happiness, sadness, and worries.

Life satisfaction was measured using the ‘Life satisfaction scale of 5 items - adapted for children’ and included the following questions: 'In most ways my life is close to the way I want it to be', 'The things in my life are excellent', 'I am happy with my life', 'So far I have gotten the important things I want in life' and 'If I could live my life over again, I would have it the same way' (Gadermann et al., 2010). Response options ranged from 1‘disagree a lot’ to 5 ‘agree a lot’.

Emotion regulation was measured using the cognitive reappraisal scale of the ‘Emotion Regulation Questionnaire for Children and Adolescents’ and encompasses the following questions: 'When I want to feel happier, I think about something different', 'When I want to feel less bad (e.g. sad, angry, or worried), I think about something different', 'When I'm worried about something, I make myself think about it in a different way and that helps me feel better', 'I control my feelings about things by changing the way I think about them' and 'When I want to feel less bad (e.g. sad, angry, or worried), I change the way I think about it' (Gullone & Taff, 2012). Responses for each item ranged from 1 ‘strongly disagree’ to 5 ‘strongly agree’.

Happiness was measured using the five-item scale from the ‘EPOCH Measure of Adolescent Wellbeing’, with students responding to the following questions: ‘I feel happy’, ‘I have a lot of fun’, ‘I love life’, and response options ranging from 1 ‘almost never’ to 5 ‘almost always’, and ‘I am a cheerful person’ answered on a response scale from 1 ‘not at all like me’ to 5 ‘very much like me’ (Kern et al., 2015).

Sadness was measured using the ‘Middle Years Development Instrument’, with students answering the following questions: 'I feel unhappy a lot of the time', 'I feel upset about things' and 'I feel that I do things wrong a lot' (Schonert-Reichl et al., 2013b).

Finally, worries were measured using the ‘4-item Worries scale’ and included 'I worry a lot about things at home', 'I worry a lot about things at school', 'I worry a lot about mistakes that I make' and 'I worry about things' (Gregory et al., 2016). Response to items in both the sadness and worries scales ranged from 1 ‘disagree a lot’ to 5 ‘agree a lot’.

For each of the five emotional wellbeing measures, a scale score (1-5) was calculated by taking the mean of all items within the scale. The psychometric properties of these five emotional wellbeing scales have been established previously (see Gregory and Brinkman (2020)). Within the current sample, all scales had good internal reliability, as shown by Cronbach’s alpha values for sadness (α=.80), happiness (α=.82), worries (α=.84), emotion regulation (α=.86), and life satisfaction (α=.87).

Child, Peer and School Level Covariates. Demographic information on age, gender, Aboriginal and Torres Strait Islander status, and language spoken at home were obtained from school census records held by the South Australian Department for Education, completed by parents/guardians at school enrolment, or questions at the beginning of the WEC. Socio-Economic Status (SES) was measured using the 2016 Socio-Economic Indexes for Areas (SEIFA) Index of Relative Disadvantage based on the child’s postcode of residence (Australian Bureau of Statistics, 2018). Additionally, sleep quality was included as a child-level covariate, as poor sleep has been linked to both lower emotional wellbeing (Baum et al., 2014; Newsom, 2020; Shin & Kim, 2018) and to bullying victimization (Donoghue &

Meltzer, 2018). Sleep quality was measured by a single question asking, ‘How often do you get a good night’s sleep?’, with students required to answer on a Likert scale from 1 = never to 8 = every day. As sleep quality was assessed using a single-item measure, a measurement of internal consistency could not be determined (Wanous & Reichers, 1996).

Peer level covariates were assessed through the friendship intimacy and peer belonging questions in the WEC (Gregory & Brinkman, 2020; Schonert-Reichl et al., 2013b). Peer belonging comprised of three questions, “I feel a part of a group of friends that do things together”, “I feel that I usually fit in with other kids around me”, and “When I am with other kids my age, I feel I belong”. Friendship intimacy included the questions, “I have at least one really good friend I can talk to when something is bothering me”, “I have a friend I can tell everything to”, and “There is somebody my age who really understands me”. For both scales, response options ranged from 1 = disagree a lot to 5 = agree a lot, and the score was calculated by taking the mean of the three items within each scale.

School-level covariates were measured using the emotional engagement with teachers scale and the school climate scale in the WEC (Gregory & Brinkman, 2020). Questions about emotional engagement with teachers included: ‘I get along well with most of my teachers’, ‘Most of my teachers are interested in my wellbeing’, ‘Most of my teachers really listen to what I have to say’, ‘If I need extra help, I will receive it from my teachers’, and ‘Most of my teachers treat me fairly’. The school climate scale included the following items: ‘Teachers and students treat each other with respect in this school’, ‘People care about each other in this school’, and ‘Students in this school help each other, even if they are not friends’. For the school climate scale, the response options ranged from 1 = disagree a lot to 5 = agree a lot, and for the emotional engagement with teachers scale, the responses ranged from 1 = strongly

disagree to 4 = strongly agree. For both scales, the score was calculated by taking the mean of all items within each scale. Covariate measures of more than one item demonstrated high internal reliability within the current sample, as shown by Cronbach's alpha values for school climate (α=.82), peer belonging (α=.84), friendship intimacy (α=.86), and emotional engagement with teachers (α=.86). Further reliability and validity statistics for all WEC measures can be obtained from Gregory and Brinkman (2020).

Statistical Analysis

The prevalence of different types of bullying victimization was reported for the total sample and for students with different demographic characteristics (Table 6). Chi-square analyses were conducted to test the association between the different types of bullying and the following variables: age group, gender, socio-economic status, and English vs non-English speaking background. To reduce the risk of a Type 1 error, a conservative Bonferroni correction was used to adjust for multiple comparisons. The raw p-value (p = 0.05) was divided by the number of tests run (16), and the adjusted significance criterion was established at $p_{altered}$ = 0.003125 (or $p_{altered}$ = <.01).

To examine the association between peer and school-level variables and bullying victimization, the mean scores for peer and school measures were compared for children who did and did not experience each type of bullying (see Table 7). Again, independent sample t-tests were conducted with a conservative Bonferroni correction used to adjust for multiple comparisons. The raw p-value (p = 0.05) was divided by the number of tests performed (40) and the adjusted significance criterion was set at $p_{altered}$ = 0.00125 (or $p_{altered}$ = <.001).

To examine the association between bullying victimization (physical, verbal, social and cyber) and emotional wellbeing, mean scores for each emotional wellbeing outcome were compared for children who did and did not experience each type of bullying (see Table 7). Independent sample t-tests were conducted with a Bonferroni correction applied to adjust for multiple comparisons, with the adjusted criterion for significance set at $p_{altered} < .001$. Finally, a series of linear regression models were run to explore the association between bullying victimization and emotional wellbeing outcomes before and after adjusting for the set of covariates defined *a priori*. For each bullying type (e.g., physical bullying) and each emotional wellbeing outcome (e.g., happiness), two linear regression models were run. The first was an unadjusted linear regression analysis to estimate the raw association between bullying and emotional wellbeing outcomes, and the second adjusted for the child, peer and school level covariates (Table 8). Cohen's (1988) guidelines were employed to interpret the size of effects in this study. These guidelines indicate a standardised coefficient of $\beta=0.02$ represents a small effect, $\beta=0.15$ represents a medium effect, and a large effect is represented by $\beta=0.35$ (Cohen, 2013).

Missing Data

Of the 10,061 students in the response sample, a total of 9,019 respondents (82.4%) had complete data on all variables (see Supplementary Table S1 for full descriptive results). The data were not missing completely at random (Little's Missing Completely at Random (MCAR) test (Little, 1988)). The highest rates of non-responses were for the bullying victimization questions (ranging from 2.0% to 2.9%) and various covariate measures including sleep (4.6%), emotional engagement with teachers (1.9%), and peer belonging (1.9%). Non-responses were more likely for those who were male, those living in communities with lower SES, and those who identified themselves as Aboriginal and/or

Torres Strait Islander. As individuals who identify as being male, Aboriginal and/or Torres Strait Islander, and/or of lower SES are at an increased risk of bullying victimization (Coffin et al., 2010; Cook et al., 2010; Zych, Farrington, et al., 2020), this sample bias may lead to an underestimation of the prevalence of bullying victimization.

Results

Research Question 1: What is the prevalence of early adolescent physical, verbal, social, and cyber bullying victimization?

Prevalence rates were examined to establish overall occurrences and to determine the pervasiveness of each type of bullying (Table 6). Most of the students in the sample (67.7%) did not experience any type of bullying in the school year. Of the 32.3% of students who reported experiencing bullying, 13.5% experienced one type of victimization, 10.0% experienced two types, 5.8% experienced three types, and 3.0% experienced all four types. Verbal bullying was the most commonly experienced (24.0%), followed by social bullying (21.2%). Physical bullying (10.2%) and cyberbullying (7.2%) were considerably less common.

Demographic Characteristics of Bullying Victims

Students identifying as male were more likely to experience physical ($\chi^2(1) = 83.46$, $p_{altered} = <.001$) and verbal bullying ($\chi^2(1) = 28.10$, $p_{altered} = <.001$) than female students, with no significant gender differences for social and cyber bullying. Students living in more socioeconomically disadvantaged communities were more likely to experience physical ($\chi^2(4) = 35.73$, $p_{altered} = <.001$), verbal ($\chi^2(4) = 21.24$, $p_{altered} = <.001$), social ($\chi^2(4) = 15.10$, $p_{altered} = <.01$), and cyber ($\chi^2(4) = 66.82$, $p_{altered} = <.001$) bullying than children living in less socioeconomically disadvantaged communities. Students who identified English only as their language background were more likely to experience physical ($\chi^2(1) = 13.91$, $p_{altered} = <.001$), verbal ($\chi^2(1) = 29.29$, $p_{altered} = <.001$), social ($\chi^2(1) = 30.07$, $p_{altered} = <.001$), and cyber ($\chi^2(1) = 9.97$, $p_{altered} = <.01$), bullying than children of a non-English speaking background. There were no significant differences in the prevalence rates of any type of bullying for children aged 10 to 11 years compared to those aged 12 to 13 years.

Table 6

Prevalence of different types of bullying for total sample and for children with different demographic characteristics

Type of Bullying		Physical	Verbal	Social	Cyber
	N	*n (%)*	*n (%)*	*n (%)*	*n (%)*
Total	9019	947 (10.5)	2163 (24.0)	1916 (21.2)	652 (7.2)
Gender					
Male	4543	612 (13.4)	1197 (26.3)	930 (20.5)	335 (7.4)
Female	4476	335 (7.5)	966 (21.6)	986 (22.0)	317 (7.1)
Age (years)					
10-11	2630	297 (11.3)	666 (25.3)	555 (21.1)	177 (6.7)
12-13	6389	650 (10.2)	1497 (23.4)	1361 (21.3)	475 (7.4)
Non-English-Speaking Background					
No	6874	768 (11.2)	1742 (25.3)	1551 (22.6)	530 (7.7)
Yes	2145	179 (8.3)	421 (19.6)	365 (17.0)	122 (5.7)
Socio-Economic Status (SES)					
1 – Most Disadvantaged	2366	298 (12.6)	625 (26.4)	537 (22.7)	243 (10.3)
2	1471	175 (11.9)	361 (24.5)	322 (21.9)	113 (7.7)
3	1438	157 (10.9)	354 (24.6)	325 (22.6)	105 (7.3)
4	1881	180 (9.6)	442 (23.5)	392 (20.8)	119 (6.3)
5 – Most Advantaged	1863	137 (7.4)	381 (20.5)	340 (18.3)	72 (3.9)

Note. SES was measured using a community-level indicator (SEIFA = Socio-Economic Index for Areas) based on the postcode of residence of students. SEIFA is derived from Australian Bureau of Statistics census information that summarise different aspects of socioeconomic conditions in an area.

Research Question 2: What are the risk factors (child, peer, and school level) for traditional and cyber bullying victimization?

Analysis of the mean differences between students reported bullying and those who did not report bullying indicated that physical, verbal, social, and cyber bullying was associated with significantly lower scores in all included covariate measures at the child, peer, and school level (emotional engagement with teachers, friendship intimacy, peer belonging, school climate, and sleep) (see Supplementary Table S3 for full results).

Table 7

Mean scores on emotional wellbeing and peer and school level factors (covariates) for children who did and did not experience bullying

Type of Bullying	Physical		Verbal		Social		Cyber	
	Y *M(SD)*	N *M(SD)*	Y *M(SD)*	N *M(SD)*	Y *M(SD)*	N *M(SD)*	Y *M(SD)*	N *M(SD)*
Outcomes								
Emotion Regulation	3.26 (.92)	3.56 (.81)	3.31 (.91)	3.59 (.79)	3.30 (.92)	3.58 (.79)	3.30 (.92)	3.54 (.82)
Happiness	3.45 (.99)	3.93 (.87)	3.51 (.99)	4.00 (.83)	3.50 (.97)	3.98 (.84)	3.41 (1.02)	3.92 (.87)
Life Satisfaction	3.33 (1.09)	3.81 (.94)	3.36 (1.09)	3.89 (.89)	3.33 (1.09)	3.88 (.90)	3.27 (1.10)	3.80 (.95)
Sadness	3.09 (1.12)	2.46 (1.03)	3.04 (1.10)	2.37 (1.00)	3.09 (1.09)	2.38 (1.00)	3.15 (1.13)	2.48 (1.04)
Worries	3.43 (1.09)	2.86 (1.12)	3.40 (1.08)	2.77 (1.11)	3.47 (1.06)	2.78 (1.11)	3.51 (1.11)	2.88 (1.12)
Covariates								
Emotional Engagement with Teacher	2.86 (.70)	3.15 (.58)	2.90 (.69)	3.19 (.55)	2.91 (.69)	3.17 (.56)	2.85 (.73)	3.14 (.58)
Friendship Intimacy	3.92 (1.21)	4.30 (.96)	4.00 (1.18)	4.34 (.91)	3.99 (1.19)	4.33 (.92)	4.00 (1.16)	4.28 (.98)
Peer Belonging	3.35 (1.20)	3.99 (.97)	3.40 (1.17)	4.09 (.90)	3.28 (1.18)	4.10 (.89)	3.41 (1.16)	3.97 (.99)
School Climate	3.08 (1.08)	3.68 (.93)	3.13 (1.04)	3.76 (.89)	3.14 (1.05)	3.74 (.90)	3.20 (1.10)	3.65 (.95)
Sleep	4.10 (2.44)	4.99 (2.13)	4.24 (2.36)	5.10 (2.07)	4.20 (2.36)	5.08 (2.09)	3.82 (2.54)	4.98 (2.12)

Note. 9019 total participants. Sleep variable measures the mean number of days per week (0-7) that the student reported getting a good night's sleep. Scores on all other measures in this table range from 1 to 5.

Research Question 3: What is the association between types of bullying and emotional wellbeing outcomes, before and after adjusting for covariates?

The association between bullying victimization and indicators of emotional wellbeing was examined (Table 7). First, analysis of the mean differences between students who did and did not report victimization indicated that bullied individuals scored significantly lower on measures of emotion regulation, happiness, and life satisfaction, and significantly higher on measures of sadness and worries than non-bullied individuals across all types of bullying (for full results, see Supplementary Table S2). In addition, the correlations between emotional wellbeing and the covariates are presented in Supplementary Table 2. Peer belonging and school climate were most strongly correlated with the measures of emotional wellbeing.

Table 8 displays the results of linear regression analyses exploring the association between bullying victimization and emotional wellbeing, before and after adjusting for a range of covariates (gender, age, language background, Aboriginal and Torres Strait Islander status, SES, emotional engagement with teacher, friendship intimacy, peer belonging, school climate, and sleep). Standardised beta coefficients indicate how much higher or lower students who experience bullying scored on emotional wellbeing outcomes compared to children who did not experience bullying. Negative standardised coefficient values (<0) indicate that students who were bullied experienced lower levels of the emotional wellbeing outcome compared to those students who had not experienced bullying. Positive standardised coefficient values (>0) indicate that students who were bullied experienced higher levels of the emotional wellbeing outcome than students who were not bullied.

Victimization was associated with significantly lower levels of emotion regulation, happiness, life satisfaction, and significantly higher levels of sadness and worries for all types

of bullying (Table 8). The unadjusted effects ranged from 0.08 to 0.27 (i.e., medium effects), with the strongest effects observed for the association between verbal and social bullying and the outcomes of sadness and worries. Once adjusted for child, peer, and school-level covariates, effects were reduced to a small effect size. All types of bullying showed stronger associations with negative emotional wellbeing (sadness and worries) than with positive emotional wellbeing (life satisfaction, emotion regulation, and happiness).

The full regression results with effect estimates for all covariates are presented in Supplementary Table S4. The amount of variance explained by the type of bullying victimization and the factors at the child, peer, and school level for each emotional wellbeing variable ranged from 17% to 40%, tended to be higher for indicators of positive emotional wellbeing than negative emotional wellbeing, with the highest being happiness and life satisfaction (see Supplementary Table S4 for detailed results).

Table 8

Beta estimates from linear regressions exploring the association between bullying victimization and emotional wellbeing

	Unadjusted	Adjusted
	β	β
Emotion Regulation		
Physical Bullying	-.11***	.01
Verbal Bullying	-.15***	.03
Social Bullying	-.14***	.04***
Cyberbullying	-.08***	.02
Happiness		
Physical Bullying	-.16***	-.02
Verbal Bullying	-.23***	-.04***
Social Bullying	-.22***	-.02
Cyberbullying	-.15***	-.03***
Life Satisfaction		
Physical Bullying	-.15***	-.02
Verbal Bullying	-.24***	-.04***
Social Bullying	-.23***	-.03***
Cyberbullying	-.14***	-.03***
Sadness		
Physical Bullying	.18***	.08***
Verbal Bullying	.27***	.12***
Social Bullying	.27***	.12***
Cyberbullying	.16***	.07***
Worries		
Physical Bullying	.16***	.08***
Verbal Bullying	.24***	.13***
Social Bullying	.25***	.13***
Cyberbullying	.15***	.08***

Note. 9019 total participants. *** p <.001. β = standardized beta coefficients. Adjusted models accounted for the following covariates (gender, age, language background, Aboriginal and Torres Strait Islander status, socio-economic status, emotional engagement with teacher, friendship intimacy, peer belonging, school climate, and sleep).

Discussion

The primary goal of this paper is to address aspects of early adolescent bullying victimization overlooked in previous literature. The current study provides robust population estimates for the prevalence of all types of bullying, examines risk factors for all bullying types in an Australian context, and provides a comprehensive understanding of the relationship between victimization and both positive *and* negative aspects of emotional wellbeing.

Overall, the present study shows one third of students experience bullying, reflecting similar results from previous Australian-based reviews examining victimization among children and adolescents (Jadambaa et al., 2019). Similar to other Australian (Cross et al., 2009; Jadambaa et al., 2019) and international (Modecki et al., 2014; Salmivalli et al., 2013) studies using comparable adolescent age groups, traditional forms of victimization are more prevalent than cyberbullying, with physical bullying much less prevalent than social and verbal forms. Previous community-based studies on bullying in Australia show that physical bullying is less common than social and verbal bullying, and it is suggested that it may be due to the positive impact of school-level prevention programs designed for physical bullying (Kennedy, 2020). Alternative explanations relate to the cognitive and social functioning associated with school transitions and the early adolescent period more generally (Björkqvist et al., 1992; Monachino et al., 2021; Sanders, 2013). For example, social and verbal bullying may be more common than physical bullying due to social skills increasing and social relationships becoming more important during school transitions (Monachino et al., 2021).

The lower prevalence of cyberbullying relative to traditional bullying in the current sample may reflect the fact that it included those under 13 years of age, who are therefore

below the eligibility age of many social media and gaming sites. A unique finding is that although cyberbullying was less prevalent than traditional forms of bullying in the current sample, we found that more students reported experiencing cyberbullying (7.2%) than in previous Australian (3.45%) (Jadambaa et al., 2019) and international (1%) (Wolke et al., 2017) studies with similar age groups. Determining whether these students were 'pure' cyber-victims was not the focus of this study and is a recommendation for future work. The results suggest it is important for future research on cyberbullying should include children in this younger age group, given that it occurs and is harmful to future mental health (Wolke & Lereya, 2015).

This study also identifies risk factors for all types of traditional and cyber bullying victimization. Males are significantly more likely to experience physical and verbal bullying than females, which is consistent with previous studies (Hinduja & Patchin, 2014; Nabuzoka, 2003; Van der Wal et al., 2003). Students coming from a more socio-economically disadvantaged background are also significantly more likely to experience physical, verbal, social and cyber bullying, supporting previous work identifying an association between victimization and poor parental education, economic disadvantage, and poverty (Tippett & Wolke, 2014). Interestingly, students from a non-English speaking background were less likely to experience all types of bullying than their English only speaking peers. This finding is inconsistent with other studies that have shown that students from minority groups are often at a higher risk of bullying (Xu et al., 2020), and thus warrants further investigation. By identifying those at increased risk, school psychologists and counsellors may be able to implement preventative measures to ensure those at increased risk receive the appropriate attention. For example, all students may benefit from anti-bullying programs, but male students may benefit from additional focused information on verbal and physical bullying. At

a system level, education departments may want to supplement universal bullying prevention programs provided to all schools, with additional targeted supports to schools located in communities with high levels of socio-economic disadvantage.

Notably, all types of bullying victimization are significantly associated with higher levels of sadness and worries, and lower levels of happiness, emotion regulation, and life satisfaction with all results persisting after accounting for covariates. Similar to previous investigations on traditional bullying and indicators of positive wellbeing, we find physical, social, and verbal bullying to be associated with reduced life satisfaction, while controlling for demographic characteristics (Flaspohler et al., 2009). We are able to expand on this and determine a significant association with reduced happiness and emotion regulation and traditional forms of bullying, while controlling for a wide range of confounders. This is of note, as lower levels of emotion regulation are now identified as a risk factor *and* an outcome of bullying, which makes this another factor, along with showing symptoms of sadness and worries, that can result in a cycle of victimization for the individual (Morelen et al., 2016).

A particularly unique focus of the present study is the investigation of positive *and* negative indicators of emotional wellbeing associated with early adolescent cyberbullying victimization, while controlling for relevant confounders. Cyberbullying and indicators of positive wellbeing have been less studied in the existing literature, and current evidence is conflicting. One study suggests that there is no significant association between cyberbullying and life satisfaction after controlling for demographics (Moore et al., 2012), while another suggests there are significant associations between cyberbullying victimization and life satisfaction while controlling for gender and grade (Navarro, Ruiz-Oliva, et al., 2015). The results of the present paper support the latter findings and, to our knowledge, provide the first

evidence that cyberbullying victimization in early adolescence is significantly associated with reduced emotion regulation and happiness, as well as life satisfaction, after controlling for a wide range of child, peer, and school-level factors. This suggests that early adolescent traditional and cyber bullying victimization is broad reaching and shows an association with both positive and negative emotional wellbeing indicators for children in the pre-teen years.

Implications for Future Research and Practice

In schools around the world, there are a wide range of interventions designed to address student wellbeing. A recent review conducted by the Australian Council for Educational Research found 57 global interventions that focused on improving the mental wellbeing of students, with all having a small to moderate effect on factors including social-emotional adjustment, behavioral adjustment, cognitive adjustment, and internalizing symptoms compared to control groups (Dix et al., 2020). Among the studies, only one Australian based wellbeing intervention was included, indicating a lack of high quality, robust wellbeing programs specific to Australian students (Dix et al., 2020). Regarding bullying interventions in schools, recent evidence suggests mixed results, with educators divided in their opinions on the effectiveness of current interventions (Hall, 2017; Vreeman & Carroll, 2007). Some policies have been shown to reduce physical and verbal bullying, but not social bullying (Hall, 2017), and there are barriers to obtaining effective results due to inconsistencies in implementation and lack of participation of school staff (Vreeman & Carroll, 2007). It is widely recommended that addressing bullying requires a whole-school intervention that actively involves parents, teachers, and peers (Cantone et al., 2015; Vreeman & Carroll, 2007). Furthermore, Cross et al. (2018) suggests that intervention during the time of school transitions can reduce victimization and have a positive effect on depression, anxiety, feelings of loneliness, and perceptions of school safety. Therefore, by

producing anti-bullying programs that are delivered during school grades aligning with early adolescent students and school transitions, and that aim to address and modify behaviors of the wider school population, it is believed that the school culture around bullying can change and bullying behaviors can be counteracted on several fronts (Cantone et al., 2015).

Another strategy to reduce bullying in schools is to encourage peer support. In the present study, statistical adjustment for a range of child, peer, and school-level variables led to a reduction in the strength of the relationship between bullying and emotional wellbeing. Although most child-level variables (e.g., demographics) are fixed, many of the peer- and school-level factors are modifiable and provide a possible mechanism to reduce the negative association between bullying and emotional wellbeing. For example, previous work suggests that positive peer relationships have an instrumental impact on dealing with the negative outcomes of bullying victimization (Davis et al., 2019; Halliday et al., 2021; Hodges et al., 1999; Kingery et al., 2011). Taking into account the results of previous meta-analyses (Ng et al., 2020; Ttofi & Farrington, 2011) and the current study, future efforts should focus on designing whole-school interventions, which are delivered in classrooms by teachers. These programs should aim to improve student wellbeing and reduce adverse bullying outcomes, with specific supports for those children identified as at increased risk of victimization. School-wide interventions should also focus on increasing knowledge and skills for reducing feelings of sadness and worries, feelings of happiness and life satisfaction, and skills in emotion regulation. Such programs can assist students to learn the skills to build resilience against victimization, and encourage development of supportive peer relationships to reduce negative outcomes of victimization, while also facilitating appropriate and healthy development.

Limitations

The WEC survey is designed to be delivered to a large number of children from a wide range of backgrounds and ages. For practical purposes, some measures, notably those for capturing experience of bullying, are restricted to single items and the lack of multi-item bullying scales is a study limitation. Furthermore, the response options for bullying victimization included 'once or a few times (in the school year)'; across physical, verbal, social, and cyber bullying, an average of 29% of students identified this response. Those respondents were included in the 'no' category for bullying victimization. This was due to our definition including the criterion of victimization occurring at least once per month, in line with (Olweus, 1994). Thus, we may be under-reporting bullying victimization rates. Additionally, victims are often experiencing more than one type of bullying at a time. In the current study, of the students who reported being victimised, 10% experienced two types, 5.8% experienced three types, and 3.0% experienced all four types. We did not examine the associations between experiencing more than one type of bullying and emotional wellbeing as it was beyond the scope of the study. This would be a worthwhile research question for the future. Furthermore, the WEC survey measures instances of bullying victimization and does not take account of bullying perpetration. Those identified as bully-victims (perpetrator and victim) can often experience poorer adjustment (Wolke & Lereya, 2015) and future work examining this group of early adolescent individuals would be worthwhile. Lastly, while student-level participation rates in the WEC are high, there is some sample bias with students from more socio-economically disadvantaged communities less likely to participate in the survey (Gregory et al., 2021). Given that children from more disadvantaged communities are at higher risk of bullying, the estimates of bullying prevalence from this study may underestimate those in the population of interest.

Conclusions

This study addresses multiple areas of bullying victimization research neglected in past literature. It contributes to the current understanding by determining prevalence rates for all types of early adolescent bullying victimization; identifying child, peer, and school factors; and examining both negative and positive emotional wellbeing variables. Students who experience bullying victimization, regardless of bullying type, can experience poorer emotional wellbeing (emotion regulation, happiness, life satisfaction, sadness and worries) than those who do not experience bullying. This association remains significant, albeit with a small effect size, after accounting for a comprehensive set of child, peer, and school-level confounders. Future interventions should focus on increasing students' skills to improve their emotional wellbeing, and work to enhance peer and school-level supports to act as a buffer to the negative effects of bullying.

Supplementary Table S1:

Descriptive results for the response and analysis samples

Variables	Analysis Sample (n=9019)		Response Sample (n=10,061)	
	n	% or M (SD)	*n*	% or M (SD)
Gender				
Male	4543	50.4	5017	49.9
Female	4476	49.6	4934	49
Missing	-	-	110	1.1
Age				
10-11	2630	29.2	2880	28.7
12-13	6389	70.8	6985	69.4
Missing	-	-	196	1.9
Aboriginal and Torres Strait Islander				
Yes	396	4.4	463	4.6
No	8623	95.6	9403	93.5
Missing	-	-	195	1.9
Non-English-Speaking Language				
Yes	2145	23.8	2380	23.7
No	6874	76.2	7681	76.3
Missing	-	-	-	-
Socio-Economic Status				
1 – Most Disadvantaged	2366	26.2	2659	26.4
2	1471	16.3	1579	15.7
3	1438	15.9	1554	15.4
4	1881	20.9	2033	20.2
5 – Most Advantaged	1863	20.7	1985	19.7

Missing	-	-	251	2.6
Bullying Victimization				
Physical Bullying				
Yes	947	10.5	1062	10.6
No	8072	89.5	8797	87.4
Missing	-	-	202	2.0
Verbal Bullying				
Yes	2163	24.0	2350	23.4
No	6856	76.0	7461	74.2
Missing	-	-	250	2.4
Social Bullying				
Yes	1916	21.2	2086	20.7
No	7103	78.8	7702	76.6
Missing	-	-	273	2.7
Cyberbullying				
Yes	652	7.2	734	7.3
No	8367	92.8	9034	89.8
Missing	-	-	293	2.9
Outcomes				
Emotion Regulation	9019	3.52 (.83)	9923	3.51 (.83)
Missing	-	-	138	1.3
Happiness	9019	3.87 (.89)	9934	3.86 (.89)
Missing	-	-	127	1.2
Life Satisfaction	9019	3.76 (.97)	9905	3.75 (.97)
Missing	-	-	156	1.5
Sadness	9019	2.52 (1.06)	9936	2.54 (1.06)
Missing	-	-	125	1.2
Worries	9019	2.92 (1.13)	9921	2.93 (1.13)
Missing	-	-	140	1.4
Covariates				
Emotional Engagement with Teachers	9019	3.11 (.60)	9866	3.11 (.60)

Missing	-	-	195	1.9
Friendship Intimacy	9019	4.25 (.99)	9873	4.24 (.99)
Missing	-	-	188	1.8
Peer Belonging	9019	3.92 (1.01)	9872	3.91 (1.02)
Missing	-	-	189	1.8
School Climate	9019	3.61 (.97)	9887	3.61 (.97)
Missing	-	-	174	1.7
Sleep	9019	4.90 (2.17)	9603	4.89 (2.18)
Missing	-	-	458	4.5

Note. SES was measured using the SEIFA = Socio-Economic Index for Areas.

Supplementary Table S2:

Pearson correlation coefficients for emotional wellbeing outcomes and covariates (n = 9019)

	1	2	3	4	5	6	7	8	9
Emotional Wellbeing									
1. Emotion Regulation									
2. Happiness	0.55								
3. Life Satisfaction	0.58	0.70							
4. Sadness	-0.39	-0.57	-0.57						
5. Worries	-0.26	-0.41	-0.43	0.70					
Covariates									
6. Emotional Engagement with Teachers	0.42	0.43	0.44	-0.31	-0.21				
7. Friendship Intimacy	0.31	0.38	0.36	-0.25	-0.17	0.29			
8. Peer Belonging	0.42	0.54	0.52	-0.45	-0.36	0.39	0.52		
9. School Climate	0.42	0.43	0.45	-0.32	-0.24	0.58	0.33	0.50	
10. Sleep	0.32	0.38	0.40	-0.35	-0.29	0.29	0.18	0.30	0.29

Supplementary Table S3:

Independent samples t-test results comparing emotional wellbeing and peer and school-level covariates for children who do and do not experience bullying victimization

Type of Bullying	Physical		Verbal		Social		Cyber	
	df	*t*	*df*	*t*	*df*	*t*	*df*	*t*
Outcomes								
Emotion Regulation	1127.81	9.45***	3261.18	13.11***	2723.77	12.30***	733.09	6.56***
Happiness	1124.18	14.24***	3188.48	20.66***	2737.57	19.90***	727.95	12.42***
Life Satisfaction	1118.80	13.02***	3135.96	20.72***	2665.62	20.35***	728.44	12.02***
Sadness	1144.93	-16.60***	3366.85	-25.19***	2838.54	-25.73***	739.08	-14.66***
Worries	1191.24	-15.17***	3690.82	-23.21***	3137.74	-25.09***	9017	-13.90***
Covariates								
Emotional Engagement with Teacher	1101.76	12.18***	3102.72	17.37***	2639.19	15.69***	717.85	10.00***
Friendship Intimacy	1089.56	9.19***	3018.25	12.47***	2558.05	11.80***	724.69	5.85***
Peer Belonging	1096.45	15.85***	3010.43	25.38***	2532.27	28.43***	727.92	11.84***
School Climate	1116.50	16.22***	3211.14	25.37***	2728.29	22.94***	729.15	10.17***
Sleep	1121.29	10.70***	3280.64	15.21***	2770.45	14.83***	723.80	11.38***

Note. 9019 total participants. *M(SD)* displayed in Table 3. * p <.05, ** p < .01, *** p <.001.

Supplementary Table S4:

Linear regression results for bullying and emotional wellbeing, accounting for child, peer and school level factors.

Predictor Variables	Emotion Regulation	Happiness	Life Satisfaction	Sadness	Worries
	(β)	(β)	(β)	(β)	(β)
Physical Bullying	.01	-.02**	-.02	.08***	.08***
Gender	.00	.02*	-.05***	.07***	.08***
Age	-.01	-.02*	-.01	.00	.01
Language Background	.04***	.00	.00	-.01	.02*
Socio-economic status	.00	.06***	.03***	-.05***	-.02*
Aboriginal and Torres Strait Islander	.00	.00	-.01	.02**	.00
Emotional Engagement with Teacher	.19***	.18***	.18***	-.10***	-.03*
Friendship Intimacy	.09***	.10***	.08***	-.02	.02*
Peer Belonging	.19***	.32***	.28***	-.30***	-.30***
School Climate	.14***	.08***	.12***	-.03*	-.04**
Sleep	.15***	.18***	.21***	-.20***	-.19***
Overall Model (R^2)	.29	.40	.39	.28	.18

Overall Model (*F* (df), *p-value*)	*F* (1,11) = 340.62, *p* <.001	*F* (1,11) = 541.35, *p* <.001	*F* (1,11) = 532.79, *p* <.001	*F* (1,11) = 313.13, *p* <.001	*F* (1,11) = 176.29, *p* <.001
Verbal Bullying	.03**	-.04***	-.04***	.12***	.13***
Gender	.00	.02*	-.05***	.07***	.08***
Age	-.01	-.02*	-.01	.00	.01
Language Background	.04***	.00	.00	-.01	.03*
Socio-economic status	.00	.06***	.03***	-.06***	-.02*
Aboriginal and Torres Strait Islander	.00	.00	-.01	.03**	.00
Emotional Engagement with Teacher	.19***	.18***	.18***	-.10***	-.03*
Friendship Intimacy	.09***	.10***	.09***	-.02*	.02
Peer Belonging	.19***	.31***	.27***	-.29***	-.25***
School Climate	.15***	.07***	.11***	-.02	-.02
Sleep	.15***	.18***	.21***	-.20***	-.18***
Overall Model R^2	.29	.40	.40	.28	.19
Overall Model (*F(df), p-value*)	*F* (1,11) = 341.51, *p* <.001	*F* (1,11) = 542.77, *p* <.001	*F* (1,11) = 535.81, *p* <.001	*F* (1,11) = 325.28, *p* <.001	*F* (1,11) = 186.58, *p* <.001

Social Bullying	.04***	-.02*	-.03***	.12***	.13***
Gender	.00	.02**	-.05***	.06***	.07***
Age	-.01	-.02*	-.01	.00	.01
Language Background	.04***	.00	.00	-.01	.03*
Socio-economic status	.00	.06***	.03***	-.06***	-.03**
Aboriginal and Torres Strait Islander	.00	.00	-.01	.02**	.00
Emotional Engagement with Teacher	.19***	.18***	.18***	-.10***	-.03*
Friendship Intimacy	.08***	.10***	.09***	-.02*	.02
Peer Belonging	.20***	.31***	.27***	-.28***	-.24***
School Climate	.15***	.08***	.11***	-.02*	-.03*
Sleep	.15***	.18***	.21***	-.20***	-.18***
Overall Model R^2	.30	.40	.40	.28	.19
Overall Model (*F(df), p-value*)	*F* (1,11) = 342.20, *p* <.001	*F* (1,11) = 541.06, *p* <.001	*F* (1,11) = 534.18, *p* <.001	*F* (1,11) = 322.55, *p* <.001	*F* (1,11) = 186.90, *p* <.001
Cyber Bullying	.02*	-.03***	-.03***	.07***	.08***
Gender	.00	.02**	-.05***	.07***	.07***

Age	-.02	-.02*	-.01	.00	.01
Language Background	.04***	.00	.00	-.01	.02*
Socio-economic status	.00	.05***	.03***	-.05***	-.02*
Aboriginal and Torres Strait Islander	.00	.00	-.01	.02*	.00
Emotional Engagement with Teacher	.19***	.18***	.18***	-.10***	-.03*
Friendship Intimacy	.09***	.10***	.08***	-.02	.02*
Peer Belonging	.19***	.32***	.28***	-.31***	-.27***
School Climate	.14***	.08***	.12***	-.04**	-.04**
Sleep	.15***	.18***	.21***	-.20***	-.18***
Overall Model R^2	.29	.40	.40	.28	.17
Overall Model (*F(df), p-value*)	*F* (1,11) = 340.96, *p* <.001	*F* (1,11) = 542.79, *p* <.001	*F* (1,11) = 534.06, *p* <.001	*F* (1,11) = 311.29, *p* <.001	*F* (1,11) = 175.59, *p* <.001

Note. 9019 total participants. β = standardized beta coefficient. R^2 = coefficient of determination. * p <.05. ** p <.01. *** p <.001.

Chapter 6: Study Three

Chapter 6 contains the findings of the third study. Study three is designed to address objective three of the thesis by responding to the limitation regarding the longitudinal outcomes of early adolescent cyberbullying. As such, study three examines the short- and longer-term associations between early adolescent cyberbullying and emotional wellbeing and academic achievement. This paper has been submitted for publication.

Halliday, S., Taylor, A., Turnbull, D., & Gregory, T. (2022). The relationship between early adolescent cyberbullying victimisation and later emotional wellbeing and academic achievement: A historical cohort study using data linkage in a population-based dataset. *Manuscript submitted for publication.*

Statement of Authorship

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Overall percentage (%)	80%		
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By signing the Statement of Authorship, each author certifies that:

i. the candidate's stated contribution to the publication is accurate (as detailed above);

ii. permission is granted for the candidate in include the publication in the thesis; and

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Paper

Abstract

This study addresses a knowledge gap in the literature about early adolescent cyberbullying victimization and the related positive and negative emotional wellbeing and academic achievement outcomes experienced over time. The study examines 9,139 South Australian students (aged 10-13 years) who reported on cyberbullying status in Grade 6, and explores the relationship with emotional wellbeing and academic achievement outcomes measured in Grade 7 and Grade 9, while accounting for range of child, peer, school, and community covariates. Cyberbullying victimization was associated with significantly lower levels of happiness, life satisfaction, and higher levels of sadness, and worries over the shorter term (Grade 7), and significantly lower levels of reading and numeracy sustained across the longer term (Grades 7 and 9), compared to non-victimization. The results indicate that early adolescent cyberbullying may be associated with poor emotional wellbeing and academic achievement as one progresses through formal school and highlights the importance of considering the outcomes of bullying victimization beyond the immediate instance.

Introduction

While previous work has established that bullying can result in a wide range of long-lasting adverse mental health, wellbeing, and academic outcomes (Hawker & Boulton, 2000; Moore et al., 2017), there remains a knowledge gap on early adolescent cyberbullying victimization (Halliday et al., 2021). In particular, limited studies have examined whether experiencing cyberbullying victimization in early adolescence has longer-term associations with positive and negative emotional wellbeing and academic achievement as one progresses through formal schooling. By understanding the long-term results of cyberbullying in early adolescence, school psychologists and teachers may be able to implement effective programs in younger grades, with the goal of preventing or mitigating the consequences for mental health and academic achievement.

What is cyberbullying?

Similar to traditional forms of bullying (i.e., physical, verbal, and social), cyberbullying is defined as repeated and ongoing intentional harm to another, but extends to include the use of electronic or digital media to perform these behaviors (Tokunaga, 2010). The definition of cyberbullying also differs from traditional bullying by omitting a known power imbalance (physical or social) between the perpetrator and the victim (Thomas et al., 2015; Vandebosch & Van Cleemput, 2008). This exclusion is because online environments can facilitate anonymity and allow the perpetrator to be unknown to the victim (Thomas et al., 2015; Vandebosch & Van Cleemput, 2008). As the focus of this paper is on victimisation experiences, for clarity the term ‘cyberbullying’ will be used throughout to refer to cyberbullying victimisation.

Cyberbullying during early adolescence

Cyberbullying can peak at different times in adolescence, with early adolescence (10 to 14 years) identified as a time of increased turmoil, before occurrences decrease into the later years of adolescence (up to the age of 19 years) (Bettencourt & Farrell, 2013; Sumter et al., 2012; Williford et al., 2011). A range of factors including biological changes (i.e., puberty), psychological issues (i.e., limited emotion regulation skills or depression symptomology), or societal influences (i.e., school transition) are suggested to contribute to a higher risk of bullying behaviors during these early adolescent years (Ashrafi et al., 2020; Brown et al., 2005; Eslea & Rees, 2001; Smith et al., 1999). Additional risk factors for bullying in early adolescence include internalizing (e.g., showing symptoms of depression and anxiety) and externalizing behaviors (e.g., displays of aggression or violence), poor social and emotional wellbeing, and lower peer acceptance (Cook et al., 2010; Zych, Farrington, et al., 2020).

A useful framework to organize different types of influencing factors is Bronfenbrenner's (1977) Ecological Systems Theory, which recognises that the interactions between the adolescent and their environment can directly impact their development and wellbeing. According to Bronfenbrenner, these environments are organised into systems according to the level of influence on adolescent development and wellbeing. More direct influences include interactions with parents, peers, and school personnel, while the wider community and neighbourhood environments impact less directly on the adolescent, but are still understood to affect development and wellbeing.

Early adolescence is a key time for brain and social development and transition, and mental health impacts of cyberbullying have been identified throughout later adolescence (Camerini et al., 2020). It is therefore important to understand and address how cyberbullying

during early adolescence may be associated with subsequent mental health and academic achievement. Despite this need, only one longitudinal study examining cyberbullying has been conducted using participants younger than 13 years of age (M_{age} = 9.35 at T1) (DePaolis & Williford, 2019). This limitation could be due to the assumption that cyberbullying is less prevalent during early adolescence. Whilst age restrictions exist for social media sites (above 13 years), young adolescents are increasingly owning smartphones or devices which give access to these online environments.

Social media and gaming sites like Facebook, Instagram, Snapchat, Twitter, Fortnite, and Minecraft require users to be over the age of 13 to register; however, a representative 2021 national survey (*n*=1000) conducted in the United States (US) found 45% of participants aged 9 to 12 were using Facebook daily, 40% used Instagram and Snapchat daily, 30% were using Twitter daily, 23% were playing the online game 'Minecraft', and 22% were playing the online game 'Fortnite' daily (Thorn, 2021). Furthermore, 38% of 9–12-year-olds in this study reported cyberbullying on these platforms, with Snapchat (26%), Instagram (26%), and YouTube (19%) identified as the sites where cyberbullying occurred most frequently. Additionally, recent reports have indicated that one in three Australian children (total *n* = 2,500) aged between 6 and 13 years old own the smartphone they use (Roy Morgan Research, 2020) and 44% (total *n* = 1,440) of US children aged 0 to 8 years own their own tablet device (Rideout & Robb, 2020). These results suggest that phone and/or device ownership, and the experience of cyberbullying on social media and gaming sites, is common for individuals under 13 years of age. As such, it is erroneous to assume that age restrictions prevent young people from using these sites. Given that experiences of traditional bullying for individuals under 13 years can have long-lasting implications in later adolescence and adulthood (Halliday et al., 2021; Wolke & Lereya, 2015), it is important to

pay attention to this population to identify and address possible long-term outcomes of cyberbullying.

Emotional wellbeing outcomes associated with cyberbullying

Both traditional and cyber bullying have adverse outcomes for adolescent mental health (Halliday et al., 2021; Zych et al., 2015). Recent reviews (Halliday et al., 2021; Moore et al., 2017) highlight limitations in the evidence base, notably a paucity of research on the effects of early adolescent cyberbullying over both the short- and longer-term for outcomes including both negative (e.g., sadness, worries) and positive (e.g., happiness, life satisfaction) wellbeing indicators. One review (Kowalski et al., 2014) has found cyberbullying to be associated with lower life satisfaction (r = -.21), self-esteem (r = -.17), and prosocial behavior (r = -.06); however, the included studies were cross-sectional in design, reducing the ability to develop an understanding of the direction of effects. While individual studies have reported that cyberbullying affects self-esteem after two years (DePaolis & Williford, 2019) and overall subjective wellbeing one year later (Fahy et al., 2016), no studies to date have assessed the longer term positive wellbeing outcomes of cyberbullying beyond 24 months. The current study addresses this by examining both positive *and* negative wellbeing (Keyes & Lopez, 2002), along with academic achievement, one and three years following the experience of cyberbullying.

The Complete State Model of Mental Health (Keyes & Lopez, 2002) and The World Health Organisation (2018) highlight that mental health is more than the absence of symptoms of mental illness. To be mentally healthy, a person needs to experience complete physical, mental, and social wellbeing (World Health Organisation, 2018). Despite this, much of the work in the bullying literature focuses on psychopathology (such as depression and

anxiety; (Antaramian et al., 2010; Fullchange & Furlong, 2016). Given that the Complete State Model of Mental Health considers functioning to be impacted by positive aspects of mental health (i.e. psychological wellbeing) and psychopathology, this study includes measures of both positive and negative wellbeing to gain a more complete view of mental health.

Academic outcomes associated with cyberbullying

A meta-analysis of 12 cross-sectional articles reporting 25 different effect sizes found evidence to suggest that cyberbullying victims (aged 12.5 to 16.2 years) reported higher academic achievement problems (r = .14), higher school attendance problems (r = .20), and lower academic performance (r = .22) while accounting for demographics (Gardella et al., 2017). A limitation of this meta-analysis is that the authors reported that no longitudinal studies examined cyberbullying victimization and associated academic outcomes at the time of the review. Liu et al. (2021) have since conducted a two-year longitudinal study (M_{age} at T_1 = 9.91) that examined the impact of cyberbullying on academic achievement in Mathematics, English, and Chinese, but found that cyberbullying did not predict lower academic achievement over time, after controlling for demographics. The mixed evidence to date regarding academic achievement following early adolescent cyberbullying suggests a need for further research in this space.

Factors related to cyberbullying, emotional wellbeing, and academic achievement

There are many risk and protective factors for cyberbullying victimization, with many of these also related to emotional wellbeing and academic achievement (Babarro et al., 2020; Stoliker, 2018; Tokunaga, 2010; Zych, Farrington, et al., 2020). In adolescence, cyberbullying, emotional wellbeing, and academic achievement can be affected by child-

level factors (such as gender, language spoken at home, and sleep), experiences at school with teachers and peers (such as friendships with others and perceived levels of school climate), or the wider environment (such as the socio-economic area where one resides) (Aldridge & McChesney, 2018; Babarro et al., 2020; Loft & Waldfogel, 2021; Tarokh et al., 2016). As these factors are known to be related to cyberbullying, emotional wellbeing, and academic achievement, it is important to consider and account for their impact in the current study. Bronfenbrenner's (1977) Ecological Systems Theory posits that the interactions between adolescents and their surrounding systems have an influence on healthy development. Many of the factors that are related to cyberbullying, emotional wellbeing, and academic achievement exist in the microsystem and exosystem and are therefore likely to exert influence on adolescent development and mental health. The Ecological Systems framework has been used to organize and consider the child, peer, school, and community covariates that may influence the relationship between cyberbullying and outcomes in the current study.

The current study

Although it is a key developmental period, early adolescence is not often considered in the cyberbullying literature, with positive wellbeing and longer-term academic achievement outcomes often overlooked (Halliday et al., 2021). We aim to extend the literature by addressing these limitations. This study therefore utilised a large population-based cohort of school students to examine whether experiencing cyberbullying victimization in early adolescence (Grade 6) is associated with positive and negative emotional wellbeing indicators and academic achievement in Grade 7 and Grade 9, before and after accounting for a wide range of child, peer, school, and community variables.

Methods

Data sources

The Wellbeing and Engagement Collection dataset

The Wellbeing and Engagement Collection (WEC) is an annual survey administered to students in the state of South Australia by the Department for Education and is designed to capture the non-academic factors relevant to learning and participation (Gregory et al., 2021). The survey aims to assist schools, communities, and the government in determining opportunities and resources that can help students reach their full potential by measuring four broad areas of a student's life: (1) emotional wellbeing, (2) engagement with school, (3) learning readiness and (4) health and wellbeing out of school (Gregory et al., 2021). Some of the specific areas that are measured include levels of happiness, sadness, life satisfaction, worries, connectedness to others (such as teachers/adults/peers at their school), and bullying victimization experiences. For additional details, see Gregory et al. (2021).

The administration of the WEC survey began in 2013 with a sample of 6000 Grade 6 students and has increased over time to include more than 95,000 South Australian student participants in 2019, ranging from Grades 4 to 12 (Gregory et al., 2021). In October and November 2016, the first time point in the current study, 717 schools were invited to participate in the WEC. Of those who participated, 466 were government schools, 26 Catholic schools, and 8 independent schools (Gregory & Brinkman, 2020; Gregory et al., 2021). For this study, only student results from government schools were used, as they could be linked to demographic information about the students collected through the school enrolment census and academic achievement results from the National Assessment Program – Literacy and Numeracy (NAPLAN).

The National Assessment Program – Literacy and Numeracy (NAPLAN)

The NAPLAN is an annual assessment that examines students' abilities in reading, writing, language conventions (spelling, grammar, and punctuation), and numeracy (Australian Curriculum Assessment and Reporting Authority, 2016). These standardized tests of achievement are administered to Australian students in Grades 3, 5, 7 and 9, approximately corresponding to ages 8, 10, 12, and 14 years old, respectively, and determine whether students hold the literacy and numeracy skills essential to succeed in school and further life (Australian Curriculum Assessment and Reporting Authority, 2016).

The current study

Participants

Participants in this historical cohort study comprised South Australian government school students who participated in the WEC in Grade 6 in 2016 and were followed up in Grades 7 (2017) and 9 (2019). A total of 9,139 students completed the WEC and reported their cyberbullying status in Grade 6. In this sample (n = 9,139), 49.5% were female, 4.4% identified as Aboriginal and/or Torres Strait Islander, 76.1% identified English only as their language background, 26.3% lived in the most socio-economically disadvantaged communities in the state, and 7.2% reported being cyberbullied (see Table 9 for socio-demographic characteristics of cyberbullying victims compared with non-victims). Approximately, 86% of participants had follow-up emotional wellbeing data, and 91% had follow-up academic achievement data in Grade 7 and/or Grade 9 (see missing data section for more details). There are several explanations for the sample attrition. Participation in the WEC survey at the school and student-level is voluntary, so students may have moved to a non-participating school or decided not to participate in the WEC survey in Grade 7 and/or Grade 9, leading to missing emotional wellbeing outcome data. Students may not have

participated in NAPLAN assessments in 2017 or 2019 if they were absent from school, exempted for medical reasons, or withdrawn by their parents/guardians. Students may also have moved to a school in the non-government sector, interstate or overseas.

Measures

Cyberbullying. The frequency of cyberbullying was measured using an item from the Middle Years Development Instrument (Schonert-Reichl et al., 2013a). In Grade 6, students were asked, "This school year, how often have you been bullied by other students in the following ways?", with a description of cyberbullying provided (for example, someone used the computer or text messages to exclude, threaten, humiliate you, or to hurt your feelings). Responses were made on a Likert response scale with 1 indicating "not at all this school year", 2 "once or a few times", 3 "about every month", 4 "about every week", and 5 "many times a week". To meet the definition described by Tokunaga (2010) and to capture *repeated* experiences, cyberbullying victimization was defined as the experience of cyberbullying at least every month (responses 3, 4, and 5). The decision to dichotomise cyberbullying victimization was done to produce results that are of practical use for school psychologists and intervention design. As the cyberbullying measure was single-item, internal consistency could not be determined (Wanous & Reichers, 1996).

Emotional wellbeing outcomes. To assess the positive and negative emotional wellbeing outcomes of the students, scores on five WEC measures (emotion regulation, happiness, life satisfaction, sadness, and worries) in Grade 7 and Grade 9 were used. These were chosen as variables of interest in this study as they were deemed to reflect positive and negative aspects of wellbeing, and these scales were included in the WEC survey for both the 2017 and 2019 collection cycles. The items for all measures of emotional wellbeing are

presented in Table 2. Within the current sample, all scales had good internal reliability, as shown by Cronbach's alpha values in Grade 9 for sadness (α=.80), happiness (α=.82), worries (α=.84), emotion regulation (α=.86), and life satisfaction (α=.87).

Table 9:

Demographic Characteristics of Victims and Non-victims of Cyberbullying in Grade 6 (n = 9,139).

Cyberbullying Status	**Victim**		**Non-Victim**	
	n	**%**	***n***	**%**
Total	660	7.2	8479	92.8
Gender				
Male	342	51.8	4271	50.4
Female	318	48.2	4208	49.6
Language Background				
English Only	535	81.1	6416	75.7
Language background other than English	125	18.9	2063	24.3
Aboriginal and/or Torres Strait Islander				
Yes	51	7.8	345	4.1
No	601	92.2	8022	95.9
Socio-Economic Status				
1 – Most Disadvantaged	248	37.6	2154	25.4
2	113	17.1	1369	16.1
3	106	16.1	1355	16.0
4	120	18.2	1786	21.1
5 – Most Advantaged	73	11.1	1815	21.4

Note. Socio-Economic Status was measured using the SEIFA = Socio-Economic Index for Areas. SEIFA is a set of measures derived from the Australian Bureau of Statistics (ABS) census information that summarise different aspects of socio-economic conditions in an area. The particular socio-economic index used was *The Index of Relative Socio-economic Advantage and Disadvantage (IRSAD)*.

Academic achievement outcomes. Students complete assessments in four domains: reading, writing, language conventions (spelling, grammar, and punctuation), and numeracy,

and scores on two of these domains (reading and numeracy) were used as measures of academic achievement in the current study. The assessment of reading ability includes reading various writing styles (e.g., poems, narratives, persuasive, and informational) from a magazine and answering questions related to comprehension of the material. Multiple-choice questions and short answer responses are used to test students' abilities in numeracy and algebra, measurement and geometry, and statistics and probability. Each student had two standard scores for this study: one representing reading competency and one representing numeracy competency. Standard scores range from 0 to 1000 for Grade 3 to Grade 9 and are constructed so that any score represents the same level of achievement over time. For example, a score of 500 in 2017 and 2019 will have the same meaning (Australian Curriculum Assessment and Reporting Authority, 2016).

Child, peer, school, and community covariates. Child, peer, school, and community covariates were measured in Grade 6 along with cyberbullying status. The covariate measures selected for the current study and collected in the WEC are described in Table 10. As highlighted earlier in this paper, Bronfenbrenner's (1977) Ecological Systems Theory is useful for examining factors that can influence adolescent wellbeing, and thus, was used as a framework in the current study to synthesise the range of child, peer, school, and community covariates. This considered child, peer, and school factors at the microsystem level and community factors (i.e., the classification of different geographical areas based on the relative socio-economic advantage and disadvantage (Socio-Economic Index for Areas (SEIFA)) at the exosystem level.

Microsystem Factors

Child covariates. Demographic information on gender, Aboriginal and/or Torres Strait Islander status, language spoken at home, as well as sleep quality were used in the current study. These were completed by parents/guardians at school enrolment or by students at the beginning of the WEC survey. Sleep quality was included as a covariate as poor sleep quality has been linked to both cyberbullying (Erreygers et al., 2019) and lower emotional wellbeing (Baum et al., 2014; Newsom, 2020; Shin & Kim, 2018). This was measured using a single item and, as such, internal reliability could not be determined (Wanous & Reichers, 1996).

Peer covariates. To assess peer covariates, measures of friendship intimacy and peer belonging were obtained from the WEC (see Table 10 for details). Cronbach's alpha values for these variables were α=.85 for peer belonging and α=.86 friendship intimacy demonstrating good internal consistency.

School covariates. The WEC variables of connectedness to adults in school, emotional engagement with teachers, and school climate were evaluated as school covariates (items shown in Table 10). Internal consistency was good for these measures, with Cronbach's alpha values ranging from α=.82 for school climate, α=.84 for connectedness with adults in school, and α=.86 emotional engagement with teachers.

Exosystem Factors

Community covariate. To capture information on the socio-economic status of the community in which the student lived, the 2016 Socio-Economic Indexes for Areas (SEIFA) Index of Relative Socio-economic Advantage and Disadvantage was used. SEIFA is used to classify different geographical areas in Australia based on relative socio-economic advantage

and disadvantage using data from the five-yearly population census (Australian Bureau of Statistics, 2018). In the current study, SEIFA was assigned to each student based on their postcode of residence (i.e., zip code). The socio-economic advantage and disadvantage of an area is established by determining the residents access to material and social resources, and their ability to participate in society. Specifically, SEIFA is determined by the income, education, employment, occupation, and housing of residents in the community. As a result, the current study considered this measure as a community covariate, as it captures the socio-economic status of the wider area in which the household resides.

Table 10:

Emotional Wellbeing and Covariate Outcomes Measured by the Wellbeing and Engagement Collection (WEC).

Variables	Scale	Item	Likert Response Scale
		Emotional Wellbeing Measures	
Emotion Regulation	Emotion Regulation Questionnaire for Children and Adolescents (ERQ-CA) (Gullone & Taff, 2012)	1. When I want to feel happier, I think about something different. 2. When I want to feel less bad (e.g., sad, angry, or worried), I think about something different. 3. When I'm worried about something, I make myself think about it in a different way and that helps me feel better 4. When I want to feel happier about something, I change the way I'm thinking about it 5. I control my feelings about things by changing the way I'm thinking about them 6. When I want to feel less bad (e.g. sad, angry or worried), I change the way I'm thinking about it.	1 = strongly disagree to 5 = strongly agree
Happiness	4-item Happiness scale - EPOCH Measure of Adolescent Wellbeing (Kern et al., 2015)	1. I feel happy 2. I have a lot of fun 3. I love life 4. I am a cheerful person.	1 = almost never to 5 = almost always 1 = not at all like me to 5 = very much like me
Life Satisfaction	5-item Satisfaction with Life Scale - Adapted for Children (Gadermann et al., 2010)	1. In most ways my life is close to the way I want it to be. 2. The things in my life are excellent. 3. I am happy with my life. 4. So far I have gotten the important things I want in life. 5. If I could live my life over again, I would have it the same way.	1 = disagree a lot to 5 = agree a lot
Sadness	3-item Sadness scale - Middle Years Development Instrument (Schonert-Reichl et al., 2013a)	1. I feel unhappy a lot of the time. 2. I feel upset about things. 3. I feel that I do things wrong a lot.	1 = disagree a lot to 5 = agree a lot

Worries	4-item Worries scale (Gregory et al., 2016)	1. I worry a lot about things at home. 2. I worry a lot about things at school. 3. I worry a lot about mistakes that I make. 4. I worry about things.	1 = disagree a lot to 5 = agree a lot
		Child, Peer, and School Covariate Measures	
Sleep Quality	Middle Years Development Instrument (Schonert-Reichl et al., 2013a)	1. How often do you get a good night's sleep?	1 = never to 8 = every day
Peer Belonging	3-item Peer Belonging scale - Middle Years Development Instrument (Schonert-Reichl et al., 2013a)	1. I feel a part of a group of friends that do things together. 2. I feel that I usually fit in with other kids around me. 3. When I am with other kids my age, I feel I belong.	1 = disagree a lot to 5 = agree a lot
Friendship Intimacy	3-item Friendship Intimacy scale - Middle Years Development Instrument (Schonert-Reichl et al., 2013a)	1. I have at least one really good friend I can talk to when something is bothering me. 2. I have a friend I can tell everything to. 3. There is somebody my age who really understands me.	1 = disagree a lot to 5 = agree a lot
Connectedness to Adults in School	3-item Connectedness to adults at school scale - Middle Years Development Instrument (Schonert-Reichl et al., 2013a)	At my school, there is a teacher or another adult… 1. … who really cares about me. 2. … who believes that I will be a success. 3. … who listens to me when I have something to say	1 = not at all true to 4 = very much true
Emotional Engagement with Teachers	5-item Student-teacher relations scale – PISA Student Context Questionnaire Program of International Student Achievement (PISA)	1. I get along well with most of my teachers. 2. Most of my teachers are interested in my wellbeing. 3. Most of my teachers really listen to what I have to say. 4. If I need extra help, I will receive it from my teachers. 5. Most of my teachers treat me fairly.	1 = strongly disagree to 4 = strongly agree
School Climate	3-item School Climate scale - Middle Years Development Instrument (Schonert-Reichl et al., 2013a)	1. Teachers and students treat each other with respect in this school. 2. People care about each other in this school. 3. Students in this school help each other, even if they are not friends.	1 = disagree a lot to 5 = agree

Statistical analysis

All data were analysed using the Statistical Package for the Social Sciences (SPSS), version 28. Prior to the main analyses, the prevalence of cyberbullying was explored and the demographic characteristics (gender, language background, Aboriginal and/or Torres Strait Islander status, and socio-economic status) of victims and non-victims of cyberbullying in Grade 6 were examined (see Table 9).

Mixed-effects modelling was used to estimate mean emotional wellbeing and academic achievement scores in Grades 7 and 9 for victims and non-victims of cyberbullying in Grade 6. These models were run before and after adjusting for child, peer, school, and community covariates. The covariates were measured in Grade 6, at the same time that cyberbullying victimization was measured. Mixed-effects models were utilised as these models allow for fixed and random effects, account for missing data in the analyses, and handle complex situations by considering nesting at the subject and school level as random effects, both of which were accounted for in the current analyses (Fitzmaurice et al., 2011). For descriptive purposes, means and standard errors from the unadjusted mixed-effects models for each emotional wellbeing and academic achievement outcome (Grade 7 and 9) for cyberbullying victims and non-victims are presented in Table 11.

Two mixed-effects models were run for cyberbullying and each emotional wellbeing and academic achievement outcome, with results depicted in Table 12. The first was an unadjusted model to estimate the raw association between cyberbullying and each outcome, and the second model adjusted for child, peer, school, and community covariates. The mean difference between victims and non-victims on each of the outcomes (e.g., happiness) in Grades 7 and 9 were estimated from the mixed models (see Table 12), and a significance test

was conducted to test whether the mean difference was significantly different from zero. That is, whether victims and non-victims had significantly different emotional and academic achievement outcomes in Grades 7 and 9, before and after adjustment for covariates. Effect sizes were obtained using Cohen's d, calculated using the mean and standard deviation for each outcome pair (victim vs non-victim) in both unadjusted and adjusted models. Cohen's (1962) guidelines were used to interpret the size of the effects, with $d = 0.2$ being considered a small effect, $d = 0.5$ represents a medium effect, and a large effect represented by $d = 0.8$.

Missing data

The baseline sample comprised 9,139 Grade 6 students who had complete data on exposure (cyberbullying victimisation) and covariate variables in 2016. One of the advantages of mixed-effects models is their ability to account for missing data in analyses by employing an unbiased restricted maximum likelihood approach, and to calculate model estimates in the absence of complete data. Analyses were run separately for each outcome measure, and provided that a student had follow up data from at least one time point (Grade 7 or 9), they were included in the analysis sample for the mixed-effects model. The number (percentage) of students with follow up data in Grade 7 and/or Grade 9, who formed the analysis sample for each outcome, were as follows: 7,819 students (86%) had data for emotion regulation; 7,841 students (86%) had data for happiness; 7,813 (86%) had data for life satisfaction; 7,825 (86%) had data for sadness; 7,828 (86%) had data for worries; 8,305 (91%) had data for reading; and 8,271 (91%) had data for numeracy. The main reasons for sample attrition over time were: (1) school-level non-participation in the WEC, (2) student-level non-participation in the WEC, and (3) student non-participation in standardized tests of academic achievement due to being absent on the day, exempt, or withdrawn by their parents.

Table 11:

Estimated Means and Standard Errors for Emotional Wellbeing and Academic Achievement in Grade 7 and Grade 9 for Victims and Non-victims of Cyberbullying in Grade 6 from Mixed Effects Models (unadjusted model).

	Grade 7		Grade 9	
Cyberbullying Status	**Victim**	**Non-Victim**	**Victim**	**Non-Victim**
	M (SE)	M (SE)	M (SE)	M (SE)
Emotional Wellbeing [a]				
Emotion Regulation	3.17 (.04)	3.37 (.01)	3.12 (.05)	3.21 (.02)
Happiness	3.45 (.04)	3.85 (.01)	3.43 (.05)	3.66 (.02)
Life Satisfaction	3.35 (.04)	3.76 (.02)	3.21 (.05)	3.41 (.02)
Sadness	3.03 (.05)	2.50 (.02)	3.16 (.06)	2.86 (.02)
Worries	3.33 (.05)	2.85 (.02)	3.42 (.06)	3.14 (.02)
Academic Achievement [b]				
Literacy (Reading)	507.49 (3.01)	537.77 (1.61)	537.15 (3.27)	569.42 (1.63)
Numeracy	513.15 (2.84)	538.35 (1.60)	552.92 (2.96)	574.12 (1.61)

Note. [a] Scores for emotional wellbeing measures range from 1-5. Higher scores on the measures of emotion regulation, happiness, and life satisfaction indicate higher wellbeing. For the measures of sadness and worries, a higher score indicates lower wellbeing. [b] NAPLAN results are standard scale scores ranging from 0-1000. Sample size ranged from 7,813 (life satisfaction) to 8,305 (Reading).

The means presented in Table 11 show that, compared to non-victims, victims of cyberbullying in Grade 6 consistently scored lower on measures of positive emotional wellbeing, higher on negative emotional wellbeing indicators, and lower on measures of academic achievement in both Grades 7 and 9. For example, students who experienced cyberbullying in Grade 6 had a mean score of 507.49 on reading achievement in Grade 7 compared to a mean score of 537.77 for students who did not experience cyberbullying.

Table 12 shows the results of mixed-effects model analyses that examined the association between cyberbullying and measures of emotional wellbeing and academic achievement over the short and long term, before and after adjusting for a range of covariates. Specifically, Table 12 presents the mean difference between victims and non-victims on each of the outcomes (e.g., happiness) in Grades 7 and 9. Negative mean difference values indicate that victims scored lower than non-victims on outcomes in Grade 7 and Grade 9, while positive mean difference values indicate that victims scored higher than non-victims. Figures 7 and 8 visually represent the estimated marginal mean scores (i.e., mean scores from adjusted model) on emotional wellbeing and academic achievement outcomes in Grades 7 and 9 for students who were and were not cyberbullied in Grade 6. Figure 7 represents the mean scores for victims and non-victims on emotion regulation, happiness, life satisfaction, sadness, and worries. Figure 8 represents the reading and numeracy scores for victims and non-victims in Grades 7 and 9.

Table 12:

Mean Differences in Emotional Wellbeing and Academic Achievement (Grade 7 and Grade 9) between Victims and Non-victims of Cyberbullying in Grade 6 from Mixed Effects Models.

	Before Adjustments			**After Adjustments** [a]		
	Emotional Wellbeing					
	Mean Difference [b]	(95% CI)	Cohen's *d*	Mean Difference	(95% CI)	Cohen's *d*
Emotion Regulation						
Grade 7: Victim vs. Non-Victim	-.20***	(-.28, -.11)	.22	.03	(-.05, .11)	.03
Grade 9: Victim vs. Non-Victim	-.09	(-.19, .01)	.09	.14**	(.04, .23)	.16
Happiness						
Grade 7: Victim vs. Non-Victim	-.40***	(-.48, -.32)	.47	-.16***	(-.23, -.08)	.19
Grade 9: Victim vs. Non-Victim	-.23***	(-.32, -.13)	.27	.01	(-.08, .10)	.01
Life Satisfaction						
Grade 7: Victim vs. Non-Victim	-.41***	(-.50, -.32)	.44	-.15***	(-.23, -.07)	.17
Grade 9: Victim vs. Non-Victim	-.20***	(-.30, -.10)	.21	.06	(-.03, .16)	.07
Sadness						

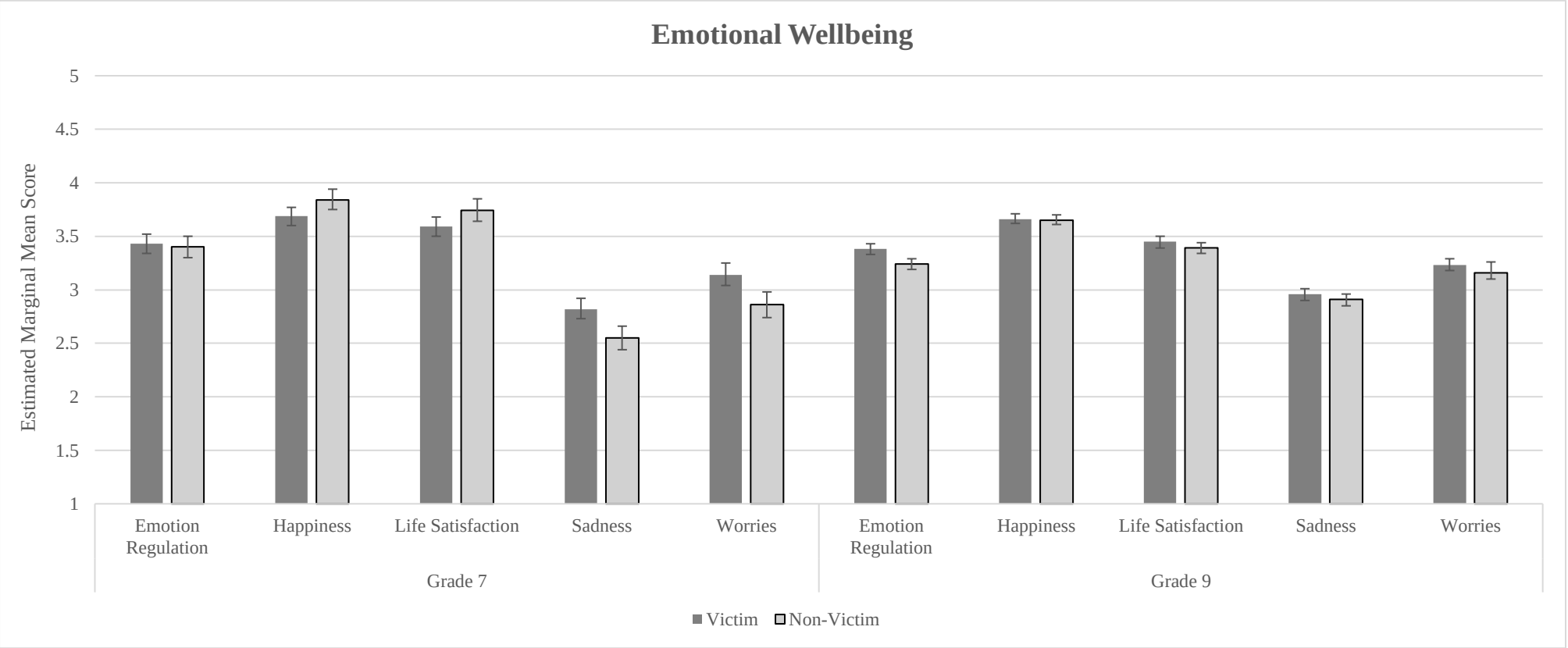
Grade 7: Victim vs. Non-Victim	.53***	(.44, .62)	.53	.28***	(.19, .37)	.29
Grade 9: Victim vs. Non-Victim	.30***	(.19, .41)	.30	.05	(-.06, .15)	.05
Worries						
Grade 7: Victim vs. Non-Victim	.49***	(.39, .59)	.44	.28***	(.18, .37)	.27
Grade 9: Victim vs. Non-Victim	.28***	(.16, .40)	.26	.07	(-.05, .18)	.07

	Before Adjustments			**After Adjustments**		
	Academic Achievement					
	Mean Difference	(95% CI)	Cohen's *d*	Mean Difference	(95% CI)	Cohen's *d*
Literacy (Reading)						
Grade 7: Victim vs. Non-Victim	-30.28***	(-35.88, -24.68)	.48	-27.97***	(-33.55, -22.39)	.45
Grade 9: Victim vs. Non-Victim	-32.26***	(-38.25, -26.28)	.51	-29.90***	(-35.86, -23.94)	.48
Numeracy						
Grade 7: Victim vs. Non-Victim	-25.20***	(-30.16, -20.24)	.45	-21.06***	(-25.99, -16.12)	.38
Grade 9: Victim vs. Non-Victim	-21.19***	(-26.44, -15.95)	.38	-17.06***	(-22.29, -11.84)	.31

Note. ** p <.01, *** p <.001. Cohen's *d* effect interpretation*:* small = 0.2, medium = 0.5, large = 0.8 (Cohen, 1962). [a] Adjusted models accounted for the following covariates (gender, age, language background, Aboriginal and/or Torres Strait Islander status, socio-economic status, connectedness to adults in school, emotional engagement with teacher, friendship intimacy, peer belonging, school climate, and sleep). [b] Negative mean difference values indicate that cyberbullying victims scored lower on that measure, while positive mean difference values indicate that victims scored higher on that measure. The sample size ranged from 7,813 (life satisfaction) to 8,305 (reading).

Figure 7:

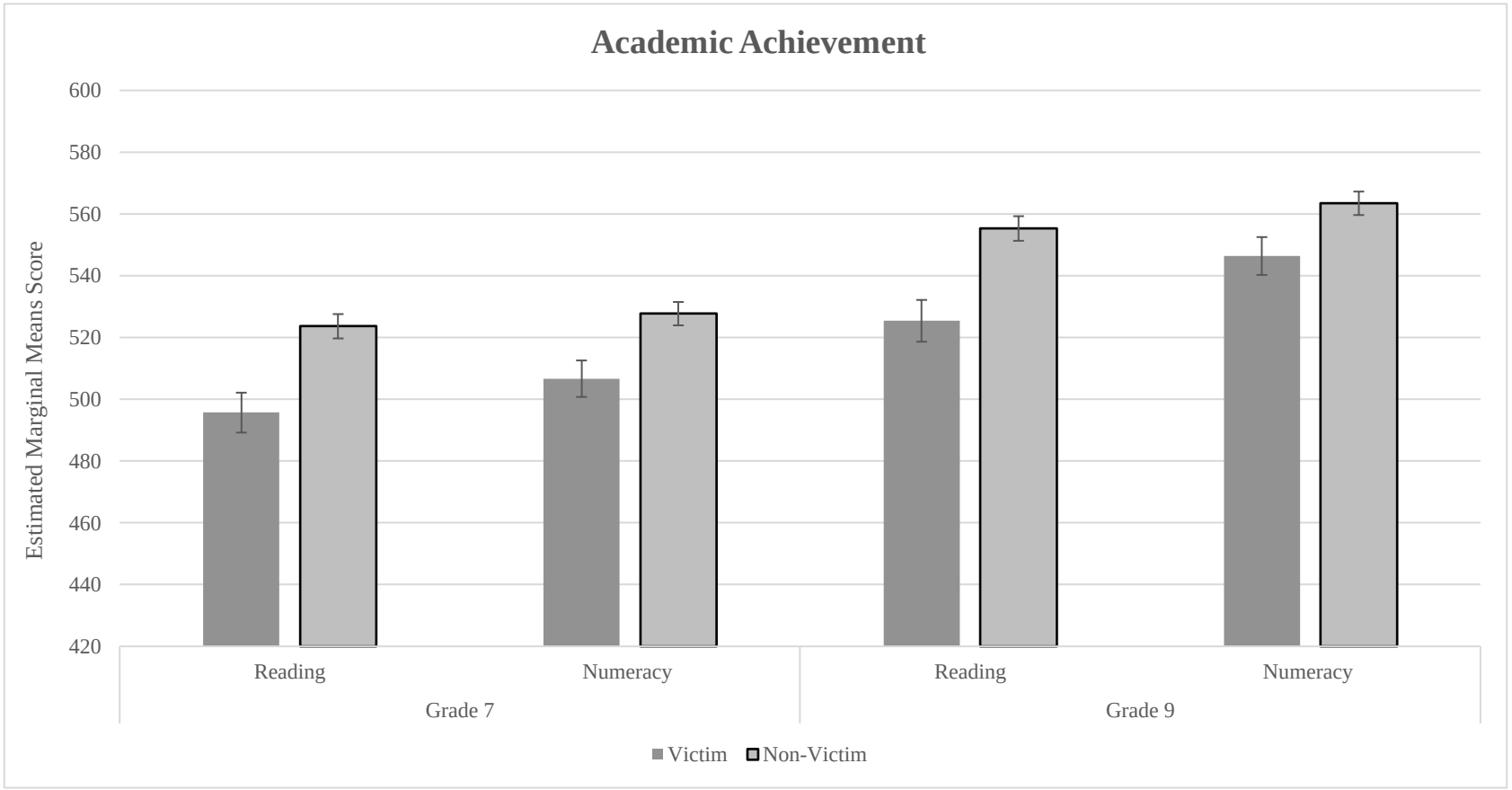
Estimated Marginal Means for Emotional Wellbeing Outcomes (Grade 7 and 9) for Victims and Non-victims of Grade 6 Cyberbullying (adjusted model)



Note. Of the baseline sample, 86% of students had follow up data on emotional wellbeing outcomes with sample sizes ranging from 7,813 (life satisfaction) to 7,828 (worries) in mixed effects models. Higher scores on the measures of emotion regulation, happiness, and life satisfaction indicate higher wellbeing. For the measures of sadness and worries, a higher score indicates lower wellbeing.

Figure 8:

Estimated Marginal Means for Academic Achievement Outcomes (Grade 7 and 9) for Victims and Non-victims of Grade 6 Cyberbullying (adjusted model)



Note. Of the baseline sample, 91% of students had follow up data on academic achievement outcomes with sample sizes ranging from 8,271 (numeracy) to 8,305 (reading) in mixed effects models.

Positive wellbeing indicators

Before adjusting for covariates, victims of cyberbullying in Grade 6 scored significantly lower on all three measures of positive wellbeing (emotion regulation, happiness, and life satisfaction) in Grade 7 than non-victims, with small to medium sized effects. After accounting for covariates, the effects on emotion regulation Grade 7 became non-significant, and the effects on happiness and life satisfaction remained significant but reduced in size to small effects.

Unadjusted Grade 9 results indicated victims scored significantly lower on happiness and life satisfaction three years after the cyberbullying incident with small effects, while non-significant effects were detected for emotion regulation. After accounting for covariates, results for happiness and life satisfaction became non-significant, with delayed effects in the opposite direction to expected for emotion regulation. That is, students who experienced cyberbullying had significantly *higher* scores on emotion regulation in Grade 9 than non-victims, with no significant differences between victims and non-victims in Grade 7 after accounting for covariates.

Negative wellbeing indicators

In both models, victims had significantly higher mean scores on sadness and worries. In unadjusted models, mean differences between victims and non-victims of cyberbullying on sadness and worries in Grade 7 were significant with medium effect sizes. Once covariates were adjusted for, short-term significant effects of cyberbullying on sadness and worries were maintained with a small effect.

In Grade 9, three years after the cyberbullying incident, unadjusted model results indicated that victims scored significantly higher than non-victims for sadness and worries, with small to medium effects. After adjusting for covariates, results became non-significant,

suggesting that cyberbullying has a short-term, but not a sustained, effect on measures of sadness and worries.

Academic achievement

In unadjusted models, victims of cyberbullying in Grade 6 scored significantly lower than non-victims on reading and numeracy in Grade 7, with medium sized effects. Significant mean differences of similar magnitude were maintained after adjusting for covariates.

By Grade 9, unadjusted models indicated that cyberbullying victims scored significantly lower than non-victims in reading and numeracy skills, with medium sized effects. The mean difference between victims and non-victims for reading scores remained significant and of medium effect after adjustments, with Figure 8 demonstrating that victims in Grade 9 showed a similar reading score to non-victims in Grade 7. Numeracy scores also remained significant but reduced to small effects once covariates were included. As such, the effects of cyberbullying on reading and numeracy scores were sustained over time from Grade 7 to 9.

Discussion

This study uses a large population-based cohort to examine the relationship between early adolescent cyberbullying and emotional wellbeing and academic achievement outcomes over the short- (one year later) and longer- (three years later) terms. In addition to focusing on the key developmental period of early adolescence, the selection of variables for this study was guided by the Complete State Model of Mental Health (Keyes & Lopez, 2002), which recognises the importance of both positive and negative wellbeing to mental health, providing a unique contribution to the otherwise psychopathology focused literature, as well as statistical adjustment for a wide range of child, peer, school, and community covariates in the microsystem and exosystem (Bronfenbrenner, 1977). The results show that early adolescent cyberbullying in Grade 6 is associated with poorer emotion regulation, life satisfaction, happiness, reading, and numeracy, and higher levels of sadness and worries, that vary in terms of whether they are short-term effects (Grade 7), or sustained over time (Grades 7 *and* 9).

Regarding prevalence estimates, cyberbullying in the current sample (7.2%) is more common than in previous Australian (3.5%) (Jadambaa et al., 2019) and international (1.0%) (Wolke et al., 2017) studies using comparable age groups. Furthermore, findings are consistent with previous studies that document the longitudinal association between cyberbullying and increased risk of experiencing negative wellbeing indicators (i.e., sadness and worries) (Cole et al., 2016; Fahy et al., 2016; Smokowski et al., 2014). In addition, this study was able to provide new evidence for the relationship between early adolescent cyberbullying and positive wellbeing indicators. In adjusted models, there were significant short-term associations between cyberbullying and life satisfaction and happiness (that were

not observed three years later), with the reverse for emotion regulation (delayed associations only).

Mixed findings on the associations between cyberbullying and positive wellbeing indicators have been found in previous cross-sectional studies (Fahy et al., 2016; Halliday et al., 2021). For example, some cross-sectional studies suggest there is no significant association between cyberbullying and life satisfaction after controlling for demographic variables (Moore et al., 2012), while others report that cyberbullying is associated with emotion regulation, happiness, and life satisfaction after statistical adjustment for students demographic characteristics (Navarro, Yubero, et al., 2015) or many child, peer, and school covariates (Halliday et al., 2022). This study finds that after accounting for a wide range of child, peer, school, and community covariates, cyberbullying victims in Grade 6 had poorer wellbeing outcomes after a short-term follow up period (Grade 7; one year later). Specifically, victims had lower levels of happiness and life satisfaction, and higher levels of sadness, and worries, than their peers who had not experienced cyberbullying. However, these effects were not sustained over time, and no significant differences in wellbeing were apparent at long-term follow up (3-years later). This may be explained by adolescents learning more self-regulatory skills, prompted by the important developmental changes that are also experienced during this time (Gajda et al., 2022). Interestingly, the delayed effects of cyberbullying on emotion regulation were in the opposite direction to expected (i.e., victims had higher levels of emotion regulation than non-victims three-years after the cyberbullying incident). While this was a surprising result, the effect was small (d =.16) and should be interpreted with caution.

Previous research in the field has implemented a cross-sectional study design, thus reducing the ability to determine the direction of the relationship, and has also predominately focused on older adolescent populations (see Kowalski et al. (2014) for meta-analytic findings). Since the Kowalski et al. (2014) meta-analysis, a longitudinal study conducted with early adolescents (DePaolis & Williford, 2019) found that cyberbullying at M_{age} 9.35 years negatively impacts symptoms of anxiety, depression, and self-esteem at M_{age} 10 years, while accounting for age, gender, and experience with traditional bullying perpetration and victimization. The current study was able to support the idea that cyberbullying in individuals under 13 years of age is present and harmful and was able to extend this knowledge by identifying short term (one year later) and sustained (one and three years later) associations with different aspects of emotional wellbeing and academic achievement. This is an important finding as teachers, clinicians, and school psychologists can now be made aware that negative symptoms associated with cyberbullying can be experienced over time (up to three years after exposure), highlighting the need for follow-up or ongoing interventions.

Furthermore, cyberbullying victims consistently scored significantly lower than non-victims on measures of reading and numeracy, even after accounting for child, peer, school, and community covariates. In fact, victims appear to be two years behind their non-victimized peers in reading, after accounting for covariates, with victims scoring similar in Grade 9 to what non-victims scored in Grade 7. Supporting previous meta-analytic findings from cross-sectional studies (Gardella et al., 2017; Kowalski et al., 2014), this study finds that academic achievement, specifically measures of reading and numeracy, is adversely affected by early adolescent cyberbullying, potentially due to victimized students avoiding school and falling behind in their studies. The results of the current study were inconsistent with those of Liu et al. (2021), who found no longitudinal association between early

adolescent cyberbullying and individual subject scores (including Math and English). Both studies included participants under the age of 13 years, so this conflicting result may reflect differences between Chinese and Australian students and their experience of cyberbullying and online usage, or the measure of academic achievement as Liu et al. (2021) used overall subject grades, while this study used standardized test scores. More research is needed to develop an appropriately nuanced understanding of the relationships between cyberbullying and aspects of academic achievement over different time periods and in a range of cultural contexts.

The current results have implications for the delivery of whole-school prevention and early intervention programs in educational settings. First, schools should consider implementing cyberbullying programs in school grades aligning with early adolescence, or even earlier. Doing this will introduce students to the dangers of online environments as soon as possible, with the aim of reducing participation in problematic online interactions, including cyberbullying, and developing the tools to deal with cyberbullying if it does occur. Furthermore, it may also be beneficial for schools to provide wellbeing programs to potentially reduce long-term outcomes for victims of cyberbullying by promoting ways to increase positive wellbeing while teaching students how to manage the negative impacts of bullying. This approach would support recent calls for school-based mental health programs to both build psychological wellbeing and provide supports to students experiencing psychopathology, as aligned with more holistic considerations of mental health (Doll et al., 2020). Interestingly, a recent meta-analysis found that interventions which simultaneously addressed social-emotional skills and bullying were not associated with greater effectiveness compared to interventions that focused solely on social-emotional skills or bullying (Gaffney et al., 2021b). This suggests that while addressing cyberbullying and emotional wellbeing is

important for students' development and overall wellbeing, it may be beneficial to target these concerns separately rather than trying to provide more generalised interventions with a range of targets.

At the individual student level, counsellors and school psychologists should be aware that online experiences are an important consideration for understanding student wellbeing, and that cyberbullying can have short-term and sustained effects. As such, counsellors and school psychologists should continue to monitor victims of cyberbullying, even if students initially show limited impacts to their emotional wellbeing or academic achievement. Further, when working with students experiencing emotional distress and mental health difficulties, consideration of previous negative online experiences, including cyberbullying, even incidents occurring some years ago, should form part of the assessment process.

Limitations

Some limitations of the current study highlight additional directions for future research. First, as the WEC survey is designed to be delivered to many students of different backgrounds and ages, several scales, including those measuring cyberbullying, consist of single items. Using a multi-item cyberbullying measure may be beneficial to capture the different types of cyberbullying to determine if they contribute to differential outcomes. Given the measure of cyberbullying in the dataset utilised for the present study did not ask students to report on bullying perpetration, it is possible that students who were bully-victims may have also been unintentionally grouped with cyberbullying victims. It would be beneficial for researchers to consider including items on bullying perpetration, so future studies can accurately classify students as cyberbullying victims (only) and bully-victims. Furthermore, since only standardized reading and numeracy tests could be included in this

study, the scope of the findings with respect to academic achievement may be restricted. Future research would benefit from including more measures of academic achievement, such as academic self-efficacy, GPA, and overall grades evaluated by teachers to gain a better understanding of the effects of early adolescent cyberbullying on academic achievement over time.

Conclusions

The results of this study indicate that the associations between cyberbullying during early adolescence and later emotional wellbeing and academic outcomes are varied, including poorer indicators of positive *and* negative emotional wellbeing over the shorter term (one year later), and lower levels of reading and numeracy that are sustained over time (one and three years). Although small to medium in effect size, these associations were statistically significant after adjusting for a wide range of child, peer, school, and community variables. This study contributes to the broader early adolescent cyberbullying literature by including follow-up measures of academic achievement and considering positive and negative indicators of wellbeing, consistent with the Complete State Model of Mental Health. Implications of this include the importance of school personnel being aware that victims of cyberbullying can experience emotional wellbeing issues up to one year after experiencing cyberbullying, as well as academic achievement concerns up to three years later. These considerations should be addressed in both intervention design and when working individually with students.

Chapter 7: Discussion and Conclusion

7.1 Preamble

This thesis contributes much-needed research on the experience of early adolescent traditional and cyber bullying. This thesis was designed to address the following: to systematically review the available evidence on early adolescent physical, verbal, social, and cyber bullying, and as a result, identify literature gaps for the following studies to respond to. These included examining the relationship between early adolescent bullying and positive and negative wellbeing and determining the short- and longer-term emotional wellbeing and academic achievement outcomes of early adolescent cyberbullying. The three studies developed in response to these research gaps included a systematic review (study one), a population-based, cross-sectional investigation (study two), and a historical cohort, population-based examination using linked data (study three). The following chapter summarises the findings from all three studies, discusses the strengths of the research, the limitations encountered, and finally, the significance of the findings, along with practical implications and directions for future research.

7.2 Summary of findings

The primary purpose of the first stage of this research project (study one) was to systematically review the literature on early adolescent physical, verbal, social, and cyber bullying and the associated short and long-term psychosocial and academic outcomes that may be experienced up to 18 years of age. A total of 28 studies met the inclusion criteria, all of which were conducted in Western countries (United States, United Kingdom, Australia,

Netherlands, Canada, and Finland). The results of the included studies found a negative association between experiencing physical, verbal, social, or cyber victimisation in early adolescence and psychological health (e.g. symptoms of depression and anxiety), social relationships with family and friends, academic achievement, academic performance, attitude towards school, and school engagement into the later adolescent years (up to 18 years of age). Furthermore, the review revealed that no studies had exclusively examined early adolescent cyberbullying and the associated longitudinal outcomes at the time of review. The review also highlighted that literature on early adolescent bullying required further evidence to determine the relationship between both traditional *and* cyber bullying and indicators of positive emotional wellbeing, as the included studies primarily examined negative wellbeing indicators.

The subsequent two studies sought to address the research gaps identified in the review using data from a large population-based dataset: The Wellbeing and Engagement Collection (WEC). The WEC is an annual survey administered to school students in South Australia and is designed to measure a wide range of student wellbeing and engagement constructs (Gregory et al., 2021). The purpose of study two was to estimate the prevalence of the four types of bullying (physical, verbal, social, and cyber) in students aged 10 to 13 years, along with determining the association between bullying victimisation and positive and negative emotional wellbeing. The findings showed that one-third of students (32.3%) experienced some form of bullying, with verbal bullying the most common type (24.0%), followed by social (21.2%), physical (10.2%), and cyber (7.2%). These prevalence estimates were reflective of similar Australian-based studies (Cross et al., 2009; Jadambaa et al., 2019); however, cyberbullying victimisation was more prevalent in this sample compared to previous Australian (3.5%) (Jadambaa et al., 2019) and international (1.0%) (Wolke et al.,

2017) studies using similar age groups. Males were significantly more likely to experience physical and verbal bullying, and individuals who lived in more socioeconomically disadvantaged communities and those who identified English only as their language background were significantly more likely to experience all types of bullying. Furthermore, all types of bullying were significantly associated with poorer scores across measures of emotion regulation, life satisfaction, happiness, sadness, and worries than non-victims, before and after accounting for a wide range of child, peer, and school-level covariates. However, due to the cross-sectional nature of the study, it was not possible to determine the direction of these associations. Early adolescent bullying research, especially in relation to cyberbullying, requires more investigation into the short- and long-term consequences of these experiences, and therefore, this limitation was addressed in study three.

Armed with the knowledge that early adolescent cyberbullying was associated with poor emotional wellbeing outcomes (study two) and that there had been no prior longitudinal investigations of the academic outcomes from early adolescent cyberbullying (study one), the purpose of the final study (study three) was to establish the short- and longer-term positive and negative emotional wellbeing and academic achievement outcomes of early adolescent cyberbullying. Victims of cyberbullying in Grade 6 experienced significant effects to their short- and long-term emotional wellbeing and academic achievement, with some of these effects persisting after accounting for child, peer, school, and community-level covariates. In particular, victims scored significantly poorer than non-victims on measures of life satisfaction, happiness, sadness, worries, reading, and numeracy in Grade 7, and reading and numeracy in Grade 9. These results demonstrated that there could be short-term (one year later) and sustained (one and three years later) effects of early adolescent cyberbullying on emotional wellbeing and academic achievement outcomes. The findings from this study may

inform the development of bullying and wellbeing programs, in particular making school personnel aware that negative effects of cyberbullying can be sustained (up to three years) over time.

Collectively, the findings of all three studies indicate that victims of early adolescent physical, verbal, social, and cyber bullying experience poorer outcomes than non-victims across a variety of life domains. All forms of bullying are associated with lower levels of emotion regulation, happiness, and life satisfaction and higher levels of sadness and worries, even while accounting for many influences at the child, peer, school, and community-level. The findings on early adolescent cyberbullying indicate that victimisation can show varying short-term and sustained effects, which has implications for policies and programs designed to prevent bullying and respond to incidents of bullying victimisation within educational and other settings.

7.3 Strengths

The research carried out in this thesis has a number of strengths, one being the consistent examination of early adolescence, a period that has often been overlooked in longitudinal bullying literature, especially in relation to cyberbullying (Halliday et al., 2021). Throughout the dissertation, the definition of early adolescence includes individuals aged between 10 and 12 years at the time of bullying victimisation. This age period is an essential factor to consider as part of the investigation, as bullying is more prevalent during these years (Babarro et al., 2020; Brown et al., 2005; Waasdorp et al., 2017) and therefore, the results of this thesis can effectively inform the development of school-level interventions. As discussed previously (see Chapter 1, page 47 and Chapter 4, pages 101-102), past reviews have

examined the outcomes of adolescent bullying but suffered methodological flaws. These limitations included the inability to define the age of adolescents in the inclusion criteria or by grouping childhood and adolescent bullying experiences into the analyses. By having a consistent and well-recognised definition of early adolescence (adapted from the World Health Organisation (2019b)) throughout the current studies, the results of this thesis can inform the development of school programs that target specific grades and ages of students to help minimise the impacts of bullying on mental health, wellbeing, and academic achievement as victims continue into the later stages of formal schooling.

Another strength of this thesis is that it considers the prevalence, risk factors and outcomes separately for different types of bullying (i.e., physical, verbal, social, and cyber bullying). Previous studies have typically grouped the types of bullying when discussing risk factors or outcomes. For example, even when studies have included the different types of bullying in the design, the analyses and discussion refer to them as 'bullying' or 'peer victimisation' despite being separate items (Cook et al., 2010; Ladd et al., 2017; Menesini & Salmivalli, 2017; Ttofi & Farrington, 2012; Zych, Farrington, et al., 2020). There are also instances when traditional forms of bullying (physical, verbal, and social) are not considered separately in the design. Therefore, the systematic review (study one) and cross-sectional study (study two) sought to distinguish between, and report on, each of the four bullying types as much as possible. By doing this, this research helps to identify the extent to which bullying types occurring in early adolescence differ regarding prevalence rates, risk factors, and various outcomes, and as a result, developers can take these findings into account when designing interventions.

The consideration of how bullying affects both positive *and* negative wellbeing, guided by the Complete State Model of Mental Health (Keyes, 2005), is another strength of this work. In the bullying literature, there tends to be an emphasis on the impacts of bullying on negative indicators of wellbeing (e.g., depression, psychological distress), consistent with traditional models of mental health, which focus on psychopathology, psychological problems, and distress (Antaramian et al., 2010; Fullchange & Furlong, 2016); however, using these models provides a limited picture in terms of potential impacts on overall mental health functioning. The Complete State Model of Mental Health highlights that a person's occupational, social, and academic functioning is impacted by not only the absence of mental illness symptoms but also the extent to which the person is mental *healthy* (i.e., also showing positive wellbeing). In fact, people who do not have mental illness but have indications of poor positive wellbeing (i.e., low life satisfaction) can experience negative impacts in their daily life (Keyes, 2005). Using this perspective to examine bullying and associated outcomes ensures a holistic investigation of the mental health of victims, which has been identified as lacking in previous literature (Fullchange & Furlong, 2016; Toseeb & Wolke, 2021). The current research extends previous work by examining bullying on three separate aspects of positive emotional wellbeing (emotion regulation, happiness, and life satisfaction) and two measures of negative emotional wellbeing (sadness and worries) in a single investigation. The results of this thesis may encourage future researchers to examine the effects of bullying on both measures of psychopathology and positive wellbeing to capture complete mental health.

The methodological strengths of the thesis are as follows. First, the systematic review used a pre-defined search protocol and search terms developed in collaboration with a University of Adelaide School of Psychology Research Librarian. This approach to data

collection ensured that the review was extensive and methodologically sound by having replicable search terms and inclusion and exclusion criteria (essential factors for a review to be considered 'systematic'), and allows researchers to be confident that the available evidence is captured and the findings are robust (Khan et al., 2003). Additionally, the review included measures of consistency throughout the screening and eligibility processes by having a second reviewer examine a subset of titles, abstracts, and full-text articles. By employing a second reviewer, there is an increase in accuracy of including eligible studies (Stoll et al., 2019), and a reduction in bias and errors made (Edwards et al., 2002).

Next, studies two and three used a large population-based dataset, which provided information on bullying experiences, emotional wellbeing, and a range of child, peer, and school-level factors relevant to student wellbeing and school engagement. Given that the WEC is conducted annually, and that government school students complete the WEC using their unique education identifier, records from multiple collection cycles could be linked at the individual student level to explore both concurrent and longitudinal outcomes of early adolescent bullying. Using this pre-existing dataset was cost effective, time-effective, ensured that student confidentiality was maintained, and maximised student privacy as only de-identified data were obtained. In addition, as the Department for Education was the data custodian for the WEC dataset, other pre-existing administrative datasets were linked and utilised as a part of this research. These linked datasets included school enrolment information for the student, which provided information on child-level demographic characteristics and community-level socio-economic status, and NAPLAN results used to measure academic achievement. Linking datasets allowed for a comprehensive examination of the target population and meant that positive and negative emotional wellbeing and academic achievement outcome measures could be explored. The WEC and linked datasets

included a wide range of child, peer, school, and community variables that were considered covariates in studies two and three. The well-known Ecological Systems Theory (Bronfenbrenner, 1977) guided the choice of the included covariates, which provided a comprehensive account of microsystem and exosystem level variables (Bronfenbrenner, 1977). By including these factors as covariates and controlling for their possible influence, the emotional wellbeing and academic achievement outcomes could, as much as possible, be attributed to bullying victimisation (Yzerbyt et al., 2004).

Furthermore, this linked dataset provides an opportunity to examine a large sample size of students. Study two and baseline data for study three include results from over 9,000 students, and data for over 7,000 students were followed up one and three years after baseline as part of study three. Collecting data from this relatively large sample of students provides robust estimates of bullying in South Australia and increases the generalisability of the results to early adolescent students in Australia and other Western countries (Crossley et al., 2002). Overall, the methodological approaches used in the three studies are robust, comprehensive, and are all notable strengths of the research in this thesis.

7.4 Limitations

The limitations of the work are detailed in each of the three papers, and therefore, are discussed here at a more general level. While there are many benefits to using existing data from the WEC, there is no discretion over the way to measure key constructs of interest, and some are measured by single items. The WEC includes single-item measures in order to capture constructs that would otherwise be omitted due to survey length and time requirements; however, there are two major issues to consider when using single-item

measures. The first is that it is not possible to assess internal reliability for these items as Cronbach's alpha could not be used to determine whether students were consistent in their answers (Fisher et al., 2016; Nagy, 2002). Second, single-item measures may not adequately capture the construct it intends to measure, particularly for complex constructs (Nagy, 2002; Schriesheim et al., 1991). In the WEC, physical, verbal, social, and cyber bullying are each measured using a single-item measure, which means that important features of these constructs may have been missed in the assessment (see Figure 9). For example, cyberbullying can occur through text messaging, email, or social media sites (Menesini & Nocentini, 2009; Tokunaga, 2010); however, the design of the cyberbullying item in the WEC could not capture the way victims experienced cyberbullying. The inclusion of multi-item bullying measurements in future surveys may be valuable to ensure that the full range of the bullying construct is captured (Hoeppner et al., 2011). Furthermore, the single-item bullying measure does not allow identification of those who were bullies as well as victims, which means this group may have been unintentionally captured in the results.

Figure 9:

Bullying Responses in the WEC

How often have you been bullied by other students in the following ways?	Not at all this year	Once or a few times	About every month	About every week	Many times a week
Physical bullying (for example, someone hit, shoved, or kicked you, spat at you, beat you up, or damaged or took your things without permission).	☐	☐	☐	☐	☐
Verbal bullying (for example, someone called you names, teased, embarrassed, threatened you, or made you do things you didn't want to do).	☐	☐	☐	☐	☐
Social bullying (for example, someone left you out, excluded you, gossiped and spread rumors about you, or made you look foolish).	☐	☐	☐	☐	☐
Cyberbullying (for example, someone used the computer or text messages to exclude, threaten, embarrass you, or to hurt your feelings).	☐	☐	☐	☐	☐

Additionally, the definitions of traditional and cyber bullying described by Olweus (1994) and Tokunaga (2010), respectively, indicate that it must occur *repeatedly* and *over time* to classify a behaviour as bullying. This thesis utilised these definitions to define the cut point for classifying victims from non-victims, by ensuring that the repetitive nature of bullying was captured. This meant that the response option for the bullying items in the WEC 'once/a few times, in the school year' did not meet this criterion. It should be noted that this response option encompasses behaviours that may deem one a victim (a few times) and a non-victim (once), and thus having these two combined into a single response option in the WEC is less than ideal. In studies two and three, students who chose this response option were categorised as non-victims which may mean potential victims were omitted from analyses in this thesis, thereby potentially impacting the effects of bullying on emotional wellbeing and academic achievement.

Another limitation is the measures of academic achievement that were available in study three, which were restricted to standardised tests of reading and numeracy. Grade Point Average (GPA), overall subject grades, or the acquisition of skills and competencies outside of literacy and numeracy competencies (e.g., science subjects) (York et al., 2015) are examples of global measures of academic achievement that have been used in other research studies, but were not available in the current research. Moreover, the standardised tests used in the NAPLAN program may not always be an accurate measure of academic achievement for Australian students (Rose et al., 2020). A major limitation of using the NAPLAN is that the design assumes that all respondents are standard Australian English speakers (Rose et al., 2020). As a result, the NAPLAN may not be linguistically or culturally suitable for Indigenous Australian (Wigglesworth et al., 2011) or recent refugee students (Creagh, 2014), and it is not appropriate to generalise the results to these specific populations.

Furthermore, there are overarching limitations in the comprising thesis that warrant further discussion. First, the three studies focus predominately on bullying experiences for students in Western countries. Although the design of the systematic review was not limited to experiences from Western countries, the inclusion criteria included work published in English only. The studies that met the inclusion criteria came from the United States, the United Kingdom, Australia, the Netherlands, Canada, and Finland. Similarly, studies two and three examined data from a sample of South Australian students. Consequently, global generalisations are not advised, as there are many social and cultural differences regarding bullying (Smith et al., 2002). As an example, individuals in Japan place more emphasis on covert bullying (or *ijime)* rather than overt bullying (Kanetsuna, 2004; Morita et al., 1999). During the early stages of bullying research in European countries, there was an emphasis on overt and direct forms of bullying (physical bullying) (Olweus, 1978; Olweus, 1994). In comparison, Japanese research on *ijime* became more prominent in the 1980s and focused on indirect and covert behaviours (such as social bullying). The focus on covert bullying behaviours is because Japanese cultures emphasise psychological harm to a victim rather than physical suffering, even if the behaviour is physical in nature (Morita et al., 1999). The converse is often true in Western cultures, where students and, at times, teachers may take direct forms of aggression (e.g., physical bullying) more seriously than indirect forms (e.g., social bullying) (Bauman & Del Rio, 2006; Morita et al., 1999). In light of these findings, it would be beneficial for future research to examine early adolescent bullying between cultures, given the different emphasis on certain bullying behaviours and victim experiences.

A further limitation of the thesis overall is the inability to examine the effects of early adolescent bullying on gender beyond female and male experiences. While the differences

and similarities between genders are considered in the design of all three studies, only female and male options were included in the studies that met the inclusion criteria as part of the systematic review and in the data accessible for studies two and three. This means that investigations into differences in bullying experiences for non-binary or transgender students compared with cis-gender students, and adequate adjustments for this as a covariate in models, cannot be made. It is important for population-based data to represent the real-world, meaning cisgender, non-binary, and transgender students are acknowledged and included in analyses. In Australia, the most common best-practice method for measuring gender data is the two-step method, which involves self-reporting sex recorded at birth and current gender identity (Zhang et al., 2020). Studies indicate that prepubescent cisgender and gender diverse children are capable of accurately self-reporting their gender (Gülgöz et al., 2019; Olson et al., 2015), which makes the two-step method appropriate for measuring gender identity as part of large population-based surveys, such as the WEC. Therefore, it may be useful for the WEC to include such measures in the future, so researchers can accurately capture the construct of gender in analyses and develop relevant and applicable interventions for educational settings.

Finally, studies two and three rely on students self-reporting their bullying experiences. An issue with self-reports, particularly for bullying, is that students can under-report or non-report due to a fear of retaliation if caught or the potential shame and negative self-perception associated with victimisation (Akgun & Ciarrochi, 2003; Bouman et al., 2012; Branson & Cornell, 2009). Although all data collected through the WEC is confidential and only reported back to schools in summary format (i.e., x% of students in the school experiencing bullying), students may still be hesitant to report this information. Schools may obtain teacher or peer ratings for bullying victimisation; however, there are also potential issues that arise

with these options. For example, teachers have varying opinions on what constitutes behaviours as bullying and have been shown to intervene in only 4% of cases in playgrounds and 18% of instances in classrooms (Veenstra et al., 2014). Further, teachers may not be in the position to observe each occasion of repeated and ongoing harmful behaviours to a student, which would constitute victimisation (Cornell & Brockenbrough, 2004), or they may choose to ignore it (Craig et al., 2000). Additionally, teachers will not witness many instances of cyberbullying. As a result, teachers may not identify the student as a victim in their reports. Furthermore, classroom peers may not report a student as a victim as it may not be socially desirable to expose a friend as a bully (Iossi Silva et al., 2013). There is also evidence to suggest that girls are more likely to bully in groups and tend to support bullying behaviour, even when they know it is wrong, to gain social standing within the group (Iossi Silva et al., 2013). As a result, peers may under-report bullying behaviours which can lead to inaccurate measures in schools. Although the use of bullying reports from students, peers, and teachers has recognised strengths and weaknesses, there may be benefits in accessing all three perspectives for research and educational settings. For example, student responses can be corroborated by peer and teacher reports, and as a result, researchers and schools can use different perspectives to obtain a deeper understanding of the problem (Fox & Boulton, 2005).

7.5 Significance of the research

This research contributes to a better understanding of how early adolescent physical, verbal, social, and cyber bullying may affect individuals as they progress through their formal schooling years. Such research is important because early adolescence represents a time of unique vulnerability and notable developmental milestones (Beal et al., 2016; Marshall &

Tanner, 1969), even without considering the implications of bullying victimisation. Previous work has indicated that when the environment around the individual is not appropriate and healthy, there are consequences for educational, physical, and mental health in later adolescence (Kelly et al., 2016; Perou et al., 2013; Zilanawala et al., 2017). This research supports this knowledge and adds to it by finding that early adolescent bullying, regardless of the form, can contribute to emotional wellbeing and academic achievement problems during that age and into the later years of adolescence.

Furthermore, the comprehensive systematic review identified literature gaps that the subsequent two studies responded to. By doing so, the thesis contributes a large population-based profile of early adolescents and their experiences with traditional and cyber bullying that addresses limitations in existing work. For example, a recent meta-analysis was able to determine the prevalence of traditional and cyber bullying in Australia for 6 to 18 year olds, but was unable to distinguish specific estimates for physical, verbal, and social bullying (Jadambaa et al., 2019). The current research is able to extend this knowledge through the use a large, population-based dataset which provides a robust understanding of estimates for all types of bullying. It shows that the most common type of bullying in South Australian government schools is verbal bullying, followed by social, physical, and finally cyberbullying. Furthermore, by identifying those most at risk of experiencing each type of bullying, the research provides opportunities for interventions to monitor at-risk students. By utilising a large population-based dataset, the findings about estimates of, and risk factors for, early adolescent bullying may be more generalisable to the wider Australian student population than some previous studies, while considering limitations to culturally and linguistically diverse students.

Another important contribution of this research is that it accounts for a comprehensive list of covariates, guided by the Ecological Systems Theory (Bronfenbrenner, 1977), thereby increasing the ability to attribute the results to bullying specifically. By drawing on the solid theoretical basis of the Ecological Systems Theory (Bronfenbrenner, 1977), the organisation and consideration of the broad range of covariate variables in the microsystem and exosystem depicts a comprehensive representation of the experiences and influences that can occur during early adolescence (Curtis, 2015; Lionetti et al., 2019; Nucci, 2001). This includes understanding and controlling for the relationship between bullying and many family, peer, school, and community factors that have a direct influence on wellbeing (Bronfenbrenner, 1977), while also considering how bullying may affect positive and negative wellbeing indicators (Keyes & Lopez, 2002). In doing so, this research helps to move away from the existing perspective that focuses predominately on the negative outcomes associated with bullying (Antaramian et al., 2010; Fullchange & Furlong, 2016). As a result, there are several implications for addressing bullying in educational settings and the provision of mental health and wellbeing support in school settings.

7.6 Implications

7.6.1 The timing of prevention and intervention programs

7.6.1.1 Target bullying during early adolescence

In Australia, state and territory government and non-government education authorities have agreed on a set of practices to help schools and the community address bullying and harassment (Ministerial Council on Education Early Childhood Development and Youth Affairs, 2004). This set of procedures is called the National Safe Schools Framework (NSSF)

and guides school staff, parents, and students on how to handle incidents of victimisation, how to recognise bullying behaviours, and how to learn methods of conflict resolution (Ministerial Council on Education Early Childhood Development and Youth Affairs, 2004). While the NSSF framework suggests that age-appropriate curriculum content and pedagogy is the most suitable approach to bullying, it does not include specific age or grades-based considerations. Whether this was a deliberate decision or not, the current research may provide some guidance to schools of specific grades and ages to address traditional and cyber bullying appropriately and effectively, in a way that improves student awareness of how to recognise bullying and access support if they witness or experience bullying themselves.

The findings indicate that all types of bullying occur in early adolescence (ages 10 to 12 years) and may affect up to one-third of students, suggesting that this is an important time for education and early intervention programs. In South Australia, this age period equates to Grades 5, 6, and 7 (South Australia Department for Education, 2021c), which corresponds to the end of primary school and the transition to high school. This period of time has been shown to be associated with increased bullying behaviours in other studies (Ryoo et al., 2015). Implementing the practices outlined in the NSSF at the end of primary school (i.e., during Grades 5 and 6), may help students to recognise and respond to bullying victimisation prior to transitioning to high school, thus reducing negative impacts on their emotional wellbeing and academic outcomes in coming years.

A further implication of the findings is that it permits schools to identify those groups of students most at risk of bullying. As indicated in study two, the students most at risk were male, of English speaking backgrounds, and living in the most socioeconomically disadvantaged areas. Current evidence suggests whole-school focused programs, that include

school rules and sanctions, teacher training, peer support, and classroom activities, are most effective in reducing cases of bullying (Gabrielli et al., 2021; Ng et al., 2020; Rigby & Johnson, 2016; Ttofi & Farrington, 2011). In addition to these whole-school approaches, it may also be useful to include targeted monitoring of at-risk groups in the design of bullying interventions, policies, and plans for the best impact on reducing the prevalence and impacts of bullying behaviours. Furthermore, while this research provides information for educational providers to address all types of bullying, the results also have specific implications for cyberbullying in schools.

7.6.1.2 Cyberbullying in individuals under 13 years old

Social media sites require users to be 13 years or older to create an account (e.g., Facebook, Snapchat, Instagram, and YouTube), which is a possible reason why early adolescent cyberbullying had not been considered as often in past literature. The findings of current research suggest that cyberbullying occurs in populations under the age of 13 years, with 7.2% of Grade 6 students in South Australia self-identifying as victims.

At the time of the publication of the systematic review (study one), no research had been conducted that examined longitudinal psychosocial or academic achievement outcomes of early adolescent cyberbullying. As a result, study three produced some of the first evidence that early adolescent cyberbullying can result in negative short-term (one year later) and sustained (one and three years later) emotional wellbeing and academic achievement outcomes. This is a noteworthy finding, suggesting the need to introduce cyberbullying awareness programs in younger school grades, before students reach the age requirement for

creating social media accounts. In addition to addressing cyberbullying in earlier grades, it would also be beneficial to monitor those most at risk of experiencing cyberbullying.

Study two found that students of English-speaking backgrounds or those who reside in the most socio-economically disadvantaged communities were at increased risk of experiencing cyberbullying. This finding mirrors that for traditional forms of bullying (physical, verbal, and social), and is consistent with research from previous meta-analyses using comparable age groups (Tippett & Wolke, 2014). It has been suggested that individuals from lower socio-economic areas are bullied because of their inability to afford certain lifestyle belongings (e.g., popular brand name clothing), resulting in isolation from peers (Olweus, 1994). Other explanations include not having access to the cognitive resources that aid the development of social skills and coping strategies that serve as protective factors against victimisation (Jansen et al., 2012). While monitoring at-risk groups is necessary for effective intervention, it is important to avoid stigmatising and isolating certain students. Therefore, it is more appropriate to explore the most effective programs that can be delivered at a whole-school level.

Recent meta-analyses have suggested that the most effective whole-school cyberbullying programs are sustained for a significant period of time (>9 months in duration), make use of resourceful videos, and include tech-savvy experts who train teachers on how to handle cyberbullying incidents (Ng et al., 2020; Ttofi & Farrington, 2011). These recommendations are supported in an Australian context, with teachers indicating that additional support from experts would be helpful in better recognising the various forms of cyberbullying (Barnes et al., 2012). Taken together, findings from meta analyses in the area combined with the specific findings from the present set of studies suggest that to potentially minimise the long-

lasting implications of victimisation, there may be benefits for training teachers on cyberbullying programs that can be delivered to early adolescent students. In addition, programs should aim to increase social and coping skills and make use of video resources.

7.6.2 The varying effects of victimisation

The studies comprising this thesis are designed to identify the immediate, short-, and longer-term outcomes of early adolescent bullying. The results indicate that there is an association between early adolescent physical, verbal, social, and cyber bullying and experiencing poorer outcomes in the domains of mental health and wellbeing, social relationships, and academic achievement. Furthermore, being a victim of early adolescent cyberbullying shows short-term (one year later) effects on life satisfaction, happiness, sadness, and worries, and sustained (one and three years later) effects on reading and numeracy. These findings have implications for the development of programs that address the short- and longer-term effects of bullying on positive and negative wellbeing and academic achievement.

7.6.2.1 Implications for bullying and emotional wellbeing

In Australia, the approach to preventing bullying typically involves classroom activities, encouraging reporting of bullying, promoting peer support, and implementing antibullying policies in line with the National Safe Schools Framework (NSSF) (Ministerial Council on Education Early Childhood Development and Youth Affairs, 2004; Rigby & Johnson, 2016). While this approach to bullying is taken in many, if not all, schools, a recent study found that Australian students do not always know, or are unsure, if a bullying policy exists (Rigby &

Johnson, 2016). Furthermore, it is common for victimised students to blame themselves for experiencing bullying, which can lead to negative self-perceptions, increased stress, and difficulty concentrating on school work (Akgun & Ciarrochi, 2003; Graham & Juvonen, 1998), thus resulting in poorer wellbeing and academic performance (Graham et al., 2006; Nakamoto & Schwartz, 2010). This may be a possible explanation for the results seen in the current investigation and has implications for victims in educational settings. To make more students aware of the policies in place and to help school psychologists advocate for the promotion of bullying prevention and wellbeing programs, it may be worthwhile designing integrated programs to be delivered to grades corresponding to the early adolescent age period. As such, it is important to examine current wellbeing interventions in order to provide relevant recommendations and implications.

A recent meta-analysis by Dix et al. (2020) identified 200 different school-based wellbeing programs around the world, with only one evidence-based Australian wellbeing program included. The review described that while there are many wellbeing interventions in Australia, programs are generally described as 'frameworks' or 'initiatives' and lack high-quality evidence of effectiveness (Dix et al., 2020). In this meta-analysis, social and emotional learning (SEL) programs were among those considered more effective, with evidence suggesting a positive impact on healthy adolescent development and academic achievement, while serving as a protective factor against negative wellbeing indicators (Dix et al., 2020; Durlak et al., 2011; Taylor et al., 2017). In Australia, 'Friendly Schools' and 'Cyber Friendly Schools' (designed to target traditional bullying and cyberbullying, respectively) are good examples of effective whole-school based bullying interventions that draw on SEL to build positive relationships between students, peers, school leaders, and parents (Cross et al., 2018). While 'Friendly Schools' is effective in reducing and managing

cases of traditional bullying in early adolescence, research on the effectiveness of 'Cyber Friendly Schools' for students under 13 years old is lacking (Cross et al., 2016). Despite some evidence suggesting that programs aimed at simultaneously addressing bullying and SEL are effective, a recent meta-analysis found that combined programs are not associated with greater effectiveness compared to interventions that focused solely on SEL or bullying (Gaffney et al., 2021a). In the future, it may be beneficial to target these concerns separately and comprehensively.

Furthermore, findings on the negative effects of cyberbullying from the current research suggest that school-level interventions focusing on bullying prevention should also address online safety and wellbeing. Current recommendations for education from the Australian Psychological Society (Australian Psychological Society, 2016) and the Royal College of Psychiatrists in the United Kingdom (Dubicka & Theodosiu, 2020) suggest that teachers play a major role in educating students about online safety, and classroom discussions should be held on the potentially harmful nature of online environments, such as cyberbullying. Recent reviews also highlight the important role teachers play in administering effective cyberbullying programs (Ng et al., 2020; Polanin et al., 2021). The findings of the thesis highlight the importance of addressing bullying in the early adolescent years, so by equipping teachers with the necessary resources, training, and knowledge on bullying, online environments, and wellbeing during those vital school grades, students can feel supported throughout formal education.

Next, psychologists in schools and practices should be aware that cyberbullied adolescents may experience some impacts on their emotional wellbeing in a delayed manner. The third study suggested that students who were victims of cyberbullying showed

significantly poorer levels of reading and numeracy than non-victims, up to three years later. As such, it is important for mental health professionals to ask help-seeking individuals about previous online experiences to determine the potential contribution of past cyberbullying and for students known to experience cyberbullying to be monitored even if they do not show immediate effects. As there can be short-term and sustained effects of cyberbullying, this should also be considered in bullying and wellbeing programs delivered in schools. The results from this research may help inform the development of programs, by providing specific areas of focus. For example, the current study found that cyberbullying was associated with sustained negative effects on academic achievement outcomes over at least a three year period. Therefore, students who have identified themselves, or have been identified, as cyberbullied may benefit from additional academic support.

A recent study also found that a large part of the effects of bullying on science, mathematics and reading performance (27%, 23% and 22% respectively) could be explained by the sense of belonging of students while at school (Huang, 2020). Indeed in the current thesis, the effects of bullying on emotional wellbeing and academic achievement outcomes were found to reduce after covariates, including school climate and peer belonging, were taken into account. Therefore, it may be worthwhile to address the influences of the wider school environment (i.e., school climate regarding bullying and fostering school and peer belonging) in order to support victims in early adolescence and potentially contribute to reducing the negative impact of victimisation on emotional wellbeing and academic performance.

Overall, a culture within formal education settings that promotes anti-bullying and online safety policies early (i.e., during early adolescence), views mental health and wellbeing

holistically, and provides consistent support to victims of bullying may reduce bullying cases while facilitating better outcomes for victimised students.

7.6 Future directions for research

This research highlights that early adolescence is a time of increased risk of victimisation and that bullying can have repercussions on healthy emotional and academic development. As such, future work should consider traditional *and* cyber bullying in early adolescent years to increase awareness and bring attention to helping victims in this age group as they transition to higher school grades. Furthermore, studies two and three used data from South Australian co-educational government schools, and as a result, bullying experiences for students attending non-government schools, i.e. independent and Catholic schools, were not captured. Similarly, research that examines bullying behaviours in single-sex schools would be beneficial. If results are consistent among non-government or single-sex schools, the implications of the current findings could be applicable to these settings. If the results are contradictory, the current suggestions for approaching bullying and the associated outcomes in schools should be adapted accordingly.

In line with the trend for mental health research to consider mental health in a holistic fashion (Doll et al., 2020), future research should aim to move away from the existing preference of examining the impact of bullying on indicators of negative wellbeing to instead include the effect of bullying on both negative and positive wellbeing indicators. The results of studies two and three provide evidence to support this and demonstrate that all types of victimisation can affect levels of emotion regulation, happiness, and life satisfaction, while controlling for a wide range of child, peer, school, and community variables. As mentioned,

the Complete State Model of Mental Health (Keyes & Lopez, 2002) provides a solid justification for the importance of examining positive and negative wellbeing indicators, and this framework can be used to guide future work in this area.

Furthermore, future longitudinal studies may include indicators of academic achievement beyond standardised tests of reading and numeracy. Although the NAPLAN is a useful metric to understand Australian studies of academic achievement, there are other measures that could generate more insight into how bullying can influence academic performance as victims continue formal schooling. For example, metrics such as GPA, overall school grades, academic self-efficacy, and learners' satisfaction could be included to obtain a comprehensive and globally consistent understanding of how early adolescent bullying impacts long-term academic achievement. It would be beneficial to examine the longer-term impact of early adolescent victimisation on academic achievement at the end of formal secondary school education (e.g., using the Australian Tertiary Admission Rank (ATAR) for Australian research) and into tertiary education. Conducting these types of studies may help determine the longer-term implications of early adolescent bullying victimisation, as well as identify specific academic areas that are affected by bullying.

7.7 Conclusions

Research in this thesis found that early adolescent students can experience significantly worse psychosocial, emotional wellbeing, and academic achievement outcomes as a result of physical, verbal, social, and cyber bullying, compared to non-victims. Population-based data showed that one-third of Grade 6 (10 to 12 years old) South Australian students experience bullying victimisation, with those who identified as male, those who are

from English-speaking backgrounds, and those living in the most socio-economically disadvantaged areas most at risk of victimisation. Students who were victims of cyberbullying in early adolescence scored significantly worse on measures of positive and negative emotional wellbeing and academic achievement one and three years after the incident, with varied short-term and sustained effects, after adjusting for a wide range of child, peer, school, and community-level covariates. Implementing interventions from the early adolescent years that aim to improve wellbeing, social, and emotional learning, include knowledge about being safe online, and foster a positive school environment may contribute to a reduction in bullying, as well as less harmful and long-lasting outcomes for victims. The findings of this thesis may help advocate for victims of early adolescent physical, verbal, social, and cyber bullying while they complete formal education.

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Appendix A. Sample of School Enrolment Census

Name of School: _____

Name of Student: _____

Date of Birth: _____ / _____ / _____

Government of South Australia
Department for Education

SCHOOL ENROLMENT FORM

INFORMATION PRIVACY STATEMENT

The Department for Education is committed to respecting the confidentiality of information provided by children / students and parents, which includes information requested on child / student enrolment forms.

This form has been designed to ensure compliance with the *Education Regulations 2012* and to enable the department to:

- Undertake administration and care responsibilities including maintaining emergency contact information;
- Communicate with you about important matters;
- Provide first aid and plan for child / student health support requirements;
- Provide all information required for resource entitlements;
- Collect necessary statistical information and undertake analysis of the composition and performance of the child / student population;
- Meet reporting requirements, including to other government authorities and funding agencies; and
- Provide information to contractors engaged to assist in the completion of the Australian Early Development Census survey by teachers (www.aedc.gov.au).

If organisations are contracted on behalf of the department to undertake tasks which require access to enrolment data, the contract(s) between the department and those organisations will include strict confidentiality and disposal provisions.

The *Australian Education Regulation 2013* requires schools across Australia ask the questions marked ✱ on their school enrolment forms. Although some items on the enrolment form are not mandatory to complete under the national regulations, provision of this information will be beneficial to your child's school for planning and resourcing decisions.

The information provided in enrolment forms is stored securely in local school and department databases. Information from your enrolment form may be transferred electronically from one site to another as your child moves locations between levels of education. Any such transferred information will be updated by information provided on the current enrolment form. Some student information will also be securely transferred to the NAPLAN Online Platform to enable online NAPLAN testing. While your child is enrolled in a department site other information will be gathered relating to your child's education and wellbeing; for example records of learning progress (including NAPLAN testing), absences from school, behaviour, health and social development reports, observations and assessments.

The management of these data is governed by Australian, State and department policies and relevant legislation (including the *Australian Education Act 2013* (Cth), *Education Act 1972* (SA), and *State Records Act 1997* (SA)) to ensure that the information is used only for the purposes stated above and is secure, private and confidential.

The disclosure of personal information held by government is regulated by the Information Privacy Principles (see www.dpc.sa.gov.au/documents/rendition/DPC-Circular-Information-Privacy-Principles-IPPS-Instruction.pdf). Unless required to do so by a law of the State or Commonwealth, or as permitted by the Information Privacy Principles or in accordance with the ISG (see below), the department will not otherwise disclose the information to others without your consent.

INFORMATION SHARING STATEMENT

There will be occasions where sharing information with others outside the department will be important to your child's educational progress, safety or wellbeing. In these circumstances the department follows the SA Government's *Information Sharing: Guidelines for Promoting Safety and Wellbeing (ISG)* www.ombudsman.sa.gov.au/isg. Under the ISG your consent for the sharing of personal information about your child will be sought and respected in all situations unless:

- It is unsafe / impossible to gain consent or consent has been refused; and
- Without information being shared, a child or children will be at increased risk of serious harm.

In order to provide an appropriate education program your school may share information relating to your child's personal needs with specialist department staff, including Student Support Services. This will enable the school to make any necessary teaching and learning adjustments for your child. The school may also use the information you provide when applying for specialist resources or services and/or funding to support your child's education. Prior to any formal referral for additional support your consent will be sought.

The aim of information sharing under the ISG is to protect and promote the safety and wellbeing of children, young people and their families. This site works with parents / caregivers and other agencies / services to achieve that aim. Parents / caregivers are strongly encouraged to share all information relevant to their child's capacity to enjoy and benefit from education:

- By using the 'any other information' section of this form; and/or
- By discussing with staff at the time of enrolment; and/or
- By discussing with staff at any time in the future.

The school has explained the above Information Privacy Statement and Information Sharing Statement.

Parent / Guardian Signature

School Enrolment Form Version 2.9 July 2018

Refer to the occupation groups listed below when completing the questions on page 3.

Group 4 Other Occupations	Group 3 Trades and advanced / intermediate clerical, sales and service staff	Group 2 Other business managers, Arts / Media / Sportspersons and associate Professionals	Group 1 Senior management in large business organisation, government administration and defence, and qualified professionals
Drivers Mobile plant, Production / Processing, Machinery, Other machinery Operators. **Hospitality staff** Hotel service supervisor, Receptionist, Waiter, Bar attendant, Kitchen hand, Porter, Housekeeper. **Office assistants** Typist, Word processing, Data entry, Business Machine Operator, Receptionist, Office assistant. **Sales assistants** Sales assistant, Motor vehicle / Caravan / Parts Salesperson, Checkout operator, Cashier, Bus/train conductor, Ticket seller, Service station attendant, Car rental desk staff street, Vendor, Telemarketer, Shelf stacker. **Assistant / aide** Trade's assistant, School / Teacher's aide, Dental assistant, Veterinary nurse, Nursing assistant, Museum / gallery attendant, Usher, Home helper, Salon assistant, Animal attendant. **Labourers and related workers** **Defence Forces** Other ranks below senior NCO not included above. **Agriculture, horticulture, forestry, fishing, mining worker** Farm overseer, Shearer, Wool / hide classer, Farm hand, Horse trainer, Nurseryman, Greenkeeper, Gardener, Tree surgeon, Forestry / logging worker, Miner, Seafarer / fishing hand. **Other worker** Labourer, Factory hand, Storeman, Guard, cleaner, Caretaker, Laundry worker, Trolley collector, Car park Attendant, Crossing Supervisor.	**Tradesmen / women** Generally have completed a 4 year Trade Certificate, usually by apprenticeship. All tradesmen / women are included in this group. **Clerks** Bookkeeper, Bank / PO clerk, Statistical / Actuarial Clerk, Accounting / claims / audit clerk, Payroll clerk, Recording / registry / filing clerk, Betting clerk, Stores / inventory clerk, Purchasing / order clerk, Freight / transport / shipping clerk, Bond clerk, Customs agent, Customer services clerk, Admissions clerk. **Skilled Office Staff** Secretary, Personal assistant, Desktop publishing operator, Switchboard operator. **Skilled Sales Staff** Company sales representative, Auctioneer, Insurance agent / Assessor / Loss adjuster, Market researcher. **Skilled Service Staff** Aged / Disabled / Refuge / Child care worker, Nanny, Meter reader, Parking inspector, Postal worker, Courier, Travel agent, Tour guide, Flight attendant, Fitness instructor, Casino dealer / supervisor.	**Owner / manager** Farm, Construction, Import / Export, Wholesale, Manufacturing, Transport, Real estate business. **Specialist manager** Finance, Engineering, Production, Personnel, Industrial relations, Sales / marketing. **Financial services manager** Bank branch manager, Finance / investment / insurance, Broker, Credit / loans officer. **Retail sales / services manager** Shop petrol station, Restaurant club, Hotel / Motel, Cinema, Theatre agency. **Arts / media / sports** Musician, Actor, Dancer, Painter, Potter, Sculptor, Journalist, Author, Media presenter, photographer, Designer, Illustrator, Proof reader, sportsman / woman, Coach / trainer, Sports official. **Associate professionals** Generally have diploma / Technical qualifications, Support managers and professionals. **Health, Education, Law, Social Welfare, Engineering, Science, Computing** Technician / Associate professional. **Business / administration** Recruitment / Employment / Industrial relations / Training officer. Marketing / Advertising specialist, Market research analyst, Technical sales representative, Retail buyer, Office / project manager. **Defence Forces** Senior Non-Commissioned officer.	**Senior executive / manager / department head in industry, commerce, media or other large organisation.** **Public service manager** (Section head or above), Regional Director, Health / Education / Police / Fire services, Administrator. **Other administrator** School Principal, Faculty head / Dean, Library / Museum / Gallery director, Research facility director. **Defence Forces** Commissioned Officer. **Professionals** Generally have degree or higher qualifications and experience in applying this knowledge to: • Design, develop or operate complex systems; • Identify, treat and advise on problems; • And teach others. **Health, Education, Law, Social Welfare, Engineering, Science, Computing**. Professional. **Business** Management consultant, Business analyst, Accountant, Auditor, Policy analyst, Actuary, Valuer. **Air / sea transport** Aircraft / ship's Captain / Officer / Pilot, Flight officer, Flying instructor, Air traffic controller.

Parent's education, qualification and occupation

The questions about each parent / guardian's education, qualifications and employment group are asked on all school enrolment forms.

In South Australia this information is used in determining each school's Index of Educational Disadvantage (IED), which is linked to funding levels and may be used to allocate resources to school services. In the future this information may be used to determine resource allocations to schools.

If you are an independent student (living without a parent or guardian) please go straight to Page 4 - Student Personal Details.

Parent 1 or Legal Guardian 1
(Birth or Adoptive parent)

Mr / Mrs / Ms / Other:

Family Name:

Given Names:

Sex: ❑ Male ❑ Female

Relationship to student:

Employment status:

Occupation:

❋ What is the occupation group of parent 1 / guardian 1? *Please select the appropriate parental occupation group from the list on page 2.*

- *If the person is not currently in paid work but has had a job in the last 12 months or has retired in the last 12 months, please use the person's last occupation.*
- *If the person has not been in paid work in the last 12 months, enter 8 above.*

Place of work:

Work Phone Number:

P/G1 Mobile Phone:

P/G1 Email:

❋ What is the highest year of primary or secondary school the parent 1 / guardian 1 has completed? *(For persons who never attended school, select 'Year 9 or equivalent or below'.)*

Year 12 or equivalent	❑ 4
Year 11 or equivalent	❑ 3
Year 10 or equivalent	❑ 2
Year 9 or equivalent, or below	❑ 1

❋ What is the level of the highest qualification the parent 1 / guardian 1 has completed?

Bachelor degree or above	❑ 7
Advanced diploma / Diploma	❑ 6
Certificate I to IV (including trade certificate)	❑ 5
No non-school qualification	❑ 8

In which country was the parent 1 / guardian 1 born?

If not born in Australia, what was the date the parent 1 / guardian 1 arrived in Australia?

DD MM YY

❋ Does the parent 1 / guardian 1 speak a language other than English at home?
❑ No, English only
❑ Yes

If **yes**, what is the main language the parent 1 / guardian 1 speaks at home?

Does this Parent or Guardian require an interpreter?
❑ No
❑ Yes

Language for Translation:

What is the cultural background of Parent 1 / Guardian 1?

Parent 2 or Legal Guardian 2
(Birth or Adoptive parent)

Mr / Mrs / Ms / Other:

Family Name:

Given Names:

Sex: ❑ Male ❑ Female

Relationship to student:

Employment status:

Occupation:

❋ What is the occupation group of parent 2 / guardian 2? *Please select the appropriate parental occupation group from the list on page 2.*

- *If the person is not currently in paid work but has had a job in the last 12 months or has retired in the last 12 months, please use the person's last occupation.*
- *If the person has not been in paid work in the last 12 months, enter 8 above.*

Place of work:

Work Phone Number:

P/G2 Mobile Phone:

P/G2 Email:

❋ What is the highest year of primary or secondary school the parent 2 / guardian 2 has completed? *(For persons who never attended school, select 'Year 9 or equivalent or below'.)*

Year 12 or equivalent	❑ 4
Year 11 or equivalent	❑ 3
Year 10 or equivalent	❑ 2
Year 9 or equivalent, or below	❑ 1

❋ What is the level of the highest qualification the parent 2 / guardian 2 has completed?

Bachelor degree or above	❑ 7
Advanced diploma / Diploma	❑ 6
Certificate I to IV (including trade certificate)	❑ 5
No non-school qualification	❑ 8

In which country was the parent 2 / guardian 2 born?

If not born in Australia, what was the date the parent 2 / guardian 2 arrived in Australia?

DD MM YY

❋ Does the parent 2 / guardian 2 speak a language other than English at home?
❑ No, English only
❑ Yes

If **yes**, what is the main language the parent 2 / guardian 2 speaks at home?

Does this Parent or Guardian require an interpreter?
❑ No
❑ Yes

Language for Translation:

What is the cultural background of Parent 2 / guardian 2?

Student Personal Details (Please provide proof of Birth)

Family Name:

Given Names:

Preferred Name:

Date of Birth: DD MM YY

❋ Sex: ❑ Male ❑ Female

How far does the student live from the School?

Has this student been approved for School Card Assistance at his / her previous school? ❑ No ❑ Yes

❋ Is the student of Australian Aboriginal or Torres Strait Islander origin? *(For persons of both Australian Aboriginal or Torres Strait Islander origin, tick both 'Yes' boxes.)*
❑ No
❑ Yes, Australian Aboriginal
❑ Yes, Torres Strait Islander

What is the student's previous school? *If overseas, nominate country. If interstate, nominate state. If no previous school, nominate preschool, kindergarten, etc.*

❋ In which country was the student born? ❑ Australia ❑ Other – please specify below

For a student born overseas with a date of Arrival in Australia on or after 1/1/2006, a "Visa sub-class" must be entered. Refer to Visa in passport or visa grant letter for e-visas. Some temporary residents are required to pay fees and must have a letter of offer / confirmation from International Education Services.

Refer to the Overseas Student Factsheet - https://myintranet.learnlink.sa.edu.au
Intranet > Operations and Management > Information and Records Management > Site Data Collection > Student Data Management on EDSAS

If other, on what date did the student arrive in Australia? DD MM YY

Visa Sub-Class: Religion: *(optional)*

Passport Number: Refugee: Permission to Flag? ❑ No ❑ Yes

What is the student's cultural background?

School Use Only

Has proof of Birth been provided? ☐ No ☐ Yes

Has proof of Residence Documentation been provided? ☐ No ☐ Yes

School No:
ED ID:
Student ID:
School Year Level:
Census Year Level:
Roll Class:
FTE:
Campus:
House:
Enrolment Date:
Permanent Resident:
Origin:
Visa Sub-Class:
NESB:
EALD: ☐ Yes ☐ No
IELP / NAP Transfer: ☐ Yes ☐ No

Does the site need to be aware of any cultural and/or religious requirements? Please advise:

❋ Does the student speak a language other than English at home? ❑ No, English only ❑ Yes

Main language: Other language/s:

Does the student attend an after-hours Ethnic school? ❑ No ❑ Yes

If Yes, which school? Which language is studied?

Is this student in care? ❑ No ❑ Yes

If Yes, has the 'Enrolling Children and Young People in Care' process been followed? Further details will be provided via Student Support Service enrolment process. These forms will provide the necessary information for data input.

Does this student receive AUSTUDY? ❑ No ❑ Yes

Does this student receive ABSTUDY? ❑ No ❑ Yes

Family/Home Contact Details

Family Phone Number: Silent number? ❑ No ❑ Yes

Family Mobile Phone:

Family Email Address:

Student Address Details (Please provide proof of Residence)

Mailing Address (Of Parent / Guardian with whom student lives the majority of school week)

Name to be used for all correspondence: *eg Mr and Mrs Black, Ms B Green*

Address Line 1:

Address Line 2:

Suburb / Town: Postcode:

Country *(if not Australia)*: Student Mobile Number:

Hundred: * Section: *

RAPID No *(if applicable)*: - UHF: - MHz

Student's Email Address:

Residential Address (If different from above Mailing Address)

Name to be used for all correspondence: *eg Mr and Mrs Black, Ms B Green*

Address Line 1:

Address Line 2:

Suburb / Town: Postcode:

Country *(if not Australia)*: Student Mobile Number:

Hundred: * Section: *

RAPID No *(if applicable)*: - UHF: - MHz

Student's Email Address:

If you have other addresses which need to be documented (B – Billing), please note in any other information / comments on page 8.

Emergency Contacts if Parent or Guardian cannot be contacted or unable to collect student.

Note: Includes permission to provide overnight care.

Priority 1

Name: | Home Phone: | Silent? ❑

Relationship: | Mobile Phone:

Work Phone: | Ext:

Priority 2

Name: | Home Phone: | Silent? ❑

Relationship: | Mobile Phone:

Work Phone: | Ext:

Priority 3

Name: | Home Phone: | Silent? ❑

Relationship: | Mobile Phone:

Work Phone: | Ext:

Priority 4

Name: | Home Phone: | Silent? ❑

Relationship: | Mobile Phone:

Work Phone: | Ext:

Transport to School

Usual mode of transport: | Bus Pass No:

School Bus Route AM1: | Stop: | Time: :

School Bus Route AM2: | Stop: | Time: :

School Bus Route PM1: | Stop: | Time: :

School Bus Route PM2: | Stop: | Time: :

Conveyance Allowance: | (Approval Number) | Allowance Expiry Date: DD MM YY

Vehicle Reg. No: | Driver if other student:

Medical Conditions

Does your child have a diagnosed medical condition which might need first aid? ❑ No ❑ Yes

If **Yes**, please tick the relevant conditions:

- ❑ Acquired Brain Injury
- ❑ Asthma
- ❑ Cerebral Palsy
- ❑ Continence
- ❑ Cystic Fibrosis
- ❑ Diabetes
- ❑ Gastrostomy
- ❑ Hearing Impaired
- ❑ Heart Condition
- ❑ Joint Conditions
- ❑ Medication
- ❑ Mild Allergy
- ❑ Oncology
- ❑ Oral Eating and Drinking
- ❑ Seizures
- ❑ Severe Allergy Anaphylaxis
- ❑ Transfer and Positioning
- ❑ Visually Impaired

If other, please specify:

Does your child need extra routine health support?
(e.g. support with medication management, continence care, psychological issues) ❑ No ❑ Yes

If **Yes**, the school will need a health care plan from the treating doctor / health professional.
Is plan attached? ❑ No ❑ Yes

Court Orders

Are there any current Court-sanctioned orders relating to this student?
If **Yes**, a copy of the order must be provided for the school's records. ❑ No ❑ Yes

On what date was the Full Court order issued? DD | MM | YY

Details:

Other Parent / Guardian / Carer

Resides at the same address as the student? ❑ Yes ❑ No ❑ Reports ❑ Access ❑ Correspondence

Mr / Mrs / Ms / Other | Sex: ❑ Male ❑ Female

Family Name:

Given Names: | Phone Number: | Silent? ❑

Relationship to student: | Mobile Number:

Mailing Title:

Address Line 1:

Address Line 2:

Address Line 3:

Suburb / Town: | Postcode:

Country *(if not Australia)*:

Email Address:

Siblings

Full Name	Sex	Date of Birth	Attends this School?
	❑ Male ❑ Female	DD MM YY	❑ No ❑ Yes
	❑ Male ❑ Female	DD MM YY	❑ No ❑ Yes
	❑ Male ❑ Female	DD MM YY	❑ No ❑ Yes
	❑ Male ❑ Female	DD MM YY	❑ No ❑ Yes
	❑ Male ❑ Female	DD MM YY	❑ No ❑ Yes

Other Preschools and Schools Attended

Has your child previously attended a Department for Education preschool / school? ❑ No ❑ Yes

If Yes, please specify the last Department for Education preschool / school attended:

List the two most recent schools attended. If unsure of the dates, please estimate.

Preschool / School Name	From	To
	DD MM YY	DD MM YY
	DD MM YY	DD MM YY

Any other information / comments

Parent / Guardian Signatures

By signing this form you certify that all information given is true and accurate.

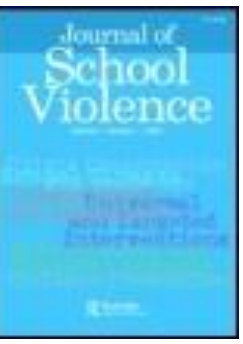
Signature of Parent 1 / Legal Guardian 1: Date: DD MM YY

Signature of Parent 2 / Legal Guardian 2: Date: DD MM YY

Enrolment Interviewer:

Data Entry Person:

Appendix B. Study One Publication



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The Impact of Bullying Victimization in Early Adolescence on Subsequent Psychosocial and Academic Outcomes across the Adolescent Period: A Systematic Review

Sarah Halliday, Tess Gregory, Amanda Taylor, Christianna Digenis & Deborah Turnbull

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The Impact of Bullying Victimization in Early Adolescence on Subsequent Psychosocial and Academic Outcomes across the Adolescent Period: A Systematic Review

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ABSTRACT

Bullying is a widespread global issue, with serious consequences for victimized individuals. The current systematic review is the first to explore the consequences of bullying in early adolescence on psychological and academic functioning across the adolescent period. Five databases were examined, yielding 28 relevant studies. Victimized individuals were found to experience negative psychosocial and academic outcomes, including increased depression and anxiety, increased peer rejection, poorer school performance and school connectedness, both over the short term (12 months), and up to 8 years later. Victimized females suffered worse outcomes than victimized males, specifically for symptoms of depression, anxiety and suicidal ideation. Future research should prioritize developing a globally recognized measure of bullying, and designing targeted interventions addressing specific outcomes for victimized females and males.

ARTICLE HISTORY
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KEYWORDS
Bullying; adolescence; peer victimization; systematic review; longitudinal

Introduction

While bullying has been an important societal issue for many years, it has only been after the pioneering efforts of Olweus (1978) that it has become a consistent focus of research and our understanding of the behavior has improved. Bullying is described as the negative actions one (or a group) inflicts on another to cause intentional harm or discomfort, with these actions occurring repeatedly and over time (Olweus, 1994). Further, bullying incidents include a power imbalance between the perpetrator(s) and the victim with an abuse of this power present (Hymel & Swearer, 2015; Olweus, 1994). These definitions conceptualize and differentiate bullying from general aggression or violence; however, some research does not emphasize these components, making the distinction between bullying and other forms of violence and aggression less clear (Hymel & Swearer, 2015). It should be noted that the terms “bullying” and “peer victimization” are often used interchangeably in the literature to describe this construct.

Bullying can be classified into four distinct types: physical, verbal, relational (social), and cyber (Menesini & Salmivalli, 2017). Physical bullying consists of actions that aim to inflict injury or distress, including hitting, kicking, and damaging property. Verbal bullying involves the use of verbal threats and name calling to intentionally harm another, while relational (social) bullying includes the exclusion from groups and/or starting/spreading rumors (Menesini & Salmivalli, 2017). These three types of bullying are referred to as “traditional” forms of bullying, as they occur face to face, with cyberbullying included as a separate construct under the definition only very recently (Menesini &

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Salmivalli, 2017). Cyberbullying describes a harmful form of online victimization that uses e-mail, text, social networking sites, or other online mediums to inflict harm or discomfort on individuals (Hymel & Swearer, 2015). An additional feature of cyberbullying that distinguishes it from traditional forms of bullying is that it can be conducted anonymously. This feature adds to the complexity of conceptualizing cyberbullying as a construct as people can anonymously engage in cyberbullying toward others who are considered more "powerful" (physically, socially) than them in reality (Thomas et al., 2015; Vandebosch & Van Cleemput, 2008). Although bullying can occur at any point in the lifespan, research has indicated adolescence, and particularly early adolescence, as being the most prevalent time for bullying (Brown et al., 2005; Hymel & Swearer, 2015).

Adolescence is known as the period between childhood and adulthood, with major biological and social changes such as puberty, schooling, and fluctuating levels of maturity occurring during this time (Sawyer et al., 2018). The definition of when adolescence occurs varies across the literature. While the World Health Organization (2019b) suggests that adolescence aligns with the period between the ages of 10 to 19, research in adolescent health has identified age 18 as the end of the period. This is because many countries (including Australia, United Kingdom, and United States) consider an individual as an adult at 18 years old, with associated role and responsibility changes including guardian independence, conclusion of formal schooling and participation in government elections (Dahl, 2004; Jaworska & MacQueen, 2015). Adolescence is considered a formative time with positive development crucial for growing into a healthy, well-adjusted adult (World Health Organisation, 2019b). Furthermore, experiences during this time can have considerable consequences, both immediate and ongoing over the life–course, with younger adolescents particularly vulnerable as their capacities are still developing as they begin to be less dependent on family networks (Robinson et al., 2011). Mental health issues, in conjunction with health behaviors, that develop in adolescence can influence how people attain education and employment, develop and maintain relationships in adulthood, and go on to parent their own children (World Health Organisation, 2019b). As such, it is important to further understand the experiences that can negatively impact on mental health during adolescence, such as bullying.

Previous research has shown that both traditional and cyber bullying is most prevalent during early adolescence (10–12 years old), with the typical trajectory from a developmental perspective showing an increase and peak of bullying during the transition to middle school, and a decline into the high school years and late adolescence (Brown et al., 2005; Hymel & Swearer, 2015; Mitsopoulou & Giovazolias, 2015; Modecki et al., 2014; Simmons, 1987; Waasdorp et al., 2017; Zych et al., 2015). Research has indicated that younger adolescents (aged 8 to 14) report engaging in more bullying behaviors than older adolescents (aged 15 to 25) (Mitsopoulou & Giovazolias, 2015), and it has been suggested that this occurs as youth work to establish their place in the social hierarchy while attending school. Against the backdrop of this research, the current systematic review focuses on this important transitional period (Brown et al., 2005; World Health Organisation, 2019b) which has been overlooked in existing reviews (Arseneault, 2018; Moore et al., 2017; Wolke & Lereya, 2015; Zych et al., 2015).

Reviews of research exploring the impact of childhood bullying across the lifespan have consistently shown that peer victimization is an adverse experience for the victim

(Arseneault, 2018; Moore et al., 2017; Wolke & Lereya, 2015; Zych et al., 2015). In a systematic review of systematic reviews and meta- analyses, Zych et al. (2015) found 66 studies demonstrating that bullying can result in an increased risk of developing symptoms of anxiety, depression, borderline personality disorder, suicidal ideation and psychotic experiences across the lifespan. In a similar study Moore et al. (2017) found an association with adolescent peer victimization and subsequent depression, anxiety, poor mental and general health, suicidal ideation and attempts, and tobacco and illicit drug use. Previous narrative and literature reviews also find similar outcomes (Arseneault, 2018; Wolke & Lereya, 2015). Shortcomings of these reviews which are addressed in the current review are as follows: lack of a systematic review methodology (Arseneault, 2018; Wolke & Lereya, 2015); the inclusion of cross– sectional as well as longitudinal data (Moore et al., 2017; Zych et al., 2015); and the lack of consideration for cyberbullying (Arseneault, 2018; Moore et al., 2017; Wolke & Lereya, 2015; Zych et al., 2015).

Finally, research has found mixed results about gender differences in bullying victimization. Some studies have found males experience higher frequencies of victimization (De Bruyn et al., 2010), with others showing the opposite (Veenstra et al., 2005). Furthermore, the literature suggests females experience poorer psychosocial outcomes than males, regardless of age or bullying victimization type (Turner et al., 2013); however, research into cyberbullying victimization shows no gender differences in prevalence or outcome, which may be due to the limited research in the area (Salmon et al., 2018). Because of these mixed results, analysis of gender differences is included in an effort to synthesize the findings.

This systematic review is one of the first to comprehensively explore the literature, examining only longitudinal data, to examine the psychosocial and academic outcomes of traditional and cyber bullying in order to overcome the above limitations. Furthermore, the review focuses on bullying in the early adolescent period and the impact on later adolescence, as it is significant for considering the implications in schooling institutions and other pediatric settings. Understanding the impact of bullying at its most prevalent time (early adolescence) on victims in later adolescence may have a positive impact on the psychosocial and academic wellbeing of young people while they are still involved in educational facilities.

In summary, research has identified adolescence as a critical developmental period (Robinson et al., 2011) with early adolescence considered the most prevalent time for bullying to occur as it aligns with school transitions and adjustments to the social hierarchy (Kowalski et al., 2014; Mitsopoulou & Giovazolias, 2015; Varjas et al., 2009). Therefore, this review examines bullying victimization that occurs during early adolescence (aged 10–12). The aim of the current study is to systematically examine the psychosocial and academic impact of bullying after one year, up to and including 18 years of age, on victims in early adolescence at the time of bullying. Our focus on these outcomes is based on the extensive literature highlighting their relationship with future life opportunities such as employment, non-completion of secondary education, lack of postsecondary education, income, and welfare receipt (Clayborne et al., 2019; Hale et al., 2015).

Method

Search strategy

The following electronic databases were selected for their focus on health, psychology, and social/ behavioral sciences: PsycINFO, Ovid MedLine (which encompasses PubMed searches), Embase, Scopus, and Sociological abstracts. The overall search strategy including the databases selected, the search criteria and search terms, were curated with the assistance of a specialist psychology, health and medical research librarian (Table 1). Search terms consisted of the key concepts: bullying and adolescence. In order to maximize comprehensiveness, the search terms were kept general and psychosocial and academic outcomes were not included as important terms (e.g., self-harm/self- punishment) could be missed. The search criteria were designed to capture both traditional and cyber forms of bullying. All database searching was conducted from the 12th to 16th of August 2019, with each database monitored using alerts until February 2021 to target current peer–reviewed articles. The reference lists of studies that met the inclusion criteria and relevant reviews were examined for additional articles.

Eligibility criteria

In order to be eligible, studies needed to examine bullying in early adolescence (10–12 years old) (World Health Organisation, 2019a) and the subsequent psychosocial and/or academic outcomes at least 1 year post bullying exposure up until 18 years of age (or the final year of formal schooling). Examples of expected outcomes include depression, anxiety, suicidal ideation, peer rejection, dissatisfaction with friends and family (psychosocial), and lower GPA, lower academic performance, lower

Table 1. Database search terms and indexing language.

Database	Search terms
PsycINFO	**Adolescent** Adolesc*.ti,ab OR teen*.ti,ab OR 200.ag OR youth.ti,ab OR young people.ti,ab OR young person*.ti,ab OR high school student*.ti,ab OR high school students.sh OR secondary school student*.ti,ab **Bullying** bully*.ti,ab OR bullying.sh OR cyberbully*.ti,ab OR cyberbullying.sh OR cyber-bully*.ti,ab OR bullied.ti,ab OR cybervictim*.ti,ab OR aggression.ti,ab OR victim*.ti,ab OR victimization.sh OR harass*.ti,ab OR harassment. sh OR intimidation.ti,ab
Ovid MedLine	**Adolescent** Adolesc*.ti,ab OR adolescent.sh OR teen*.ti,ab OR youth.ti,ab OR young people.ti,ab OR young person*.ti,ab OR high school student*.ti,ab OR secondary school student*.ti,ab **Bullying** bully*.ti,ab OR bullying.sh OR cyberbully*.ti,ab OR cyberbullying.sh OR cyber-bully*.ti,ab OR bullied.ti,ab OR cybervictim*.ti,ab OR aggression.ti,ab OR aggression.sh OR victim*.ti,ab OR harass*.ti,ab OR intimidation.ti, ab
Embase	**Adolescent** Adolesc*:ti,ab OR adolescent/de OR teen*:ti,ab OR youth:ti,ab OR youth/de OR "young people":ti,ab OR "young people"/de OR "young person*":ti,ab OR "high school student*":ti,ab OR "secondary school student*":ti,ab **Bullying** bully*:ti,ab OR bullying/de OR cyberbully*:ti,ab OR cyberbullying/de OR cyber-bully*:ti,ab OR bullied:ti,ab OR cybervictim*:ti,ab OR aggression:ti,ab OR aggression/de OR victim*:ti,ab OR victimization/de OR harass*: ti,ab OR harassment/de OR intimidation:ti,ab OR intimidation/de
Scopus	**Adolescent** TITLE-ABS-KEY(adolesc* OR teen* OR youth OR "young people" OR "young person*" OR "high school student*" OR "secondary school student*") **Bullying** TITLE-ABS-KEY (bully* OR cyberbully* OR cyber-bully* OR bullied OR cybervictim* OR aggression OR victim* OR harass* OR intimidation)

Sociological Abstracts	**Adolescent** AB,TI(adolesc* OR teen* OR youth OR "young people" OR "young person*" OR "high school student*" OR "secondary school student*") **Bullying** AB,TI(bully* OR cyberbully* OR cyber-bully* OR bullied OR cybervictim* OR aggression OR victim* OR harass* OR intimidation)

school connectedness (academic). Studies could be qualitative, quantitative (experimental and observational), or mixed method in design, and must have been published in an English language peer– reviewed journal. No year restrictions were applied.
Studies were excluded if the article reported on bullying occurring outside of 10–12 years and if it explored psychosocial or academic outcomes less than 1 year post bullying exposure. Studies that addressed bullying-related outcomes of adolescents referred to as perpetrators or bully-victims (both a victim and bully) were also excluded as this review aimed to focus on the experiences of victims only. Impacts on health behaviors, such as smoking and alcohol use, were outside the scope of the study. To ensure methodological quality was high, articles that were not peer-reviewed were also excluded. This eliminated book chapters, dissertations, conference papers and reports. Although reviews were also excluded, the relevant references in each were screened.

Data analysis and methodological quality

The review was conducted and reported on according to the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA) guidelines (Moher et al., 2009). The citation management software programs *EndNote x7* and *Rayyan QCRI* were used to identify and remove duplicates, with Rayyan QCRI being used predominately to screen for eligibility. The primary researcher (SH) screened titles and abstracts, and a secondary reviewer (CD) completed a subset of 600 to ensure consistency of decisions. The reviewers discussed any discrepancies and full agreement was reached following these discussions; no third-party reviewer was required during this study. Once the full-text articles were examined and a final number of studies were considered eligible for inclusion, the aim, participants, study design, data collection and procedure, outcomes examined, and key findings were extracted to form the basis for analysis (Table 2). A narrative approach was undertaken due to the descriptive nature of the findings, and meta-analysis was not possible due to the heterogenous nature of results and measurements. Data are presented as a narrative synthesis with common concepts grouped together under similar headings (Popay et al., 2006). Given the small number of included articles, the analysis was done manually in collaboration with an independent researcher who was not otherwise involved in the present study. Along with psychosocial and academic outcomes, gender comparisons were made to explore any differences in outcomes experienced by males and females. The study was conducted according to a pre-registered PROSPERO protocol (registration number: CRD42020137069).
Methodological quality was assessed using the Mixed Method Appraisal Tool v.2018 (MMAT) (Hong et al., 2018). All eligible articles were assessed by the primary researcher (SH), with a 20% subset independently reviewed by the second reviewer (CD) with both authors agreeing on the quality ratings for the studies.

Results

A total of 28 studies met the inclusion criteria (See Figure 1 for PRISMA flow chart); all studies used a prospective, longitudinal design with the exception of one which

incorporated prospective and retrospective data (Smithyman et al., 2014). The time to follow up ranged from 1 year to 8 years post bullying incident, with most (N = 7) reporting on outcomes after 2 years, followed by outcomes after 1 year (N = 6). Most (N = 18) studies were conducted in the United States, with five from the United Kingdom, two from Australia, and one each from the Netherlands, Canada, and Finland. Out of the total, 50% of studies (14/28) met all five criteria demonstrating high methodological quality (Table 3). Most studies (N = 22) focused on only traditional forms of bullying (physical, verbal, social) (Table 2 references; 1, 3, 4, 5, 6, 7, 9, 10, 11, 12, 13, 14, 15, 17, 18, 20, 21, 22, 23, 25, 26, 27) and six focused on all forms of bullying (traditional and cyber) (Table 2 references; 2, 8, 16, 19, 24, 28). No studies reported on cyberbullying exclusively. Regarding outcomes explored, three studies discussed both psychosocial and academic (Table 2 references; 5, 6, 8), six focused only on academic (Table 2 references; 1, 7, 14, 15, 23, 28), and 19 reported on only psychosocial (Table 2 references; 2, 3, 4, 9, 10, 11, 12, 13, 16, 17, 18, 19, 20, 21, 22, 24, 25, 26, 27). Bullying was measured by self-reports (N = 17), peer-reports (N = 6), both self- and peer-reports (N = 2), child and mother reports (N = 1), child, mother and teacher reports (N = 1), and teacher reports (N = 1). Overall, 14 different bullying scales were used across the 28 studies, with five authors designing their own questions to measure the construct (Bannink et al., 2014; Heilbron & Prinstein, 2010; Juvonen et al., 2000; Paul & Cillessen, 2003; Sheppard et al., 2019).

Two themes were identified for psychosocial outcomes, and two pertained to academic outcomes. Psychosocial outcomes encompassed psychological and social relationships; 14 papers reported exclusively on psychological outcomes (Table 2 references; 4, 9, 10, 12, 13, 16, 17, 18, 19, 20, 22, 24, 26, 27), and five psychological outcomes as well social relationships (Table 2 references; 2, 3, 11, 21, 25). Academic outcomes included the themes performance and attitude; one study discussed performance (Risser, 2013), one examined attitude (Waasdorp et al., 2017), and four discussed both (Table 2 references; 1, 7, 14, 15). One study examined psychological and academic achievement outcomes (Davis et al., 2018); one study assessed psychological and academic attitude outcomes (Forbes et al., 2019); and one study examined psychological, academic performance and academic attitude (Davis et al., 2019).

A total of 10 studies examined gender differences in bullying victimization and the outcome of interest (Table 2 references; 2, 6, 7, 9, 16, 18, 20, 21, 23, 27). Eight studies examined gender differences and psychosocial outcomes (Table 2 references; 2, 6, 9, 16, 18, 20, 21, 27) and two studies assessed gender differences in academic outcomes (Feldman et al., 2014; Risser, 2013). Boys were more likely to

Table 2. Studies considering bullying in early adolescence and subsequent outcomes in late adolescence.

Author. (Year). Country	Aim and bullying measurement	Participants	Study design	Key findings
1. Baly, M. W., Cornell, D. G. & Lovegrove, P. (2014). United States (Baly et al., 2014)	Examined the academic impact of peer victimization Traditional forms of bullying measured by the School Climate Bullying Survey (Cornell, 2011)	292 students (148 girls). Youngest age at beginning of study was 11.	Data were collected at six time points across 3 years. Victimization was assessed using self- and peer-reports (SR and PR respectively). Outcome variables included school climate and academic achievement.	-PR victimization, but not SR, was associated with lower GPA -PR only associated with lower mathematics GPA -SR associated with aggressive attitudes to school climate
2. Bannink, R., Broeren, S., van de Looij-Jansen, P M., de Waart, F. G. & Raat, H. (2014). Netherlands (Bannink et al., 2014)	Examined whether bullying victimization is associated with mental health problems and suicidal ideation Traditional and cyber bullying measured by two author designed questions	3181 individuals (1558 girls). Youngest age at beginning of study was 12.	Peer victimization was assessed at T1, with subsequent outcomes measured 2 years later. Victimization was assessed using self-reports. Outcome variables included mental health problems and suicidal ideation.	-Traditional and cyber bullying were significantly associated with mental health problems (emotional problems, hyperactivity-inattention, peer problems, prosocial behavior) for girls but not boys -Traditional, but not cyber, bullying was related to suicidal ideation
3. Bhui, K., Silva, M. J., Harding, S. & Stansfeld, S. (2017). United Kingdom (Bhui et al., 2017)	Tested whether bullying relates to poor mental health and if social support mitigates the effect Traditional bullying measured by a self-report question from the RELACHS studies (Stansfeld, 2004).	Students were followed from age 11 to 14 (this age group participant number is unknown as only total is shown).	Data were collected twice, with 2 years separating collection points. Victimization was assessed using self-reports. Outcome variables included social support and psychological distress.	-Psychological distress increased with age and bullying exposure, and was negatively associated with family social support -Psychological distress associated with bullying was sustained when controlling for socioeconomic disadvantage, family structure and religion
4. Bowes, L., Joinson, C., Wolke, D. & Lewis, G. (2015). United Kingdom (Bowes et al., 2015)	Investigated the association between peer victimization and depression Traditional bullying measured by the Bullying and Friendship Interview Schedule (Wolke et al., 2012)	2668 participants (54.5% female) from the Avon Longitudinal Study of Parents and Children (ALSPAC) cohort. Youngest age at beginning of study was 10.	Peer victimization was assessed at 10 years old, with subsequent outcomes assessed at 18 years old. Victimization was assessed using self–report. Outcome variables included depression.	–8.2% of individuals who were occasionally bullied at 10 were depressed at 18 –10.3% of individuals who were frequently bullied at 10 were depressed at 18 compared to non-victims -Victimization decreased from age 10 to 13
5. Davis, J. P., Dumas, T. M., Merrin, G. J., Espelage, D. L., Tan, K., Madden, D. & Hong, J. S. (2018). United States (Davis et al., 2018)	Addressed the longitudinal relationships between bullying victimization, depression and academic achievement Traditional bullying assessed using the 4-item University of Illinois Victimization Scale (Espelage & Holt, 2001).	1875 participants (953 female) followed for 2 years. Youngest age at beginning of study was 12.	Data were collected at four time points across 2 years. Victimization was assessed using self-reports. Outcome variables included depression and academic achievement.	-Bullying victimization was associated with worse academic achievement and higher depression

(*Continued*)

Table 2. (Continued).

Author. (Year). Country	Aim and bullying measurement	Participants	Study design	Key findings
6. Davis, J. P., Merrin, G. J., Ingram, K. M., Espelage, D. L., Valido, A. & El Sheikh, A. J. (2019). United States (Davis et al., 2019)	Explored the relationship between bullying victimization, school belonging and depression Traditional bullying assessed using the 4-item University of Illinois Victimization Scale (Espelage & Holt, 2001).	2177 students (1311 female) followed for 2 years. Youngest age at beginning of study was 12.	Data were collected at four time points across 2 years. Victimization was assessed using self-reports. Outcomes variables included depression and school belonging.	-Bullying victims reported higher levels of depression and lower levels of school belonging -School belonging buffered long-term problems for girls but not boys
7. Feldman, M. A., Ojanen, T., Gesten, E. L., Smith-Schrandt, H., Brannick, M., Totura, C. M., Alexander, L., Scanga, D. & Brown, K. (2014). United States (Feldman et al., 2014)	Examined the effects of middle school bullying and victimization on academic achievement and school attendance through high school Traditional bullying measured by the Olweus Bully/Victim Questionnaire (Olweus, 1996)	2030 participants (1016 female) were followed for a 4-year study period. Youngest age at beginning of study was 12.	Victimization was assessed at T1 using self-reports and subsequent outcomes were assessed each year for 5 years. Outcome variables included school attendance and academic achievement	-Younger students report more bullying victimization than older students -Victimization was negatively associated with academic achievement and school attendance -Girls experienced a more dramatic decrease in achievement and attendance from middle to high school as a result of bullying victimization
8. Forbes, M. K., Fitzpatrick, S., Magson, N. R. & Rapee, R. M. (2019). Australia (Forbes et al., 2019)	Explored the bidirectional relationships between depressive symptoms, anxiety, school connectedness, quality of life and peer victimization Traditional and cyber victimization measured by the Olweus Bully/Victim Questionnaire (Olweus, 1996)	3956 participants (48% female). Youngest age at beginning of study was 10.	Data were collected at both time points with peer victimization assessed using self-reports. Outcome variables included depressive symptoms, anxiety, school connectedness, and quality of life.	–Peer victimization at age 10–11 predicted depressive and anxiety symptoms at age 12–13 -Peer victimization predicted low levels of school connectedness and quality of life.
9. Heilbron, N. & Prinstein, M. J. (2010). United States (Heilbron & Prinstein, 2010)	Examined associations among peer victimization and self-injurious thoughts and behaviors Traditional victimization measured by author designed questions	493 adolescents (51% girls). Youngest age at beginning of study was 12.	Peer victimization was assessed at T1, with subsequent outcomes assessed at 1- and 2-years post T1. Victimization was assessed using peer-reports. Outcome variables included suicidal ideation and non-suicidal self-injury.	-Girls' experience of victimization was associated with suicidal ideation -Traditional bullying was associated with male victims reporting of non-suicidal self-injury
10. Henrich, C. C. & Shahar, G. (2014). United States (Henrich & Shahar, 2014)	Examined the effect of peer victimization on depressive symptoms Traditional bullying was measured by the Kids in My Class at School questionnaire (US Department of Health and Human Services, 2010).	1081 participants were followed from fifth to sixth grade. Youngest age at beginning of study was 10.	Bullying was assessed in fifth grade, with subsequent outcomes assessed 1 year later. Peer victimization was assessed using self-reports. Outcome variables included depressive symptoms.	-Peer victimization was associated with depression symptoms -Those who were bullying victims and had depressive symptoms at baseline experienced higher levels of depressive symptoms at T2.

(*Continued*)

Table 2. (Continued).

Author. (Year). Country	Aim and bullying measurement	Participants	Study design	Key findings
11. Hodges, E. V. & Perry, D. G. (1999). United States (Hodges & Perry, 1999)	Determined whether the personal and interpersonal difficulties that characterize victimized children are antecedents, consequences or both Traditional bullying measured by the Peer Nomination Inventory (Wiggins & Winder, 1961)	173 participants (87 girls) were followed for 1 year. Youngest age at beginning of study was 11.	Data were collected twice, with 12 months separating collection points. Bullying victimization was measured using peer-reports. Outcome variables included internalizing behaviors (depression and anxiety) and peer rejection.	-Victimization predicted increases in internalizing behaviors and rejection by peers -Victimization did not predict a loss of friends over the ensuing year but lead them to turn to other victimized individuals as friends
12. Iyer-Eimerbrink, P.A. & Jensen-Campbell, L. A. (2019). United States (Iyer-Eimerbrink & Jensen-Campbell, 2019)	Examined whether social and physical peer victimization led to changes in psychological health outcomes Traditional bullying assessed by the Direct and Indirect Aggression Scales (Bjorkqvist et al., 1992)	120 adolescents (66 girls) were followed for 2 years. Youngest age at beginning of study was 12.	Data were collected twice, with 2 years separating the collection points. Peer victimization was assessed using self-reports. Outcome variables included anxiety, depression and PTSD.	-Social victimization was related to anxious depression, withdrawn depression, and PTSD symptoms -No evidence of physical victimization leading to internalizing problems
13. Juvonen, J. Nishina, A. & Graham, S. (2000). United States (Juvonen et al., 2000)	Investigated the relations between peer harassment and psychological adjustment Traditional forms of bullying assessed by author designed questionnaire based off a Nishina and Juvonen (1998) questionnaire assessing peer harassment	106 students (62 girls) were followed for 1 year. Youngest age at beginning of study was 12.	Data were collected at two time points, with 1 year between collection times. Victimization was assessed using self-reports. Outcome variables included self-worth, loneliness and depressive symptoms.	-Students who were bullied did not show psychological adjustment difficulties (loneliness, self-worth, depression) one year later
14. Juvonen, J., Wang, Y. & Espinoza, G. (2011). United States (Juvonen et al., 2011)	Examined whether bullying experiences are associated with lower academic performance Traditional bullying measured by a modified six-item version of the Peer Victimization Scale (Neary & Joseph, 1994).	Approximately 2300 students (54% females) followed for 3 years. Youngest age at beginning of study was 11.	Data were collected annually for 3 years. Victimization was assessed using self- and peer-reports. Outcome variables included GPA and academic engagement.	-Bullying was associated with academic disengagement and poor grades regardless of self- or peer-reported victimization
15. Ladd, G., Ettekal, I. & Kockenderfer-Ladd, B. (2017). United States (Ladd et al., 2017)	Profile trends in peer victimization across Grades K-12 Traditional bullying measured by a 4 item peer victimization scale (Kochenderfer & Ladd, 1996)	383 children (193 girls) followed from kindergarten through Grade 12 (using data from aged 10 onwards).	Data were collected once a year from K – Grade 12 and self-reports were used to assess victimization. Outcome variables included school engagement, perceived academic competence and academic achievement.	-Peer victimization was most prevalent in earlier school years -Students became less positive over the course of formal schooling -Victimized children had lower estimates of their academic competence -Peer victimization was associated with lower academic achievement

(*Continued*)

Table 2. (Continued).

Author. (Year). Country	Aim and bullying measurement	Participants	Study design	Key findings
16. Lee, K., Vaillancourt, T. (2019). Canada (Lee & Vaillancourt, 2019)	The concurrent and longitudinal relationships between peer victimization, BMI, and body dissatisfaction Traditional and cyber bullying measured by an 5-item adapted version of Olweus Bully/Victim Questionnaire (Olweus, 1996)	631 individuals (341 girls) followed from ages 10 to 16/17.	Data were collected once a year from ages 10 to 16/17 and self-reports were used to assess victimization. Outcome variables included body mass index and body dissatisfaction.	-Peer victimization and body dissatisfaction were related -Childhood peer victimization at 10 years was positively associated with adolescent BMI -Bullied children were at greater risk of body dissatisfaction and weight misperception
17. Lereya, S. T., Copel, W, E., Zammit, S. & Wolke, D. (2015). United Kingdom (Lereya et al., 2015)	Identified the impact of bullying victimization on mental health problems Traditional forms of bullying measured by the Bullying and Friendship Interview Schedule (Wolke et al., 2012)	4101 individuals (55.7% female) were followed from age 10 until 18.	Bullying was measured by child and mother reports at 10 years old with outcome variables assessed at 18 years old. Outcome variables included psychotic experiences, depression and anxiety.	-Victims at aged 10 were at increased risk of developing mental health problems (psychotic experiences, depression and any mental health problems) at 18 –No significant association was found between victimization at 10 and anxiety problems at 18
18. Lereya, S. T., Winsper, C., Heron, J., Lewis, G., Gunnell, D., Fisher, H. L. & Wolke, D. (2013). United Kingdom (Lereya et al., 2013)	Assessed whether being bullied between 7–10 years old is associated with self–harm in late adolescence Traditional forms of bullying measured by the Bullying and Friendship Interview Schedule (Wolke et al., 2012)	4810 individuals who are a part of the Avon Longitudinal Study of Parents and Children (ALSPAC) study (ages 7 to 10 through to 16–17).	Victimization was assessed at 10 years using self, mother, and teacher reports and self-harm was assessed at 16/17 using self-reports. Outcome variables included self-harm, depression and Borderline Personality Disorder.	-Being a victim of bullying was associated with increased risk of self-harm -Being bullied indirectly increased the risk of self-harm via depression -Being bullied was associated with subsequent depression symptoms which in turn increased risk of self-harm -No association with Borderline Personality Disorder and self-harm
19. Lester, L., Dooley, Cross, D. & Shaw, T. (2012). Australia (Lester et al., 2012)	Investigated the relationship between peer victimization and internalizing symptoms Traditional and cyber bullying assessed by a nine-item sale adapted from Rigby and Slee (1998), Olweus (1996) and the 2004 Youth Internet Survey (Ybarra & Mitchell, 2004).	3462 students were followed across 3 years. Youngest age at beginning of study was 11.	Data were collected at the end of Grade 7, start of Grade 8, end of Grade 8 and the end of Grade 9. Peer victimization was assessed using self-reports. Outcome variables included depression and anxiety.	-Victimization at 11 was associated with symptoms of depression and anxiety at 14 -No significant difference between girls and boys

(*Continued*)

Table 2. (Continued).

Author. (Year). Country	Aim and bullying measurement	Participants	Study design	Key findings
20. Loukas, A. & Pasch, K. E. (2013). United States (Loukas & Pasch, 2013)	Examined the role of school connectedness as a moderator of the associations between overt and relational forms of peer victimization and subsequent adjustment problems Traditional victimization assessed by the Social Experience Questionnaire – Peer Report (Crick & Brigbee, 1998)	490 students (53% female) were followed across 1 year. Youngest age at beginning of study was 11.	Peer victimization was assessed at T1, with subsequent outcomes measured 1 year later. Peer victimization was assessed using self-reports. Outcome variables included school connectedness, conduct problems, depressive symptoms and social anxiety.	-Overt (physical/verbal) victimization (not relational) predicted increases in boys' and girls' conduct and social anxiety symptoms 1 year later -The 'overt victimization and depressive symptoms' association was significant only for girls
21. Paul, J. J. & Cillessen, A. H. (2003). United States (Paul & Cillessen, 2003)	Addressed peer victimization and the short-term consequences Traditional bullying assessed by author designed questions	Approximately 624 participants (approx. 50% girls) were followed across 4 years. Youngest age at beginning of study was 10.	Data were collected annually for 4 years, with peer victimization assessed using peer nominations. Outcome variables included internalizing symptoms, anxiety withdrawal, peer sociability, self-efficacy and prosocial behavior.	-Victimization was associated with depression, anxiety-withdrawal, teacher-rated peer sociability, self-rated peer sociability, social self-efficacy, and perceived prosocial behavior 1 year later -Victimized girls scored higher than boys for depression, and anxiety-withdrawal
22. Perren, S. Ettekal, I. & Ladd, G. (2013). United States (Perren et al., 2013)	Investigated the short- and long-term consequences of bullying victimization Traditional bullying assessed through peer reports (Ladd & Kochenderfer-Ladd, 2002).	478 participants (49.8% female) were followed for 2 years. Youngest age at beginning of study was 10.	Peer victimization was assessed at T1 and subsequent outcomes were assessed across a 3-year period. Peer victimization was assessed through peer-reports. Outcome variables included attributions and maladjustment	-Short-term = victimization was associated with hostile attributions -Long-term = victimization predicted increases in internalizing problems (anxiety, depression, withdrawn behavior)
23. Risser, S. (2013). United States (Risser, 2013)	Investigated the relationship between peer victimization and school performance Traditional bullying assessed through teacher reports adapted from the Peer Victimization Scale (Kochenderfer & Ladd, 1996)	1067 participants (531 female) were followed over 1 year. Youngest age at beginning of study was 10.	Data were collected twice, separated by 12 months, with peer victimization assessed using teacher-reports. Outcome variables included school performance.	-Fourth grade overt (physical) victimization was significantly negatively associated with fifth grade school performance for boys only -Fourth grade relational victimization was significantly negatively associated with fifth grade school performance for girls only
24. Salmivalli, C., Sainio, M. & Hodges, E. V. (2013). Finland (Salmivalli et al., 2013)	Examined the consequences of electronic and traditional victimization Traditional and cyber bullying assessed by the Olweus Bully/Victim Questionnaire (Olweus, 1996)	7850 students (51% female) were followed over 1 year. Youngest age at beginning of study was 10.	Data were collected twice, separated by 12 months, with victimization assessed using self-reports. Outcome variables included depression.	-Only victims of traditional bullying and traditional+cyber bullying (not cyberbullying alone) contributed significantly to increases in depression -Traditional+cyber bullying victims experienced the highest levels of depression

(*Continued*)

Table 2. (Continued).

Author. (Year). Country	Aim and bullying measurement	Participants	Study design	Key findings
25. Sheppard, C. S., Giletta, M. & Prinstein, M. J. (2019). United States (Sheppard et al., 2019)	Explored the associations between peer victimization and subsequent adjustment Traditional bullying assessed by author designed questions	653 participants (48% female) were assessed annually for 3 years. Youngest age at beginning of study was 12.	Data were collected once a year for 3 years from age 11 to 13 with victimization assessed using peer-reports. Outcome variables included peer status, internalizing and externalizing symptoms.	-Victims bullied in Grade 6 experienced less peer likability and were considered less popular than non-victims in Grade 9 -Victims bullied in Grade 6 experienced higher levels of internalizing behaviors than non-victims in Grade 9
26. Singham, T., Viding, E., Schoeler, T., Arseneault, L., Ronald, A., Cecil, Cm., McCrory, E., Rijsjijk, F. & Pingault, J. (2017). United Kingdom (Singham et al., 2017)	Explored the mental health outcomes of bullying victimization Traditional bullying measured using the Multidimensional Peer-Victimization Scale (Mynard & Joseph, 2000)	11,108 participants (5894 girls) were assessed at 5 years after bullying incident. Youngest age at beginning of study was 11.	Bullying was assessed using self-reports at 11 and mental health outcomes were assessed at 16. Outcome variables included anxiety, depression and psychotic-like experiences.	-Bullying at 11 was significantly associated with an increase in anxiety, depression and psychotic-like experiences (paranoid thoughts, hallucinations, grandiosity, anhedonia) at 16 years old.
27. Smithyman, T., Fireman, G., Asher, Y. (2014), United States (Smithyman et al., 2014)	The long–term relationship between peer victimization and psychosocial adjustment Traditional forms of bullying measured by the Social Experience Questionnaire (Paquette & Underwood, 1999)	From 3,636 participants at T1 (9–11 y.o.), 72 students (34 girls) provided data at T2 (16–17 y.o.).	Victimization was assessed at 10- and 17-years using self and peer reports observing current and retrospective accounts of bullying. Outcome variables included psychological distress, life satisfaction, school connectedness and school performance.	-Self-reported victimization in elementary school can result in the victim being at risk of psychological distress and lowered life satisfaction -Peer-nominated victims did not report higher levels of maladjustment in areas such as life satisfaction and psychological distress
28. Waasdorp, T. Pas, E. Zablotsky, B. & Bradshaw, C. (2017). United States (Waasdorp et al., 2017)	The prevalence of bullying, school climate, and other indicators across a 10-year period Traditional and cyber bullying measured by the Olweus Bully/ Victim Questionnaire (Olweus, 1996)	Data were collected once a year from ages 10 to 17 and self-reports were used to assess victimization	Data were collected once a year from ages 10 to 17 and self-reports were used to assess victimization. Outcome variables included perceptions of school climate which included belonging and safety.	-Bullying had remained prevalent, although declining, experience for school-aged youth -Relational bullying was common and consistent across years -Ratings of safety, but not belonging, significantly improved over time for those who experienced bullying - Reduction in bullying across high school years -Bullying peaks in middle school

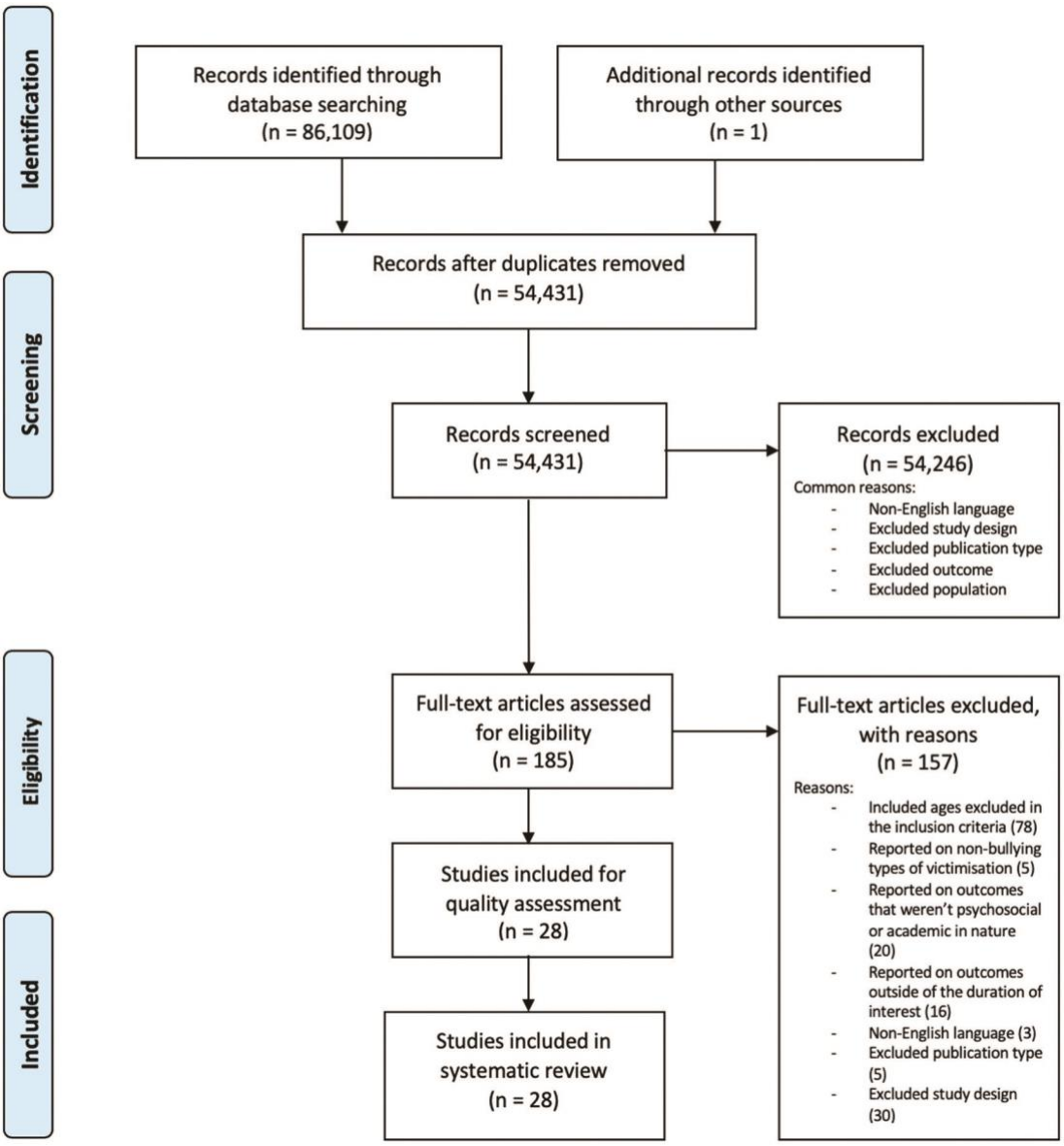

Figure 1. Article selection and exclusion process, based on the PRISMA framework.

be victimized than their female counterparts in all traditional types of bullying (social, verbal, and physical) (Ladd et al., 2017; Lereya et al., 2013; Rosen et al., 2017). None of the included studies investigated gender differences in relation to cyberbullying.

Psychosocial outcomes Psychological

Overall, there was an association between being a victim of bullying and subsequent symptomology. Bullying victimization was associated with developing symptoms of depression (Table 2 references; 4, 5, 6, 8, 10, 12, 17, 18, 19, 20, 21, 24, 26); anxiety (Table 2 references; 8, 12, 19, 20, 21, 26); psychological distress (Table 2 references; 2, 3, 22, 27); and psychosis (Lereya et al., 2015; Singham et al., 2017).

Table 3. Summary of quality assessment using the Mixed Methods Appraisal Tool.

	(Baly et al., 2014)	(Bannink et al., 2014)	(Bhui et al., 2017)	(Bowes et al., 2015)	(Davis et al., 2018)	(Davis et al., 2019)
Quantitative Non-Randomized						
3.1 Are the participants representative of the target population?	✓	✓	✓	✓	✓	✓
3.2 Are measurements appropriate regarding both the outcome and intervention (or exposure)	✓	X	✓	✓	✓	✓
3.3 Are there complete outcome data?	✓	X	✓	✓	✓	✓
3.4 Are the confounders accounted for in the design and analysis?	✓	✓	✓	✓	✓	✓
3.5 During the study period, is the intervention administered (or exposure occurred) as intended?	✓	✓	✓	✓	✓	✓
	(Feldman et al., 2014)	(Forbes et al., 2019)	(Heilbron et al., 2010)	(Henrich et al., 2014)	(Hodges & Perry, 1999)	(Iyer-Eimerbrink et al., 2019)
Quantitative Non-Randomized						
3.1 Are the participants representative of the target population?	✓	✓	✓	✓	✓	✓
3.2 Are measurements appropriate regarding both the outcome and intervention (or exposure)	✓	✓	X	✓	✓	✓
3.3 Are there complete outcome data?	✓	✓	✓	✓	✓	X
3.4 Are the confounders accounted for in the design and analysis?	X	X	X	✓	✓	✓
3.5 During the study period, is the intervention administered (or exposure occurred) as intended?	✓	✓	✓	✓	✓	✓
	(Juvonen et al., 2000)	(Juvonen et al., 2011)	(Ladd et al., 2017)	(Lee et al., 2019)	(Lereya et al., 2015)	(Lereya et al., 2013)
Quantitative Non-Randomized						
3.1 Are the participants representative of the target population?	✓	✓	✓	✓	✓	✓
3.2 Are measurements appropriate regarding both the outcome and intervention (or exposure)	✓	✓	✓	✓	✓	✓
3.3 Are there complete outcome data?	X	✓	✓	✓	✓	✓
3.4 Are the confounders accounted for in the design and analysis?	✓	✓	✓	✓	✓	✓
3.5 During the study period, is the intervention administered (or exposure occurred) as intended?	✓	✓	✓	✓	✓	✓
	(Loukas et al., 2013)	(Paul et al., 2003)	(Perren et al., 2013)	(Risser, 2013)	(Salmivalli et al., 2013)	(Sheppard et al., 2019)

(*Continued*)

Table 3. (Continued).

Quantitative Non-Randomized									
3.1 Are the participants representative of the target population?	✓	✓	✓	✓	✓	✓	✓	✓	✓
3.2 Are measurements appropriate regarding both the outcome and intervention (or exposure)	✓	X	X	✓	✓	✓	✓	✓	X
3.3 Are there complete outcome data?	✓	✓	?	?		X	✓		✓
3.4 Are the confounders accounted for in the design and analysis?	✓	X	✓	X		✓	✓		X
3.5 During the study period, is the intervention administered (or exposure occured) as intended?	✓	✓	✓	✓		✓	✓		✓
	(Sigham et al., 2017)		(Smithyman et al., 2014)			(Waasdorp et al., 2017)			
Quantitative Non-Randomized					✓			✓	
3.1 Are the participants representative of the target population?	✓				✓			✓	
3.2 Are measurements appropriate regarding both the outcome and intervention (or exposure)	✓								
3.3 Are there complete outcome data?	?				X			✓	
3.4 Are the confounders accounted for in the design and analysis?	✓				X			✓	
3.5 During the study period, is the intervention administered (or exposure occured) as intended?	✓				✓			✓	

✓ Met criterion, X Did not meet criterion, ? Unsure.

Victimization was also associated with suicidal ideation and/or self-harming injuries (Table 2 references; 2, 9, 18); internalizing problems (Table 2 references; 11, 22, 25); social anxiety (Loukas & Pasch, 2013); conduct problems (Davis et al., 2019); and body dissatisfaction (Lee & Vaillancourt, 2019). Conversely one study of 106 participants found no difference in psychological distress in victims compared to non-victims (Juvonen et al., 2000).The one study that distinguished between traditional and cyber bullying found only traditional

bullying was related to suicidal ideation after controlling for baseline suicidal ideation, age, gender and mental health (Bannink et al., 2014). Similarly, Salmivalli et al. (2013) found victims of traditional only and traditional and cyber bullying combined, but not cyber bullying alone, experienced depression after controlling for gender and baseline depression. This study also found those who were victims of combined traditional and cyber bullying experienced the highest levels of depression (Salmivalli et al., 2013).
Studies reporting on gender differences in psychological outcomes found victimized females experienced higher levels of depression (Table 2 references; 6, 18, 20, 21); anxiety (Paul & Cillessen, 2003); psychological distress (Bannink et al., 2014); body dissatisfaction (Lee & Vaillancourt, 2019); and suicidal ideation (Heilbron & Prinstein, 2010) with all studies except one (Paul & Cillessen, 2003) accounting for confounders, such as baseline mental health levels. In comparison, victimized males reported more non-suicidal self-injury than victimized females (Heilbron & Prinstein, 2010).

Social relationships

Early adolescent bullying victims reported feeling dissatisfied in the domains of family, friends, and their living environment (Smithyman et al., 2014). Victims were more likely to report not enjoying being with family or friends; felt as though friends and family did not treat them fairly; did not enjoy living where they resided; and did not like their neighborhood (Smithyman et al., 2014). Studies that examined peer relationships in a school setting found those who were bullied in early adolescence experienced subsequent peer rejection (Hodges & Perry, 1999), and were perceived to be less likeable and less popular among peers than non-victims (Sheppard et al., 2019). Self-perceived peer problems at school (assessed through how participants felt their peers considered them in prosocial behavior, aggression and social withdrawal) were experienced by victimized individuals after controlling for gender and ethnicity (Bannink et al., 2014; Paul & Cillessen, 2003). In contrast, Hodges and Perry (1999) found that victimization did not result in a loss of friends over the ensuing year, although victims tended to turn to other victimized individuals as friends. It should be noted that none of the included studies investigated gender differences in bullying impacts on social relationships.

Academic outcomes Performance/achievement

Being a victim of bullying was associated with a lower grade point average (GPA) (Baly et al., 2014; Feldman et al., 2014); a lower Math GPA (Baly et al., 2014; Ladd et al., 2017); lower grades (Davis et al., 2018; Juvonen et al., 2011); and overall lower school performance (Risser, 2013). Ladd et al. (2017) further studied the impact of bullying on GPA by exploring academic trajectories while controlling for gender, race, socio-economic status, and middle school transition. Bullied victims demonstrated a decrease in mathematics performance, slight decrease in independent performance (i.e. shows initiative, works independently), and unexpectedly, a slight increase in reading performance (Ladd et al., 2017). Comparing peer-reported victimization to self-reported victimization, Baly et al. (2014) found that only peer-reported victimization was associated with a lower overall GPA and lower mathematics GPA, as opposed to reading GPA; however, Juvonen et al. (2011) determined victimization was associated with poor grades regardless of whether it was self- or peer-reported.
With regards to gender differences in academic outcomes, Risser (2013) found that 4th grade overt victimization (physical and verbal bullying) was significantly negatively

associated with 5th grade school performance for boys. Conversely, this same study established that 4th grade relational victimization was significantly negatively associated with 5th grade school performance for girls only (Risser, 2013). Additionally, victimized girls experienced a more dramatic decrease in academic achievement from middle school to high school when compared with victimized boys (Feldman et al., 2014).

Attitude/school engagement

Bullied adolescents reported lower levels of school belonging (Davis et al., 2019; Waasdorp et al., 2017); a negative attitude toward school (Baly et al., 2014; Ladd et al., 2017); lower school connectedness (Forbes et al., 2019); higher school disengagement (Juvonen et al., 2011); lower school attendance (Feldman et al., 2014); and lower levels of self-perceived academic competence than adolescents who did not experience bullying (Ladd et al., 2017). Distinguishing between self- and peer-reported victimization, Baly et al. (2014) found that only self-reported victimization was associated with subsequent feelings of negativity toward school; however, Juvonen et al. (2011) found students who were victimized felt a sense of disengagement toward school irrespective of reporting measure. No studies investigated differential impacts according to gender for school engagement or attitude.

Discussion

This review provides a unique evaluation of longitudinal data as opposed to cross-sectional data and demonstrates that all types of bullying victimization is associated with subsequent adverse psychosocial and academic outcomes, with half of the included studies found to be of high quality in terms of methodological rigor. The review contributes a unique perspective to the literature by exclusively examining bullying victimization at a time during adolescence when it is most prevalent, i.e. in early adolescence. The review produced results mirroring that of previous reviews on the psychosocial outcomes of bullying in adolescence and adulthood (Wolke & Lereya, 2015; Zych et al., 2015) including: depression; anxiety; psychological distress; psychotic symptoms; suicidal ideation; self- harming injuries; and feeling dissatisfied in the domains of family, friends and living situations. These outcomes were observed irrespective of the time period after the bullying incident, a factor previously questioned in the literature. While Olweus (1993) reported negative outcomes of bullying victimization could subside over time, the present review determined effects can still be experienced up to 8 years after the initial bullying incident, highlighting that each victim's experience is unique and that negative consequences may not always diminish over time (Olweus, 1993; Smithyman et al., 2014).

High quality studies that explored victims' peer relationships found victimization was negatively associated with subsequent popularity, likability and more peer rejection (Hodges & Perry, 1999; Sheppard et al., 2019). Unfortunately, these factors also contribute to one being targeted by bullies, with the victimization cycle continuing (Cook et al., 2010). Interestingly, Hodges and Perry (1999) found that those who were victimized found friendships with other victimized peers. This could be due to victimized individuals finding others who share similar characteristics and experiences (victimization, psychological distress, peer rejection) to feel a sense of belonging and inclusion at school (Hamm & Faircloth, 2005). The present study also replicated and strengthened the findings of previous reviews on the academic impact of bullying during adolescence. Specifically the decline in bullying victims' GPA, grades and overall school performance could be attributed to the

stress of victimization negatively influencing school performance (Akgun & Ciarrochi, 2003) or to school avoidance, common in victimized students (Feldman et al., 2014). Overall, research consistently shows adolescents who are bullied experience concerning psychosocial and academic outcomes.

Another key outcome is that girls and boys can experience bullying differently. Some studies found boys in the early adolescent age range of 10 to 12, were more likely to be victimized than their female counterparts in all traditional types of bullying (social, verbal, and physical) (Ladd et al., 2017; Lereya et al., 2013; Rosen et al., 2017). This is reflected in previous research (Turner et al., 2013); however there is contradictory evidence suggesting females are victimized more through social bullying methods and males victimized more through physical and verbal means (Hinduja & Patchin, 2014; Nabuzoka, 2003; Van der Wal et al., 2003). Analyses by Risser (2013) demonstrated that girls experienced negative impacts on school performance after experiencing relational bullying only, while boys' school performance was negatively associated with overt bullying only; however, other potential confounders (e.g., psychosocial wellbeing) were not accounted for in this study, thus it cannot be determined whether the impacts on school performance were explained by the differential impacts of bullying type according to gender alone. Stereotypical characteristics of masculinity and femininity may also explain the outcomes seen in Risser's (2013) study; boys tend to be known for more physical types of aggression and victimization in girls stereotypically associated with more social forms of bullying (Carrera Fernández et al., 2013).

Of note, victimized girls were observed to experience more negative psychological outcomes including: depression (Davis et al., 2019; Lereya et al., 2013; Loukas & Pasch, 2013; Paul & Cillessen, 2003); anxiety (Paul & Cillessen, 2003); psychological distress (Bannink et al., 2014); body dissatisfaction (Lee & Vaillancourt, 2019), and suicidal ideation (Heilbron & Prinstein, 2010) than victimized boys. Previous work has hypothesized that adolescent females may internalize problems more than adolescent males as a result of dispositional characteristics including heightened reactivity, rumination styles, and socialization experiences (Gutman & Codiroli Mcmaster, 2020; Zahn-Waxler et al., 2008). While one study found victimized boys experienced more non-suicidal self-injury than victimized girls (Heilbron & Prinstein, 2010), this study did not use psychometrically robust measures of bullying victimization and did not take into account potential confounders, thus these findings should be interpreted with caution.

By exclusively examining the time period of early adolescence, findings from this review have implications for the development of school-based interventions to intervene early to help prevent potential long-term negative outcomes. The review identifies specific areas that can reduce subsequent negative outcomes, namely facilitating peer connections at school and improving the school climate. Social isolation has been recognized as a risk for one being bullied, due to the victim being perceived as an "easy target" (Hodges & Perry, 1999). Designing interventions that take account of friendships and the support they provide could reduce the likelihood of "targets" being without social support and at the risk of the negative mental health effects of bullying (Foody et al., 2019). High levels of school belonging and feeling safe at school have been identified as buffering effects of victimization (Davis et al., 2019; Waasdorp et al., 2017) thus, designing school-based interventions that target improving school climate, particularly safety and belonging, could decrease negative psychosocial and academic outcomes. Lastly, it was observed victimized females experience more negative psychological outcomes than victimized males (Table 2 references: 2, 6, 9, 16,

18, 20, 21). This result suggests that females may be at higher risk for experiencing negative psychological outcomes of bullying and points to the need for female specific interventions for preventing and reducing symptoms of depression that arise as a result of bullying.

Limitations of current research

The review highlights several shortcomings in the extant research, notably the frequent lack of distinction between traditional and cyber bullying victimization, which was made in only two studies. Previous research has demonstrated cyberbullying is more pervasive as technology can be accessed even outside of school hours, making it harder for the victim to escape (Hymel & Swearer, 2015). Despite this assertion, both studies that explored the differences between traditional and cyber bullying victimization found that cyberbullying alone did not show stronger negative effects. Instead, traditional bullying along with a combination of traditional and cyber bullying was associated with higher levels of depression and suicidal ideation, with the combination of traditional and cyber bullying victimization showing the highest levels of depression (Bannink et al., 2014; Salmivalli et al., 2013). Future research exploring victims' experiences of cyber and traditional bullying victimization and the outcomes of these different types of bullying is needed.

A lack of consistency in bullying measurement was noted throughout the data analysis component of this review. Across the 28 included studies, 14 different types of measurements were used to measure the construct, and five authors measured bullying using their own designed questions with no reference to a validated measure. The most frequently used measurement was the Olweus Bully/ Victim Questionnaire (Olweus, 1996), used in five studies, followed by three studies using the Bullying and Friendship Interview Schedule (Wolke et al., 2012). The plethora of different bullying measures presents a number of challenges. Firstly, the author- designed questions may have poor psychometric properties. Secondly, the abundance of different measurements indicates there is no globally recognized scale to measure bullying.

Methodological quality varied considerably across the studies included in the present review. While half of the studies were determined to be of high methodological quality, a number of the included studies failed to meet numerous methodological quality criteria, as assessed in the present review. Eight studies failed to report complete data for their outcome measure, seven did not account for relevant confounders in the design and analysis, and five did not use measures considered appropriate for the outcome variable. These types of issues, in particular utilizing bullying measures that are psychometrically sound and consistently applied, and ensuring that research practices are of high rigor, need to be considered in future work.

Strengths and limitations of this review

This review has a number of strengths. The search terms were broad in order to capture all possible articles about bullying throughout adolescence. This was done to ensure no studies were omitted if different terms were used, for example, "peer victimization/victimisation" instead of "bullying". While this resulted in a large number of records for screening, it ensured that a wide range of different psychosocial and academic outcomes were captured. The review also used a well-recognized definition of adolescence adapted from the World Health Organization (2019b).

A limitation is that all studies were conducted with children living in high income countries including the United States, United Kingdom, Australia, Netherlands, Canada, and Finland. This has implications for the findings, as bullying and the successive outcomes may differ for children living in other settings. More research is required that includes other cultures, so interventions are appropriately designed and implemented. On a related note, this review did not include papers published in languages other than English and some relevant papers may have been excluded due to this restriction. In addition, the term "bully-victim" was purposefully omitted during the screening phase in order to only capture victims' experience of bullying which may have resulted in us including studies that also included bully–victims as well as those deemed as being victims alone. Finally, not all studies (only 20/ 28) took potential confounders into account and future research should ensure to do this.

Conclusion

This is the first systematic review that specifically considers how early adolescent bullying victimization can impact an individual's subsequent psychosocial and academic outcomes up to the age of 18 years. The systematic review also adds to current understandings through its separate consideration of cyberbullying and its restriction to longitudinal studies. This review demonstrated bullying around the age of 10–12 is associated with negative outcomes in the areas of psychological, social relationships, academic performance, and attitudes toward school, with these outcomes persisting over time and up to 8 years after the experience of victimization. Given that all studies were conducted in high income countries, the findings from this review should be treated with caution as they may not generalize to other populations. Future research would benefit from the development of a universally recognized bullying measure to robustly capture the construct, as well as separate consideration of the impact of cyberbullying. Designing interventions aimed at increasing the quality of friendships, making schools a positive and supportive place, and targeted interventions for victimized female and male students may mitigate the negative effects of bullying.

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Disclosure statement

No potential conflict of interest was reported by the author(s).

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