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Bullying and the transition from primary to secondary school

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Bullying and the transition from primary to secondary school

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BSc MAppEpi

A thesis submitted for the degree of Doctor of Philosophy
at the Child Health Promotion Research Centre,
School of Exercise and Health Sciences,
Faculty of Computing, Health and Science
Edith Cowan University

October, 2012

Statements

Statement of originality

This thesis is based on data collected as part of a three-year longitudinal randomised group trial conducted by the Child Health Promotion Research Centre (CHPRC) at Edith Cowan University. The Supportive Schools Project was a three-year study (2004-2006) involving 3,462 students from 21 Catholic Education schools randomly selected and assigned to receive either the whole-school bullying prevention and management program or usual care to reduce bullying. The author of this thesis was involved in the conduct of this study and used the data set in the development of this thesis.

While these data were collected prior to the commencement of this PhD research, I declare that the work contained within this thesis is substantively different to the main objectives of the larger intervention study. Further, I was solely responsible for the development of the theoretical framework and research questions, preparation of the variables used, analyses conducted and manuscripts published in peer review journals of this PhD research.

Statement of contribution to jointly-published work

As research rarely happens in isolation, I have chosen of my own volition to recognise my supervisors as co-authors in the development and review of each of the manuscripts published as part of this thesis. I am the first named author on each of the five main publications and as such I am responsible for the theoretical conception, analysis and discussion of each.

Statement of contribution by others

Professor Donna Cross

Professor Cross is the chief investigator of the SSP Healthway funded project used in this study. She was instrumental in assisting me refine my theoretical framework, conceptualisation of research questions, win a competitive scholarship to complete this PhD and in reviewing and commenting on the five resultant publications of this thesis.

Dr Julian Dooley

Dr Dooley is the Associate Director at the Sellenger Centre for Research in Law, Justice and Social Change at Edith Cowan University. He provided advice on conceptualisation, theoretical frameworks and the relationship between mental health and bullying.

Ms Thérèse Shaw

Thérèse is the senior Biostatistician for the CHPRC and has provided mentorship in developing hypotheses, statistical methods and data analysis through her vast statistical knowledge. She was involved in reviewing the publications of this thesis.

Leanne Lester

Professor Donna
Cross

Dr Julian Dooley

Ms Thérèse Shaw

Declaration

I certify that this thesis does not, to the best of my knowledge and belief:

(i)   Incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher degree or diploma in any institution or higher degree;

(ii)   Contain any material previously published or written by another person except where due reference is made in the text of this thesis;

(iii)   Contain any defamatory material; or

(iv)   Contain any data that has not been collected in a matter consistent with ethics approval.

The Ethics Committee may refer any incidents involving requests for ethics approval after data collection to the relevant Faculty for action.

Acknowledgements

After many years of avoiding the issue of completing a PhD, or finding many valid excuses as to why I didn't need to complete a PhD, I was encouraged by Professor Donna Cross to take the plunge. Such are Donna's persuasive skills, a one hour meeting to discuss the possibility of completing a PhD finished with a research topic, a Healthway Scholarship application and me brimming with confidence that I had the ability, motivation and time to do this! Donna, Julian Dooley and Thérèse Shaw have provided much needed guidance, encouragement and support over the past three years.

Donna is an inspiration through her gentle manner, encouragement, patience and her standing as a well-respected leader in her field. Besides having vast knowledge and experience in the areas of mental health, aggression and bullying, Julian Dooley has a wonderful sense of humour and is always up for a chat. Thérèse not only freely provided her statistical knowledge, advice and time but is a great friend.

One of the main aims of completing my PhD was to learn how to write for publication and to increase my skills so that I was confident and a well rounded researcher. I feel that completing this PhD has helped to achieve this as well as provide me with many opportunities to network and to collaborate with others. I have rediscovered a passion for research and writing and know that this is what I want to be doing. Through this process I also discovered just how high the quality of research produced by the Child Health Promotion Research Centre is and how supportive the staff and Executive Committee are.

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"There is no trust more sacred than the one the world holds with children. There is no duty

more important than ensuring that their rights are respected, that their welfare is

protected, that their lives are free from fear and want and that they grow up in peace."

Kofi A. Annan, UN Secretary-General

List of Publications Relevant to the Thesis

Peer Reviewed Journal Articles

Lester, L., Cross, D., Shaw, T. (2012) Problem behaviours, traditional and cyberbullying among adolescents: A longitudinal analyses, *Journal of Behavioural and Emotional Difficulties,* 17:3-4, 435-447*.*

Lester, L., Cross, D., Shaw, T, Dooley, J. J. (2012) Adolescent bully-victims: Social health and the transition to secondary school*, Cambridge Journal of Education ,* 42:2, 213-233.

Lester, L., Cross, D., Dooley, J. J., Shaw, T. (2012) Bullying victimisation and adolescents: Implications for school based intervention programs*. Under review, Australian Journal of Education*.

Lester, L., Dooley, J. J., Cross, D., Shaw, T. (2012) Internalising symptoms: An antecedent or precedent in adolescent peer victimisation? *Australian Journal of Guidance and Counselling.*

Lester, L., Cross, D., Dooley, J. J., Shaw, T. (2012) Developmental trajectories of adolescent victimisation: Predictors and outcomes. *Journal of Social Influence.*

List of Publications Relevant to, But Not Included in the Thesis

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Cross, D., Monks, H., Hall, M., Shaw, T., Pintabona, Y., Erceg, E., Hamilton, G., Roberts, C., Waters, S., & Lester, L. (2010). Three-year results of the Friendly Schools whole-of-school intervention on children's bullying behaviour. *British Educational Research Journal, 37*(1), 105-129.

Waters, S., Lester, L., Wenden, E., & Cross, D. (2012) A theoretically grounded exploration of the social and emotional outcomes of transition to secondary school. *Australian Journal of Guidance and Counselling.*

Barnes, A., Cross, D., Hearn, L., Epstein, M., Monks, H., Lester, L. (2012) The Invisibility of Covert Bullying Among Students: Challenges for School Intervention**.** *Australian Journal of Guidance and Counselling.*

Waters, S., Lester, L., Cross, D. (2012) Transition from primary to secondary school: Expectation vs experience. Under review, Australian Journal of Education.

Waters, S., Lester, L. (2012) A path analysis of the relationship between school connectedness and mental health over the transition to secondary school. In preparation.

Book Chapter

Cross, D., Shaw, T., Monks, H., Waters, S., Lester, L. (In press 2012). Using evidence to reduce bullying among girls. In Pepler, D.J. & Ferguson, B. (Eds.) A Focus on Relationships: Understanding and Addressing Girls' Aggressive Behaviour Problems. Kitchener ON: Wilfred Laurier Press.

Abstract

Peer relationships within the school environment are one of the most important determinants of social and mental wellbeing for adolescents and as such, schools have become increasingly aware of the prevalence, seriousness and negative impacts of bullying behaviour. The transition from primary to secondary school provides both challenges and opportunities as many adolescents undergo transition while experiencing environmental, physiological, cognitive and social changes as part of the adolescent development process. This is also a period during a student's school life when their risk of being bullied is higher than at other times.

The aim of this study was to use longitudinal data to examine bullying experiences and their temporal association with other problem behaviours, social and mental health during the transition period from primary to secondary school. The findings from this research will facilitate the development of empirically grounded recommendations for effective school policy and practice to help reduce the bullying experiences and enhance the social and mental health of adolescents who are transitioning from primary school to high school.

Longitudinal data collected during the Supportive Schools Project (SSP) were used to address the aim of the study. The SSP project recruited 21 Catholic education secondary schools in Perth, Western Australia, and tracked 3,459 students from the last year of primary school (Year 7) to the end of the second year of secondary school (Year 9). The SSP aimed to enhance the capacity of secondary schools to implement a whole-of-school bullying reduction intervention. Students completed a self-administered questionnaire on four occasions that allowed for a longitudinal assessment of their knowledge, attitudes, and bullying experiences during the transition from primary to secondary school.

This research comprised four stages. The predictive relationship of bullying perpetration and victimisation and the future level of involvement in other problem behaviours were explored in Stage 1 of this research. Stages 2 and 3 investigated the direction and strength of the relationships between social and mental health factors (e.g., loneliness at school, connectedness to school, peer support, safety at school, depression and anxiety) and bullying victimisation during early adolescence, and determined the most critical time to focus school-based social health and bullying intervention programs. Stage 4 investigated the social health predictors and mental health outcomes of chronic victimisation over the primary to secondary school transition period.

Six research questions were tested as part of this research and are reported in a series of five peer-reviewed publications. The first research question, (Does the level of bullying involvement predict level of engagement in problem behaviours?) was addressed in Stage 1. Results from Stage 1 found high correlations between cyberbullying and traditional forms of bullying, and found levels of traditional victimisation and perpetration at the beginning of secondary school (Year 8) predicted levels of engagement in problem behaviours at the end of Year 9. Cyberbullying was not found to represent an independent risk factor over and above levels of traditional victimisation and perpetration for higher levels of engagement in problem behaviours. Stage 1 results highlighted the importance of reducing the frequency of bullying prior to and during transition to lessen the likelihood of future involvement in bullying and other problem behaviours. Knowledge of the temporal relationships between social and mental health and bullying experiences over the transition period may allow for early intervention to address bullying, which in turn, may lessen the likelihood of involvement in other problem behaviours. These results from Stage 1 led to Stages 2 and 3.

Stage 2 addressed the relationship between social health and bullying experiences, answering Research Questions 2 and 3 (What is the temporal association between peer support, pro-victim attitudes, school connectedness and negative outcome expectancies of bullying behaviour and perpetration-victimisation over the transition period from primary to secondary school?; What is the temporal association between social variables such as connectedness to school, peer support, loneliness at school, safety at school and victimisation during and following the transition period from primary to secondary school?). Stage 3 involved examining the temporal relationship between mental health and victimisation addressing Research Question 4 (What is the temporal association between mental health and bullying victimisation over the transition period?). The significant reciprocal associations found in the cross-lag models between bullying and social and mental health indicate social and mental health factors may be both determinants and consequences of bullying behaviours (Stages 2 and 3). Based on the magnitude of the coefficients, the strongest associations in the direction from victimisation to the social health variables occurred from the beginning to the end of Year 8, suggesting these relationships may already be well established for some students by the time they complete primary school. Reducing students' victimisation in Year 8 may, therefore, protect students from poorer social and mental health outcomes during the first and subsequent years of secondary school.

Understanding the social health predictors and mental health outcomes of those chronically victimised over the transition period led to Stage 4 of this research.   Stage 4 answered Research Questions 5 and 6 (How do social variables such as connectedness to school, peer support, loneliness at school, and safety at school predict class membership in bullying victimisation trajectories over the transition period?; Can class membership in bullying victimisation trajectories predict mental health outcomes such as depression and

anxiety?). Using developmental trajectories of victimisation during and following the transition from primary to secondary school, adolescents were assigned to non-victim, low, increasing and stable victimisation groups. Adolescents with poorer social health were more likely to be in the increasing and stable victimised groups than in the not bullied group. Students in the low increasing victimised group had poorer mental health outcomes than those in the stable and not bullied groups. Unexpectedly, the impact of victimisation onset at the start of secondary school had a greater impact on mental health than prolonged victimisation beginning at an alternative developmental stage. The results of Stage 4 reiterate the importance of intervening to reduce bullying prior to and during the transition period.

There are limitations which may affect the validity and generalisability of these research findings. Threats to the internal validity of this study include data collection methods, self-report data, measurement limitations, and attrition. The causal links and trajectory groups were studied over a relatively short, but critical, social time period consisting of immense social growth and development of social skills and relationships. For some students, the associations studied may have been well established prior to their involvement in the study.

These findings collectively suggest that by secondary school bullying behaviours and outcomes for students are fairly well established. Prior to transition and the beginning of secondary school appears to be a critical time to provide targeted social health and bullying intervention programs. The results of this study have important implications for the timing of school-based interventions aimed at reducing victimisation and the harms caused by long-term exposure.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction

1.1 Adolescent social and mental health

Adolescents (persons aged between 10 and 19 (WHO, 2005)) represent a fifth of the world's population, and as such, the range of problems faced by a significant proportion of adolescents have implications for not only their current and future health but impact on global public health (WHO, 2007).

An adolescent's overall wellbeing is dependent on their social, mental, emotional, physical and spiritual health. Adolescents develop socially and emotionally through interactions with their immediate environments and wider social environments (Wise, 2003), such that their wellbeing is directly and indirectly influenced by family, peers, school, community and government (Bronfenbrenner, 1995). The ecological theory of human development proposed by Bronfenbrenner (1995) was adapted in this study to show the relationship between adolescent health and development and their influencing environments (Figure 1). A safe and caring climate across all environments is important for adolescent social, emotional and mental wellbeing (AIHW, 2012).

The Australian Government has identified social and emotional health as one of the priority areas for children's health, development and wellbeing (AIHW, 2012). One of the features of social and emotional wellbeing is the absence of mental health disorders (AIHW, 2012). Mental health is more than the absence of mental illness, and is interdependent with physical health and social functioning (Herrman, Saxena, & Moodie, 2005). The most common mental health problems among Australian adolescents include depression and anxiety (Rickwood, White, & Eckersley, 2007), with almost one-quarter of young people experiencing these types of mental health problems (Access Economics, 2009).

Many factors which impact on social and mental health are amenable to school-based intervention, with peer relationships within the school environment one of the most important determinants of social and mental wellbeing (Weare & Gray, 2003). Social relationships dominate the school transition experience (Pereira & Pooley, 2007) with adolescents having an increased reliance on their peer group for social support. Social health factors which have been identified as protective include the ability to make new friends (Akos & Galassi, 2004), the number and quality of friends (Pellegrini & Bartini, 2000), peer support (Pellegrini, 2002), liking school (Barber & Olsen, 2004), school belonging (Benner & Graham, 2009), connectedness to school (O'Brennan & Furlong, 2010) and feeling safe at school (Espelage, Bosworth, & Simon, 2000). Conversely factors which can negatively affect a students' social health during this time include social comparisons between peers (Pellegrini, 2002), bullying and victimisation (Cross et al., 2009), lack of quality friends, being disliked by peers and the establishment of hierarchy and new social roles in new social groups (Pellegrini & Bartini, 2000).

The age of onset for many depressive and anxiety disorders often relates to pubertal development (Hankin & Abramson, 2001), and for many students their experiences of puberty also coincide with the transition from primary to secondary school. The major change in social structure during this transition period can often result in increased feelings of isolation (Pellegrini & Bartini, 2000) and can manifest in frustration and anxiety (Cohen & Smerdon, 2009). These outcomes can, in turn, impact on adolescents' experiences of victimisation as in the transactional model suggested by Rudolph and colleagues (2000), which emphasises the reciprocal influences between adolescents and their environments.

Strengthening protective social and mental health factors and diminishing risk factors in schools can make important contributions to improving the developmental outcomes of vulnerable young people (WHO, 2012). As bullying is significantly associated with lower

social and mental wellbeing (Cross, et al., 2009) and greater participation in health risk and anti-social behaviours (Sawyer et al., 2000), school based intervention in this area is thought to have the potential to improve adolescent social and mental health and overall wellbeing. This research project investigates possible components and timing for the provision of social health and bullying prevention interventions during early adolescence to maximise a student's social and mental wellbeing.

Figure 1 Adolescent health and influencing environs (Adapted from Bronfenbrenner (1995))

1.2 Bullying

Schools have become increasingly aware of the prevalence, seriousness and negative impacts of bullying, defined in this research as a type of aggressive behaviour involving the systematic abuse of power through unjustified and repeated acts intended to inflict harm (Smith, 2004). Cyberbullying, or bullying using the Internet and mobile phones, has also become a concern as accessibility to technology increases. Approximately 10% of Australian school students in Years 4-9 reported being bullied most days or more often, with 1 in 4 reporting being bullied every few weeks or more often in the previous term (10 weeks) at school (Cross, et al., 2009). There is evidence that during a student's school life there are periods of time when his/her risk of being bullied is higher than at other times. For example, bullying peaks twice for Australian school students – first at age 10 (Year 5) and then again following their transition to secondary school around age 13 (Cross, et al., 2009). The transition from primary to secondary school provides both challenges and opportunities for adolescents as they experience environmental, physiological, cognitive and social changes (Barton & Rapkin, 1987), while having mixed feelings of fear and anticipation about the social relationships which dominate the school transition experience (Pereira & Pooley, 2007).

The application of social-ecological theory to the conceptualisation of bullying and victimisation shows both bullying perpetration and victimisation are reciprocally influenced by the individual, family, school, peer group, community and society (Swearer et al., 2006). While victimisation impacts on social health, physical health (Tremblay et al., 2004), as well as mental health (Gini & Pozzoli, 2009; Kaltiala-Heino, Rimpela, Rantanen, & Rimpela, 2000), adolescents experiencing social and mental health problems are also more likely to be bullied (Cross, et al., 2009). In adolescence, the impact of bullying on social, physical and mental health can be severe and long lasting (Carney, 2008) while also affecting academic performance (Johnson, 2009).

The majority of research investigating bullying is cross-sectional in design, thus the temporal relationship between bullying and social and mental health factors during and two years following primary to secondary school transition, is either not well established or is contradictory. It is unknown whether the relationships are reciprocal or unidirectional over time and how the relationships might evolve and change. There is also a lack of longitudinal research investigating whether bullying (both traditional and cyber) is a predictor of subsequent involvement in problem behaviours. Through the use of longitudinal data, these relationships can be examined over time. This study aims to determine when, during the challenging period of transition to secondary school, are the critical times to intervene to prevent bullying to minimise the risk of social and mental harm and involvement in problem behaviours.

1.3 Problem behaviours and bullying

Relative to other age groups adolescents are more likely to engage in problem behaviours that can have serious consequences for the individual, their family, friends and the community (Bartlett, Holditch-Davis, & Belyea, 2007). Problem Behaviour Theory (Jessor & Jessor, 1977) has been used to explain dysfunction and maladaptation in adolescence. The Theory suggests that proneness to specific problem behaviours entails involvement in other problem behaviours and less participation in conventional behaviours and has previously been employed to investigate a wide range of behaviours defined socially as a problem or undesirable, and which elicit a negative social response. During adolescence, problem behaviours including anti-social behaviour, school failure, precocious sexual behaviour, drinking, cigarette smoking and substance use are intercorrelated (Petterson, 1993) and tend to covary (Barrera, Biglan, Ary, & Li, 2001). In their longitudinal study of adolescent males, Bender and Lösel (2011) found involvement in both bullying and other

problem behaviours as an adolescent (age 15) is a predictor of involvement in problem behaviours in adulthood (age 25).

Cross-sectional research suggests high correlations between traditional bullying and cyberbullying (Li, Cross, & Smith, 2012; Tokunaga, 2010) and associations with other problem behaviours (Dukes, Stein, & Zane, 2010; Hay, Meldrum, & Mann, 2010; Mitchell, Ybarra, & Finkelhor, 2007; Niemelä et al., 2011). However, this previous research did not take into account: (1) bully-victims (those who bully others and are also bullied); (2) whether involvement in bullying is a predictor of subsequent involvement in problem behaviours; or (3) the strong associations between traditional bullying and cyberbullying. The above issues will all be addressed in this longitudinal research of the relationship between bullying behaviours and anti-social problem behaviours.

1.4 Social and mental health and bullying

The transition from primary to secondary school is dominated by social relationships with adolescents having a greater reliance on their peer group for social support rather than their parents (Pereira & Pooley, 2007). During this period of time, positive social, emotional and mental health can be protective against bullying and victimisation, while bullying and victimisation can negatively affect students' social, emotional and mental health (Cross, et al., 2009). Individual and school-level social health factors which have been identified as protective against bullying victimisation and are amenable to school intervention investigated in this study include: loneliness at school (Hodges & Perry, 1996); connectedness to school (O'Brennan & Furlong, 2010); peer support (Malecki & Demaray, 2004); feeling safe at school (Burns, Maycock, Cross, & Brown, 2008); pro-victim attitude (Gini, Albiero, Benelli, & Altoè, 2007); and negative outcome expectancies (Rigby, 1997) to bullying. Cross-sectional studies have established the relationships between social health and bullying, whereas this study uses longitudinal data to examine the temporal

relationship between social health and bullying over the transition period from primary to secondary school.

Adolescents who experience bullying also report higher levels of depression and anxiety (Kaltiala-Heino, et al., 2000) and have a greater risk of suffering from anxiety and depressive disorders in adulthood (Menesini, 2009).   Persistent victimisation is also a strong predictor of the onset of depression and anxiety (Bond, Carlin, Thomas, Rubin, & Patton, 2001) with those chronically victimised showing more negative effects (Menesini, 2009) than those only recently victimised.   There is limited and contradictory longitudinal research conducted with secondary students investigating the direction of the relationship between victimisation and mental health and the effect of persistent victimisation on depression and anxiety (Riittakerttu, Fröjd, & Marttunen, 2010; Sweeting, Young, West, & Der, 2006). The study by Sweeting and colleagues (2006) of students aged 11-15, reported victimisation as a strong predictor of depression at age 13 for both males and females and depression as a strong predictor of victimisation for males at age 15. Riittakertu and colleagues found for males aged 15-17 victimisation predicted depression, whereas for females depression predicted subsequent victimisation. This study aims to investigate these relationships further by using causal pathways to examine the relationship between victimisation and mental health over the transition period.

1.5 Theoretical model of the relationship between social and mental health, bullying and problem behaviours at transition

This thesis investigates the multiple and complex relationships between adolescent bullying victimisation and perpetration and adolescents' social and mental health during their transition from primary to secondary school. The relationship between the level of involvement in bullying behaviours at the start of secondary school and the level of involvement in anti-social problem behaviours is also investigated.

The investigative framework developed to guide this research is presented in Figure 2, with the numbers in the model corresponding to the Stages of research. The framework is informed theoretically by Social Ecological Theory (Bronfenbrenner, 1995), Maslow's Theory of Human Development (Maslow, 1943), Social Cognitive Theory (Miller & Dollard, 1941), Social Cognitive Theory of the Moral Self (Bandura, 1991) and Problem Behaviour Theory (Jessor & Jessor, 1977).

Context of the investigation
School transition (Grades 7-9, ages 11-14)

Investigative Constructs

Data

Investigative Constructs

Observations of Phenomenon

Adolescent social and mental health during transition

Theory
Social Ecological Theory

Framework
Developmental Psychology

Maslow's Theory of Human Development

Social Cognitive Theory

Social Cognitive Theory of the Moral Self

Application
Inform school transition policy

Age
End of Grade 7, Beg. of Grade 8, End of Grade 8, End of Grade 9

Gender
Male
Female

Social Health
Loneliness
Connectedness
Peer support
Safety
Pro-victim status
Negative outcome expectancies

Mental Health
Depression
Anxiety

Problem behaviours
Outcome expectancy
Problem Behaviour Theory
Peer group
Negative affectivity
Disinhibition
Avoidance coping
Lack of parental guidance

Mental Health
Self regulation
Depression
Anxiety
Stress
Conduct disorders
Substance use disorder
Eating disorder
Psychosis

Social health
Social competence
Personal achievement
Self efficacy
Self worth
Resiliency
Empathy
Social Connectedness
Positive interactions
Safety

Traditional and Cyber

Victimisation/ Perpetration ①
Problem behaviours
Stealing
Fighting
Damaging property
Smoking
Alcohol use

Traditional ④
Verbal, Physical, Relational

Victimisation/ Perpetration ②
Connectedness
Peer support
Pro-victim status
Negative outcome expectancies
Depression ③
Anxiety

Victimisation ②
Loneliness
Connectedness
Safety
Peer support

Hypothesis testing

Results

Figure 2 Theoretical framework of bullying across transition from primary to secondary school (Adapted from Knight (2008))
*Numbers correspond to stages of research

The application of the Social Ecological Theory proposed by Bronfenbrenner (1995) to the conceptualisation of bullying and victimisation subscribes to a multi-relational cause and effect with reciprocal influences occurring between bullying and victimisation and the individual, family, school, peer group, community and society (Swearer, et al., 2006). Similarly Social Cognitive Theory (Miller & Dollard, 1941) proposes development is influenced by a reciprocal relationship between environment, behaviour and cognition. In contrast, Maslow (1943) in his Hierarchy of Needs proposes a linear hierarchical relationship between social health factors, where some intervening variables are thought to have a predictably greater impact on adolescent mental and social health than other variables. A linear relationship is also presumed in the Social Cognitive Theory of the Moral Self (Bandura, 1991) which proposes a self-regulatory process by which an individual attaches an expected outcome to behaviour. Similarly, Problem Behaviour Theory (Jessor & Jessor, 1977) proposes involvement in one problem behaviour may lead to involvement in other problem behaviours.

This framework has been developed based on past cross-sectional research showing the existence of relationships between social and mental health, bullying and problem behaviours within the context of school transition. These relationships and the sub-constructs involved are defined in the literature review presented in Chapter 2. The model conceptualises the investigation of the relationships between the constructs of involvement in problem behaviours, and social and mental health and bullying behaviours. The social and mental health of students impacts on their social behaviour, bullying victimisation and perpetration. Conversely, bullying victimisation and perpetration impacts on the social and mental health of students and their social behaviour.

The model conceptualises how bullying behaviours (both traditional and cyber) might influence the level of adolescents' involvement in anti-social problem behaviours such as

stealing, fighting, damaging property, smoking and alcohol use (Stage 1). Jessor and Jessor (1977) propose a linear relationship between adolescent involvement in problem or anti-social behaviour where proneness to specific problem behaviours entails involvement in other problem behaviours and less participation in conventional behaviours. Positive outcome expectancies (which are sometimes unrealistic and elevated) promote engagement in problem behaviours (Nickoletti & Taussig, 2006). Other risk factors for involvement in adolescent problem behaviour include negative affectivity (such as anger, anxiety and sadness) and disinhibition (impulsivity and sensation seeking) (Pandina, Johnson, & Labouvie, 1993; Weinberger & Schwartz, 1990), and avoidance coping (Cooper, Wood, Orcutt, & Albino, 2003). Hawkins and Weiss (1985) state a lack of parental guidance and influence of the peer group also impact in involvement in problem behaviours.

Social health is a broad construct involving the developmental domains of social competence, attachment, emotional competence, self-perceived competence and personality (Denham, Wyatt, Bassett, Echeverria, & Knox, 2009) with good social heath functioning allowing for the development of peer and adult relationships necessary to succeed in life (Squires, 2003). In early adolescence, social health is positively associated with social competence, personal achievement, self efficacy, self worth, resiliency, empathy, social connectedness, positive social interactions, feeling safe and self regulation (Denham, et al., 2009; Greenburg, 2001; Silburn, 2003; Spera, 2005). Conversely, poor social health is associated with poorer mental health and poorer academic performance, and problem behaviours such as delinquency and substance abuse (Coie & Dodge, 1998; Denham, et al., 2009).

Poor mental health in adolescence is associated with poorer social and physical health, lower educational attainment, and increased likelihood of involvement in problem behaviours such as smoking, alcohol and drug use (Eugene & Dudley, 1999; Hawker &

Boulton, 2000; Patel, Flisher, Hetrick, & McGorry, 2007; Perry & Pauletti, 2011). Many mental health problems start by the age of 13 (Hankin & Abramson, 2001) and place young people at an increased risk for difficulties that persist into adulthood (Sawyer, et al., 2000). Mental health problems in adolescence include depression, anxiety, stress, conduct disorders, substance use disorders, eating disorders and psychosis (Bartlett, Holditch-Davis, & Belyea, 2005; Compas, Orosan, & Grant, 1993; Perry & Pauletti, 2011).

While there are many components of social and mental health, those that are explored in this thesis are highlighted in bold in Figure 2. The social health components investigated in this thesis are amenable to school intervention and include loneliness at school, peer support, connectedness to school, feeling safe at school, pro-victim attitudes and negative outcome expectancies (Stage 2). The mental health components include depression and anxiety (Stage 3). The social and mental health components are explored for students who are victimised and who victimise others, and for students who are victimised only.

Developmental trajectories of victimisation will allow victimisation at all time points over the transition period from primary to secondary school to be used and students allocated to victimisation groups. Social health predictors of victimisation groups and mental health outcomes of victimisation groups will be modelled (Stage 4).

The results from this empirical study will be applied to inform school transition policy and practices with the aim of reducing bullying, and increasing social and mental health in students transitioning from primary to secondary school.

1.6 Research questions

The purpose of this research is to explore the co-occurrence of involvement in bullying behaviours and other problem behaviours as well as temporal relationships between social and mental health and bullying in adolescents transitioning from primary to secondary school. Using longitudinal data collected from 21 Catholic Education Sector schools, 3,462 students were tracked from the last year of primary school (Year 7) to the end of the second year of secondary school (Year 9). The research questions guiding this study are as follows:

1. Does the level of involvement in traditional bullying and cyberbullying predict the level of engagement in anti-social problem behaviours?

2. What is the temporal association between peer support, pro-victim attitudes, school connectedness and negative outcome expectancies of bullying behaviour (perpetration) and perpetration-victimisation over the transition period from primary to secondary school?

3. What is the temporal association between social health variables such as connectedness to school, peer support, loneliness at school, safety at school and victimisation during and following the transition period from primary to secondary school?

4. What is the temporal association between mental health and bullying victimisation over the transition period from primary to secondary school?

5. How do social health variables such as connectedness to school, peer support, loneliness at school, and safety at school predict class membership in bullying victimisation trajectories over the transition period?

6. Can class membership in bullying victimisation trajectories predict mental health outcomes such as depression and anxiety?

In answering these research questions this thesis attempts to address the gaps in the current bullying and transition literature. First, this thesis will determine whether traditional bullying and cyberbullying at the start of secondary school predicts levels of engagement in problem behaviours at the end of Year 9, and whether cyberbullying represents an independent risk factor over traditional bullying for levels of engagement in problem behaviours. This thesis then examines the direction and strength of the associations between social health and perpetration-victimisation over the primary to secondary transition period to determine the most critical time to focus school-based bullying and social health intervention programs. This thesis also investigates the temporal pathways and factors associated with being involved in bullying behaviour as an adolescent victim only. The temporal association between depression, anxiety and victimisation will also be investigated in this thesis, as the high prevalence of mental health problems among adolescents makes understanding and responding to these associations an important priority. The application of developmental trajectories to victimisation will be explored to gain an understanding of the social health predictors and mental health outcomes of chronic victimisation over the transition period.

The outcomes of these research questions aim to provide practical and meaningful information to guide school policy and practice involving adolescents.

1.7 Methodology

The data in this study were taken from a larger longitudinal study, the Supportive Schools Project (SSP) conducted in Perth, Western Australia, which aimed to enhance the capacity of secondary schools to implement a whole-of-school bullying reduction intervention. The Edith Cowan University Human Research Ethics Committee granted ethics approval for this project. As is the required procedure, the Catholic Education Office approved project staff to approach school principals.

Sampling and data collection

The Supportive Schools Project, recruited Catholic Education Sector schools in a three year intervention trial of curriculum and whole-school materials designed to reduce and manage bullying. Catholic secondary schools were chosen to participate in the study to reduce the rate of transition attrition, as students within Australian Catholic primary schools are more likely to move to their local Catholic secondary school than is the case within government schools.

Schools were stratified according to the number of students enrolled and each school's socio-economic status, and then randomly selected and randomly assigned to the intervention or comparison group. Of the 29 selected eligible schools, 21 schools consented to participate (see Appendix 1), with ten schools randomly allocated to the intervention group (n = 1,789) and eleven to the comparison group (n = 1,980). Eight schools declined because of other priorities and demanding staff workloads. Active followed by passive consent was sought via mail from parents of Year 7 students currently attending over 400 primary schools and enrolled to attend the 21 recruited secondary schools (see Appendix 2). Of the 3,769 students eligible to participate, parental consent was obtained for 92%. Data to examine adolescents' knowledge, attitudes, and experiences of bullying victimisation and perpetration during the transition from primary to secondary school were collected in four waves from 2005 to 2007 from a total of 3,462 students (see Appendix 3) The student cohort completed a baseline self-completed questionnaire in Year 7, the last year of primary school (when students are about 12 years old). After the transition to secondary school, the cohort completed questionnaires at the beginning (Term 1) of Year 8, the end (Term 3) of Year 8 (about 13 years old) and Term 3 of Year 9 (about 14 years of age). Trained researchers from the Child Health Promotion Research Centre at Edith Cowan University attended each school and administered these

surveys to standardise data collected. Approximately 3,100 (90%) students responded to at least three data collection points. Over the study period participants comprised approximately 50% males and 70% attended co-educational (n=8) versus single sex (n=3) secondary schools.

Statistical Analysis

A variety of statistical modeling techniques using the programmes PASW v18, STATA v12 and Mplus V6 were used in this thesis. Missing data ranged from 0.5% to 3% for each variable used in the analysis at each time point. Missing data were handled using the Expectation-Maximisation (EM) procedure in SPSS and Full Information Maximum Likelihood (FIML) estimation in MPlus, enabling the use of all students with at least one valid score in the analyses (data coverage ranged from 51% to 95% for each of the variance-covariance estimates). FIML assumes missing data at random and produces unbiased parameter estimates and standard errors of the data (Wothke, 1998). As comparisons between the study conditions were not the focus of this thesis, the inclusion of control and/or intervention students in each analysis was dependent on the research question being addressed. Where possible the results from all students were used in this secondary analysis with the study condition included as a covariate in the statistical models, controlling for any intervention impact. Research questions 1 and 5 included results from comparison students only, whereas Research questions 2, 3 and 4 included results from all students.

To explore Research Question 1, multi-level Tobit regression models with random effects were used to determine predictors of the level of involvement in problem behaviours at the end of Grade 9. Tobit regression models were used due to the extreme skew of problem behaviours with 47% at the minimum value. The level of involvement in problem behaviours at the beginning of Grade 8, gender, victimisation, perpetration, the interaction

of victimisation and perpetration, and clustering at the school level were taken into account in all models. Direct and indirect forms of bullying were tested separately. Cyber victimisation and perpetration were added to the models. Multi-level logistic regression models with random effects were used to determine the predictors of involvement in individual problem behaviours at the end of Grade 9, taking into account clustering and the variables mentioned above.

Research Questions 2-4, used cross-lagged models to model causal paths with longitudinal data between the social and mental health factors and bullying victimisation. Due to the skewed nature of the victimisation and social and mental health variables, the MLR estimator (robust maximum likelihood parameter estimator) was used within the cross-lagged models as it implements non-normality robust standard error calculations. Differences between study condition and gender were examined within the cross-lagged models to ensure models fit equally well and the associations were the same in the different groups. Social and mental health factors were modeled separately to determine the individual relationships of the different variables and bullying victimisation. All four time-points were represented in all cross-lagged models tested to determine the direction of the associations between social and mental health factors and victimisation as observed at a later time point.

Research Questions 5 and 6 utilised victimisation trajectories which were modeled on the comparison group with the censored normal distribution used to account for the censoring at the lower bounds of the victimisation. A polynomial relationship was used to link victimisation with time. All four time-points from longitudinal data collected at the end of Grade 7 to the end of Grade 9 were used in the calculation of trajectories. Separate multinomial logistic regression models (using robust standard error estimation to account for school level clustering in the data) were fitted for males and females and were used to

determine whether the social health predictors of loneliness, connectedness to school, safety at school and peer support at the end of primary school (Grade 7) could individually be used to predict the identified victimisation trajectory groups. Models were run using different trajectory groups as the reference group to explore differences in the likelihood of group memberships. Separate random effect Tobit regression models, taking into account the highly skewed and clustered nature of the data were fitted to determine differences in students' mental health outcomes (Grade 9) for the different victimisation trajectory groups. Mental health measured at the end of primary school (Grade 7) was controlled for in the Tobit regression analyses. Mediation analysis was used to determine whether the relationship between victimisation trajectories and mental health was mediated by social health.

1.8 Contents of the thesis

This thesis is presented as a series of published papers each contributing to the five overarching research questions of this PhD research.   It also comprises a full explanatory introduction, a general discussion and conclusion.   To address the research questions of this PhD, five peer-reviewed manuscripts (four of which have been accepted for publication at the time of submission), are presented in this thesis.   Table 1 below shows the relationship between each of the manuscripts to the study's research questions.

Table 1 Manuscripts submitted as part of this thesis and the study objective addressed in each

Research Question	Publication Title	Chapter
1	Problem behaviours, traditional and cyberbullying among adolescents: A longitudinal analyses	3
2	Adolescent bully-victims: Social health and the transition to secondary school	4
3	Bullying victimisation and adolescents: Implications for school based intervention programs	5
4	Internalising symptoms: An antecedent or precedent in adolescent peer victimisation?	6
5,6	Developmental trajectories of adolescent victimisation: Predictors and outcomes	7

The current chapter (Chapter 1) presents an overview of the research and the conceptual model.   Chapter 2 is a review of the literature examining the importance of social and mental health in adolescence, defining bullying, and discussing the relationship between social and mental health and bullying. Difficulties associated with the transition period for adolescents and effective transition programs are also discussed. The literature review is followed by the five manuscripts, each in their own Chapter.   Each manuscript is written in accordance with the style required for the particular journal, including the referencing, language and table structure and is included in the format and style in which it was published.   Some repetition occurs in the methods section of each paper as each must stand alone when published.   For completeness, a full reference list, including all references cited throughout this thesis and the included manuscripts, is included at the end of this thesis.   Chapters 3 through 7 present the five peer reviewed manuscripts which describe the findings related to the research objectives.   Chapter 3 presents the peer reviewed manuscript titled "*Problem Behaviours, Traditional and Cyberbullying among*

Adolescents: A Longitudinal Analyses "exploring Research Question 1.   This paper investigated the relationship between traditional and cyberbullying at the start of secondary school (Year 8) and involvement in problem behaviours at the end of Year 9 and was published in the Journal of Emotional and Behavioural Difficulties.

Chapter 4, titled *"Adolescent Bully-victims: Social Health and the Transition to Secondary School"* addressed Research Question 2 and was published in the Cambridge Journal of Education.   This paper investigated the temporal relationship between peer support, pro-victim attitudes, school connectedness and negative outcome expectancies of bullying behaviour and perpetration-victimisation for bully-victims.   The predictor which had the greatest impact on reducing perpetration- victimisation during this time was explored.   Chapter 5 sought to expand the work in Chapter 4 and investigated the temporal relationship between victimisation and the social health variables loneliness at school, connectedness to school, peer support and safety at school over the transition period from primary to secondary school.   The paper was titled *"Bullying Victimisation and Adolescents: Implications for School Based Intervention Programs",* and addressed Research Question 3. It is currently under review, having being resubmitted after favourable reviews, in the Australian Journal of Education.

Chapter 6 presents a peer reviewed manuscript which was published in the Australian Journal of Guidance and Counselling titled *"Internalising Symptoms: An antecedent or precedent in adolescent peer victimisation?"*.   This paper addressed Research Question 4 by examining the temporal association between mental health and victimisation of adolescents transitioning from primary to secondary school.   Finally, Chapter 7 addresses Research Questions 5 and 6 and is titled *"Developmental trajectories of adolescent victimisation: Predictors and outcomes".*   This paper examined developmental trajectories of victimisation, social health predictors (loneliness, connectedness to school, peer support

and safety of school) of trajectory classes and mental health outcomes (depression and anxiety) of trajectory classes for males and females. This paper was published in the Journal of Social Influence.

1.9 Significance of the thesis

Through the use of longitudinal data, this thesis makes important contributions to the study of bullying and has implications for the timing of social and mental health and bullying prevention interventions. The research undertaken as part of this thesis examined bullying involvement as a predictor of subsequent involvement in problem behaviours. The thesis also examined the temporal relationships between social and mental health and bullying over the transition from primary to secondary school and the social health predictors and mental health outcomes of adolescents chronically victimised.   The following describes the three main outcomes of the research.

1. The relationship between bullying, cyberbullying and problem behaviours

   (Research Question 1)

Adolescents have a disproportionately higher risk of engaging in problem behaviours than other age groups: this engagement can have serious consequences for the individual, their family, friends and the community (Bartlett, et al., 2007). Problem Behaviour Theory (Jessor & Jessor, 1977) is a psychosocial model used to explain dysfunction and maladaptation in adolescence and suggests that proneness to specific problem behaviours entails involvement in other problem behaviours and less participation in conventional behaviours.   Prior cross-sectional research of perpetrators suggests that face-to-face bullying and cyberbullying are associated with problem behaviours (Dukes, et al., 2010; Hay, et al., 2010; Mitchell, et al., 2007; Niemelä, et al., 2011).

This thesis uses longitudinal data of perpetrators and victims to investigate if higher levels of traditional victimisation and perpetration predict higher levels of engagement in problem behaviours, what forms of traditional bullying are related to levels of engagement in problem behaviours, and whether cyberbullying also has a significant influence on levels of engagement in problem behaviours.

2. Predictors and outcomes of chronic victimisation over the transition period (Research Questions 5 and 6)

Bullying has a traumatic impact on all involved with the level of trauma related to frequency of exposure (Carney, 2008). Exposure to chronic victimisation can lead to traumatic reactions which may result in greater expressed physical, psychological and emotional symptoms (Garbarino, 2001), which in turn, may have lasting long-term effects (Carney, 2008). Evidence suggests that the effects of victimisation are particularly harmful over the transition from primary to secondary school, making it crucial to understand the key predictive social health factors and the associated mental health outcomes (Cross, et al., 2009). This thesis is the first of its kind to investigate which social health factors (loneliness at school, peer support, connectedness to school and feeling safe at school) at the end of primary school determine a student's victimisation trajectory and what mental health outcomes are associated with each victimisation trajectory.

3. Importance of intervention program timing (Research Questions 2, 3 and 4)

Schools have become increasingly aware of the prevalence, seriousness and negative impacts of bullying (Smith, 2004) with 1 in 4 students reporting being bullied every few weeks or more often in the previous term at school (Cross, et al., 2009). Research to better understand the direction and strength of the relationship between social and mental health factors and bullying during early adolescence to determine the most critical time to focus

school-based social health and bullying intervention programs is a high priority.   Very little longitudinal research has been conducted with adolescents over the transition from primary to secondary school.   Knowing the strength and directions of relationships will enable school policy makers and practitioners to incorporate specific social health and bullying intervention programs at times when they are more likely to have the greatest impact.

Chapter 2: Literature review

2.1 Introduction

The World Health Organisation's (WHO) definition of health is 'a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity' (WHO, 1946). In today's world where advancements in information and communications technologies make it easier than ever to interact with others, social wellbeing is of great importance to maintaining overall health. The concept of social wellbeing or social health is broad encompassing elements of personality and social skills, reflects social norms, and bears a close relationship to concepts such as adjustment and social functioning (Russell, 1973). Russell defines social health in terms of social adjustment and social support referring to how people get along with others, how other people react to them, and how they interact with social institutions and societal mores and the consequences and benefits of such interactions in relation to wellbeing. Social health is of great importance as it can assist in improving other forms of health attenuating the effects of stress and reducing the incidence of disease (Cohen, 2004; Kunitz, 2004) and contributing to positive adjustment in children and adults (Fraser & Pakenham, 2009; Froland, Brodsky, Olson, & Stewart, 2000).

A predictor of both positive and negative social health and wellbeing is social relationships (Cohen, 2004). Social relationships include both the quality and quantity of social interactions which can provide social health benefits through fostering the development of social norms and providing moral and affective support, and transmitting information and mutual assistance (Fiorillo & Sabatini, 2011). In a cross-sectional study involving over 200,000 adults, Fiorillo and Sabatini (2011) found the quality of social interactions a better predictor of good social health than the quantity of social interactions. The structure of

social networks impact on social health and wellbeing by providing both perceived and actual emotional, informational, and material support, as well as regulating behaviour through social influence, and offer opportunities for social engagement (Berkman & Glass, 2000). The support received from others (Cohen, Gottlieb, & Underwood, 2000) and feelings of isolation and loneliness (Cacioppo et al., 2002; Fiorillo & Sabatini, 2011) also impact on social relationships and social and mental health.

Social and mental wellbeing is fundamental for the healthy development of societies and has been identified as one of the priority areas for children's health, development and wellbeing (AIHW, 2012). Adolescence, defined by the World Health Organisation as a person aged between 10 and 19 (WHO, 2005), is a time characterised by a strong desire for independence combined with an increased need for social relationships which provide strength and support and offer many protective benefits (Hall-Lande, Eisenberg, Christenson, & Neumark-Sztainer, 2007). The most prominent factors which influence adolescent social health are families, schools and peers (Hawkins & Weiss, 1985). Adolescent peer social networks provide psychological and emotional support and a sense of belonging (Hall-Lande, et al., 2007). In contrast, social isolation in adolescence is associated with issues of decreased self-worth and self-esteem (Hall-Lande, et al., 2007; Hansen, Giacoletti, & Nangle, 1995), perceptions of social incompetence (Hansen, et al., 1995), internalising problems such as depression (Hall-Lande, et al., 2007) and increased levels of suicidal ideation and risk (Bearman & Moody, 2004). The quality of peer relationships is described as one of the strongest indicators of current and future psychological health in adolescents (Boivin, Hymel, & Bukowski, 1995).

Peer relationships within the school environment are one of the most important determinants of social and mental wellbeing (Weare & Gray, 2003). Bullying, aggressive behaviour involving the systematic abuse of power through unjustified and repeated acts

with the intention to inflict harm (Smith, 2004), is associated with behavioural and emotional harms and has a detrimental effect on peer relationships (Nansel, Overpeck, Pilla, & Ruan, 2001; Swearer, Espelage, Vaillancourt, & Hymel, 2010). The transition period from primary to secondary school is a critical time in adolescent development as around this time environmental, physiological, cognitive and social change are experienced (Barton & Rapkin, 1987) and represents a risk to social health and wellbeing through disrupted peer relations due to social group movement. Further, bullying occurring during this stage of adolescent development can impact on social, physical, emotional and mental health and can be severe and long lasting (Carney, 2008) while also affecting academic performance (Johnson, 2009). In Australia, a peak in bullying occurs during this transition period with evidence suggesting the effects of victimisation are worse during this period (Cross, et al., 2009).

Given the importance of social relationships during adolescence, the association between bullying and social health is of particular concern. Minimal longitudinal research has focused on bullying before, during and after the transition from primary to secondary school. Understanding the relationships between factors that affect social health and are amenable to school intervention during this transition period is crucial to inform targeted school interventions. Furthermore, understanding the temporal sequence of the relationship between bullying and mental health is imperative to ensuring that intervention efforts and support services are introduced in the appropriate context, and at the appropriate time (Hampela, Manhalb, & Hayera, 2009). The application of developmental trajectories to bullying victimisation allows the longitudinal examination of bullying, revealing those who are chronically bullied as well as associated social health predictors and mental health outcomes of bullying trajectories.

This literature review examines the importance of social and mental health in adolescence, defines bullying, and discusses the relationship between social and mental health and bullying. The different forms of bullying, the prevalence of bullying in schools, and age and gender differences in bullying are described. This leads to a discussion of the social health predictors of victimisation and the relationship between bullying, mental health and problem behaviours. Issues specifically associated with the difficulties of the transition period for adolescents and effective transition programs are also discussed. Finally, a detailed account of the use of developmental trajectories to describe victimisation and the associated predictors and outcomes is provided.

2.2 Social, emotional and mental health in adolescents

The Australian Government has defined social and emotional health as one of the priority areas for children's health, development and wellbeing (AIHW, 2012). Adolescent social and emotional health is recognised as being fundamental to achieving and maintaining optimal psychological and social functioning and wellbeing and a necessary priority for the healthy development of societies (Buchanan & Hudson, 2000). Social and emotional health refers to the way a person thinks and feels about themselves and others and includes being able to adapt and deal with daily challenges while leading a fulfilling life: one of the features of social and emotional wellbeing is the absence of mental health disorders (WHO, 1946).

The World Health Organisation defines mental health as a state of wellbeing in which individuals realise their own abilities, can cope with the normal stresses of life, work productively and fruitfully, and are able to make a positive contribution to their community (WHO, 2001). Mental health is an integral part of health, is more than the absence of mental illness, and is seen as being interdependent with physical health and social functioning (Herrman, et al., 2005). Individuals with positive mental health and wellbeing

have a greater ability to perceive, comprehend and interpret their surroundings (Eriksson & Lindstrom, 2007), have good resilience and coping skills enabling adaptation to circumstances (Eriksson & Lindstrom, 2006; Garmezy, 1985), and are able to communicate with each other and have successful social interactions and relationships (Mason, Schmidt, Abraham, Walker, & Tercyak, 2009). An individual's social networks and ability to relate with their family, friends, workmates and the broader community can be affected by their mental health, and similarly social relationships can affect mental health (Barnett & Gotlib, 1988).

Adolescents represent almost a fifth of the world's population ("World population prospects: The 2010 revision, Volume II: Demographic profiles," 2011), and as such, the range of problems faced by a significant proportion of adolescents have implications for not only their current and future health but also impact on global public health (WHO, 2007). Worldwide it is estimated approximately 20% of adolescents in any given year experience a mental health problem (WHO, 2012) disrupting their growth and development and overall quality of life, affecting their sense of identity and self-worth, family and peer relationships and an ability to be productive and to learn (Patel, et al., 2007; Sawyer, et al., 2000; Zubrick et al., 1995, 2005). Moreover, many mental health problems place young people at an increased risk for difficulties that persist into adulthood (Sawyer, et al., 2000) with a strong relationship existing between poor mental health and substance abuse, violence, poor reproductive and sexual health, and eating disorders (Patel, et al., 2007; Patton et al., 1988; Ramrakha, Caspi, Dickson, Moffitt, & Paul, 2000).

An estimated 24% of young people aged between 12-25 years are experiencing mental health problems (Access Economics, 2009), with depression and anxiety representing the most common mental health problem among Australian adolescents (Rickwood, et al., 2007). The onset for many depressive and anxiety disorders is around age 13 with the

incidence of depression and anxiety increasing and peaking in adolescence (Hankin & Abramson, 2001) and persisting into early adulthood (Klomek, Sourander, & Gould, 2011). The age of onset relates to pubertal development (Hankin & Abramson, 2001) and for many students this timing also coincides with the transition from primary to secondary school.

The ecological theory of human development proposed by Bronfenbrenner (1995) illustrates the importance of relationships within and across social environments and can be modified to describe the relationship between adolescent health and development and their influencing environments. An adolescents' overall wellbeing is dependent on their social, mental, emotional, physical and spiritual health which is influenced directly and indirectly by their immediate and wider social environments such family, peers, school, community and government (Wise, 2003). A safe and caring climate across all environments is important for adolescent wellbeing.

The five main elements of the ecological model, which depicts adolescent development occurring through concentric circles of influence with innermost circles representing most immediate influences and outermost circles representing broader social influences, include microsystems, mesosystems, exosystems, macrosystems and chronosystems (see Figure 1). The microsystem includes personal, face-to-face interactions such as family, peers and teachers. The mesosystem includes relationships between immediate settings such as home and school. The exosystem includes settings in which the child does not actively participate but that may influence the child indirectly, such as the parental workplace, local community, health care and education policies. The macrosystem includes broader social contexts such as culture, political systems and social values. The chronosystem includes changes in the characteristics of the individual, in their social environment, and how they relate to their social environment.

The home environment plays a significant role in shaping adolescent health (Resnick et al., 1997). Resnick and colleagues (1997) found parent-family connectedness, parental presence, shared activities with parents and parental expectation for school achievement has a positive impact on adolescent emotional health. Family communication and the quality of the relationship with parents has a positive effect in decreasing problem behaviours and substance use, delinquency and depression (Mason, Kosterman, Hawkins, Haggerty, & Spoth, 2003).

Developmentally, adolescents shift from a reliance on parents to a reliance on peers (Collins & Steinberg, 2006) with peer support needed for the development of social, emotional and mental health (King, Vidourek, Davis, & McClellan, 2002; McGraw, Moore, Fuller, & Bates, 2007). Consequently negative peer interaction can have a harmful effect on physical, mental and social health (Cross, et al., 2009; Pranjic & Bajraktarevic, 2010; Shin & Daly, 2007). Effective social interaction, or social competence, allows for the development of peer and adult relationships, with those demonstrating social competence exhibiting more positive school behaviours and fewer mental health problems than those who lack social competence (Denham, et al., 2009). Peer relationships within the school environment are one of the most important determinants of social and mental wellbeing (Weare & Gray, 2003).

The school environment is not only an important context for peer relationships but also for intervention programs which promote adolescent wellbeing. Recently, an inquiry into the mental health and wellbeing of children and young people in Western Australia stated that schools have a critical role to play in intervention programs which promote mental health and prevent mental health problems (Scott, 2011). The Inquiry recognised schools provide a key community setting well-placed to identify young people with mental health problems, provide support through teachers, school psychologists, chaplains and peers,

and refer young people to additional support services. The Inquiry report stated "Behaviour management policies, whole-school approaches, bullying policies and values education are all ways that schools develop an environment that promotes positive mental health and prevents mental health problems from developing" (p. 137). Risk factors for mental health within the school context include: bullying (Hixon, 2009); peer rejection (Baker & Bugay, 2011; Çivitci & Çivitci, 2009; Hudson, Elek, & Campbell-Grossman, 2000; Stravynski & Boyer, 2001); poor attachment to school (Brand, Felner, Shim, Seitsinger, & Dumas, 2003; Millings, Buck, Montgomery, Spears, & Stallard, 2012); deviant peer group (Brendgen, Vitaro, & Bukowski, 2000) and lack of school achievement (Ward, Sylva, & Gresham, 2010).

The Gatehouse Project (Patton et al., 2000) aimed to enhance the mental health of students by preventing or delaying the onset of depressive symptoms through the promotion of a more positive secondary school social environment. This Project emphasised the need to enhance positive connections with peers and teachers through building a sense of security and trust, enhancing skills and opportunities for good communication, and building a sense of positive regard through valued participation in aspects of school life (Patton et al., 2000).

 The influence of parents and the home environment wanes with age with adolescents having less parental supervision and more opportunities to act with others in their community. Adolescents are influenced both directly and indirectly by the communities in which they live. Community social cohesion (trust and shared values among families in the community) and social control (the degree to which all adults monitor youth, provide recognition for acceptable behaviour and enforce consequences for undesirable behaviour) can facilitate positive adolescent development (Sampson, Raudenbush, & Earls, 1997). Interactions with supportive adults in the community may moderate a negative family

environment, whilst also providing alternative models of behaviour, emotional regulation and connectedness (Silk, Sessa, Morris, Stienberg, & Avenevoli, 2004).

Broader societal influences (e.g., government policy) affect adolescent environments. The World Health Organisation (1996) encourages countries to "review legal structures, instruments, legislation, and law enforcement mechanisms that affect the wellbeing of youth and take steps to improve and strengthen them to enhance the conditions and circumstances necessary for the healthy development and living of young people" (cited in (Ainé & Bloem, 2004)). Key health initiatives currently funded by the Australian Government address the areas of mental health, sexual health, substance use, body image, and physical activity.

To fulfil their potential and contribute fully to the development of their communities, young peoples' health needs must be met. As bullying is significantly associated with lower social and mental wellbeing (Cross, et al., 2009) and greater participation in health risk and anti-social behaviours (Sawyer, et al., 2000), information to guide school interventions in this area has the potential to improve adolescent social and mental health and overall wellbeing.

2.3 Defining Bullying

Bullying is a type of aggressive behaviour that involves the systematic abuse of power through unjustified and repeated acts intended to inflict harm on another (Smith, 2004). Two factors which distinguish bullying from other forms of aggression involve the act being repeated and an imbalance of power (Olweus, 1999). Bullying can take different forms and can be thought of as a destructive relationship problem, with those who bully learning to use power and aggression to control and distress others and those who are victimised becoming increasingly powerless and unable to defend themselves (Craig & Pepler, 2007).

2.4 Bullying behaviours

Bullying can take a number of forms including direct and indirect behaviours which can be described as physical, verbal, relational and cyber. Physical bullying involves the students who bully confronting the victim face-to-face in physical actions such as hitting, kicking, shoving, punching, tripping, spitting, and stealing another's belongings (Craig, Pepler, & Blais, 2007; Smith & Ananiadou, 2003; van der Wal, de Wit, & Hirasing, 2003). Verbal bullying is another form of direct bullying involving verbal threats, taunts, or harassment (Olweus, 1993).   Relational bullying can be either direct or indirect depending on how it is enacted. Direct forms include social isolation, exclusionary behaviours and humiliation whereas indirect forms include spreading rumours, malicious gossip and damaging of reputation, as well as manipulation of the peer group (Craig, et al., 2007; Smith & Ananiadou, 2003; Spears, Slee, Owens, Johnson, & Campbell, 2008; van der Wal, et al., 2003). Cyberbullying, or bullying using the Internet and mobile phones, appears to be a relatively new form of bullying, and includes both direct and indirect components (Dooley, Pyżalski, & Cross, 2009). The main modes of cyberbullying include phone calls, mobile phone text messaging, emails, picture / video clips, instant messaging, websites, gaming and chatroom communications (Smith et al., 2008).

Bullying during adolescence is likely to be a more harmful, covert form which decreases with age and is more prevalent in females (Cross, et al., 2009; Pepler, Jiang, Craig, & Connolly, 2008). The effects of covert bullying in adolescents not only result in health problems, but students may also experience difficulties such as emotional symptoms, conduct problems, inattention and peer relationship problems (Cross, et al., 2009).

2.5 Bullying roles

Students may take on various roles in a bullying situation depending on their social status: those who bully others, those who are victimised, those who bully others and are also

victimised (bully-victims), those who reinforce bullying behaviours, those who assist with bullying behaviours, those who defend the victimised, and those who are uninvolved (Salmivalli, Lagerspetz, Björkqvist, Österman, & Kaukiainen, 1996). Importantly, bullying involvement in the role of a person who bullies, a person who is victimised and a person who both bullies and is also a victim has been found to be stable over time and life changing (Hixon, 2009).

2.6 The effects of bullying

Evidence from longitudinal studies show that bullying impacts on social health, physical health, and is an indicator of adolescents at risk of depression, anxiety and psychosomatic complaints (Kaltiala-Heino, et al., 2000; Tremblay, et al., 2004). Victimisation impacts on social health by affecting a persons' ability to get on with others and how others react to them. The fear of victimisation can affect how a person reacts to social situations resulting in social avoidance of new situations (Storch & Masia-Warner, 2004).   A single student who bullies others can have far reaching effects in the school and create a climate of fear and intimidation (Bosworth, 1999).

Victimisation is associated with low peer acceptance and high peer rejection, a lower number of friends and poor friendship quality, affecting students' social skills (Espelage, et al., 2000; Pellegrini & Bartini, 2000; Smith, 2004). This is problematic as the risk of victimisation is moderated by the number and quality of friends and the general standing in the peer group, which is reliant on effective social skills (Pellegrini & Bartini, 2000; Smith, 2004). Victimisation results in feelings of isolation and hopelessness (Espelage, et al., 2000), unhappiness and lack of self-esteem (Glover, Gough, Johnson, & Cartwright, 2000; Jankauskiene, Kardelis, Sukys, & Kardeliene, 2008). It is a precursor to low school enjoyment (Eisenberg, Neumark-Sztainer, & Perry, 2003; Smith, 2004), disciplinary problems (Gastic, 2008), and school avoidance (Gastic, 2008; Kochenderfer & Ladd, 1996)

resulting in disruptions to learning (Bosworth, 1999; Jankauskiene, et al., 2008). A student who is victimised perceives they are bullied due to their physical characteristics, their looks, social characteristics, race and just generally for being different (Smith, Talamelli, Cowie, Naylor, & Chauhan, 2004). The duration of victimisation experiences is related to the magnitude of school adjustment problems, with those who are bullied for longer being the most negatively affected (Kochenderfer & Ladd, 1996).

Those who are victimised experience below average physical and psychological health which may persist for years after intensive bullying (Peterson & Rigby, 1999). Peer victimisation is associated with depression with an estimated 20% of victims clinically depressed (Espelage & Holt, 2001). Victims may also suffer from stress (Hixon, 2009), anxiety, psychosomatic complaints, suicidal ideation (Kaltiala-Heino, Rimpela, Marttunen, Rimpela, & Rantanen, 1999; Kaltiala-Heino, et al., 2000), and internalising and externalising problems (Hixon, 2009; Smith, 2004). Drug use, alcohol use and dependence have been found to be prevalent in victims (Hixon, 2009). Students who are former victims (or are no longer being bullied) may have ongoing peer relationship difficulties while ongoing victims are more likely to be involved in bullying others as well as being bullied and are less likely to talk to someone about their bullying experiences (Smith, et al., 2004).

Adolescents who are bullied and who bully others (bully-victims) are the highest risk subgroup involved in bullying as they function more poorly socially, emotionally and behaviourally than those who are only bullied or only victimised (Demaray & Malecki, 2003; Gini & Pozzoli, 2009; Stein, Dukes, & Warren, 2007). Males are more likely to be within the bully-victim group than females (Andreou & Metallidou, 2004; Holt & Espelage, 2007). Males are typically victimised more often, engage in more perpetration, and have more experiences of physical, relational and cyberbullying victimisation (Demaray & Malecki, 2003; Georgiou & Stavrinides, 2008; Perren, Dooley, Shaw, & Cross, 2010). Bully-victims

also demonstrate more internalising (e.g., depression, anxiety, psychosomatic disorders) and externalising (e.g., conduct problems, aggressiveness) symptoms than any other sub-group involved with bullying (Menesini, 2009). Bully-victims report more involvement in other problem behaviours such as alcohol use problems, eating disorders, delinquency, violations of parental rules, and weapon carrying and report more physical injury compared to their peers (Haynie et al., 2001; Kaltiala-Heino, et al., 2000; Stein, et al., 2007; Veenstra et al., 2005). They also have increased risk of future psychiatric problems, anti-social behaviour and having an adult criminal record (Haynie, et al., 2001; Kumpulainen & Räsänen, 2000; Perren & Hornung, 2005).

2.7 Prevalence of bullying among adolescents

A large-scale survey spanning forty countries revealed that 10.7% of adolescents reported involvement in bullying as perpetrators only, 12.6% as victimised only, and 3.6% as bully-victims (Craig et al., 2009). The majority of countries involved in this study showed a trend of increasing prevalence in perpetration and a decreasing prevalence in victimisation with increasing age, with no trend observed for bully-victims. Approximately 10% of Australian school students reported being bullied most days or more often, with 27% reporting being victimised frequently (every few weeks or more often) in the previous term (10-12 weeks) at school; 9% reported bullying others frequently and 4% reported being frequent bully-victims in the previous term (Cross, et al., 2009). Furthermore, 7% of students reported being cyberbullied frequently, 4% reported cyberbullying others frequently, and 2% reported being frequent cyber bully-victims. These results show in terms of prevalence, traditional face-to-face bullying and cyberbullying are major concerns.

The prevalence of bullying appears to be higher at specific times during adolescence. During adolescence, victimisation decreases from a high following the transition from primary to secondary school to lower levels at the end of secondary school with the

development of social understanding, shifting norms against specific types of victimisation (Nansel et al., 2001), and the priority of popularity (LaFontana & Cillessen, 2010) in the peer group. Factors which can contribute to bullying and victimisation during the transition period include social comparisons between peers, the number and quality of friends, being disliked by peers and the establishment of hierarchy and new social roles in new social groups (Pellegrini, 2002; Pellegrini & Bartini, 2000). The transition period can result in increased feelings of isolation as a major change in social structure occurs with adolescents often having to develop new friendships and lose friends at a time when great importance is placed on peer relationships (Pellegrini & Bartini, 2000). This dependence on peer relationships and reliance on peers for social support comes with increasing pressures to attain high social status (Espelage & Holt, 2001).

There is a higher prevalence of victimisation reported by males compared to females during the transition from primary to secondary school (Cross, et al., 2009). Adolescent males generally experience more direct physical, direct verbal and indirect types of victimisation than females (Craig, et al., 2009) while relational bullying is more common among girls (Nansel, Overpeck, Pilla, Ruan, et al., 2001). Tokunaga (2010) in his meta-synthesis of cyberbullying research concluded males and females are equally represented among cyber victims, whereas more recent research has found females may be more likely to be represented among victims of cyberbullying and males more likely to be represented among perpetrators of cyberbullying (Walrave & Heirman, 2011).

2.8 Application of developmental trajectories to bullying

School bullying has a traumatic impact on all involved regardless of role (perpetrators, victims, bully-victims, or bystanders), with the level of trauma related to frequency of exposure (Carney, 2008). Exposure to chronic bullying victimisation can lead to traumatic reactions which may result in greater expressed physical, psychological and emotional

symptoms (Garbarino, 2001). In turn, these traumatic reactions may contribute to lasting long-term effects (Carney, 2008). Many students who are chronically victimised throughout school are maladjusted (Rosen et al., 2009), suffer stress later in life (Newman, Holden, & Delville, 2005), and are bullied as adults (Smith, Singer, Hoel, & Cooper, 2003). Bond and colleagues (2001) reported that adolescent victimisation rates were generally high (approximately 50%) and stable with two-thirds of adolescents frequently victimised one year later. A more recent Australian study found approximately one-quarter of adolescents are victimised every few weeks or more often with an increase in bullying behaviour occurring immediately following the transition to secondary school (Cross, et al., 2009).

Given the high prevalence of persistent adolescent bullying victimisation and the associated consequences, it is important to understand the developmental pathways of victimisation. In adolescence, victimisation decreases from a high following the transition from primary to secondary school to lower levels at the end of secondary school with the development of social understanding, shifting norms against specific types of victimisation (Nansel, Overpeck, Pilla, Ruan, et al., 2001), and the priority of popularity (LaFontana & Cillessen, 2010) in the peer group. The use of victimisation trajectories allows the longitudinal examination of victimisation, revealing those who are chronically victimised as well as associated predictors and outcomes of victimisation trajectories.

Previous longitudinal studies, focused on primary school (Grade 3 through to Grade 7) victimisation trajectory analyses, found approximately 80% of students followed a low or non-victim trajectory, with the remainder of victims following stable, increasing or decreasing victimisation trajectories over time (Boivin, Petitclerc, Feng, & Barker, 2010; Goldbaum, Craig, Pepler, & Connolly, 2003). As males are more likely to experience physical victimisation and females covert relational victimisation (Pepler, et al., 2008), and

males report higher prevalence of victimisation over females during the transition from primary to secondary school (Cross, et al., 2009), gender differences in the number and shape of victimisation trajectories for those transitioning into secondary school are to be expected.

The success of any transition is understood as a process of coping, with the ability to cope with school transition dependent on personal maturity and coping resources, the nature of new environment and level of preparation and social support available prior to and during transition (Crockett, Petersen, Graber, Schulenberg, & Ebata, 1989). It has been demonstrated that victimised students possess less effective coping skills in both information processing and social behaviour domains than non-victimised students (Smith, Talamelli, Cowie, Naylor, & Chauhan, 2004). Healthy social development is associated with a greater capacity to cope with social problems and a greater likelihood of experiencing reduced stress and mental health problems. Importantly, being socially healthy can protect against victimisation over the transition period. Poor coping skills have been noted to lead to increased stress levels, which have an impact on mental health. Consistently, the Stress-Coping Model (Lazarus & Folkman, 1984), which proposes that victimised students are more likely to exhibit psychological distress if they feel unsupported, can highlight the mental health impact of victimisation (Cassidy & Taylor, 2005). Persistent victimisation is a strong predictor of the onset of depression and anxiety (Bond, et al., 2001) with those chronically victimised showing more negative effects than those only recently victimised (Menesini, 2009).

This study used longitudinal data to model the developmental trajectories of victimisation during and following the transition from primary to secondary school. The existence of gender differences in the shape and number of trajectory paths were determined. Social health (loneliness at school, connected to school, peer support, safety at school) measured

at the end of primary school was explored as predictors of victimisation trajectory groups. Mental health (depression and anxiety) measured at the end of Year 9 were explored as outcomes of victimisation trajectory groups.

2.9 Social health predictors of victimisation

Adolescence is a particularly difficult transition stage in human development (Erikson, 1968) with the establishment of effective, lasting relationships an essential prerequisite for healthy physical and psychosocial development through adulthood (Antognoli-Toland & Beard, 1999). Maslow's Theory of Human Development (Maslow, 1943) proposes fundamental needs such as physiological, safety/security, belongingness/love and self-esteem are required to reach self-actualisation (the desire to realise one's full potential and be satisfied with the achievement) to become healthy adults. Deficiency in fundamental needs, or needs not being met, effect the ability to form and maintain emotionally significant relationships which, in turn, can lead to loneliness (Woodhouse, Dykas, & Cassidy, 2012), social anxiety (La Greca & Harrison, 2005), depression (La Greca & Harrison, 2005; Millings, et al., 2012) and a reduced sense of wellbeing (Jose, Ryan, & Pryor, 2012).

The school environment is one of the most important determinants of social and mental wellbeing (Weare & Gray, 2003). Social relationships dominate the school transition experience (Pereira & Pooley, 2007) with adolescents having an increased reliance on their peer group for social support. Social comparisons between peers (Pellegrini, 2002), bullying and victimisation (Cross, et al., 2009), the number and quality of friends, being disliked by peers and the establishment of hierarchy and new social roles in new social groups (Pellegrini & Bartini, 2000) can negatively affect students' social health during the transition period. Social health factors which have been identified as protective against bullying victimisation include the ability to make new friends (Akos & Galassi, 2004), the number and quality of friends (Pellegrini & Bartini, 2000) and peer support (Pellegrini,

2002). Feeling comfortable in new social situations (Cohen & Smerdon, 2009), positive

evaluation of self by others (Storch, Brassard, & Masia-Warner, 2003) and having a positive

self-image (Mizelle, 2005) can also provide protection against being bullied. School factors

protective against bullying include liking school (Barber & Olsen, 2004), a sense of school

belonging and connectedness to school (Benner & Graham, 2009; O'Brennan & Furlong,

2010) and feeling safe at school (Espelage, et al., 2000). Social health has been identified as

protective against bullying, but may also be affected by bullying.

The social health factors amenable to school intervention which are investigated in this

study include loneliness at school, connectedness to school, peer support, feeling safe at

school, pro-victim attitude and negative outcome expectancies to bullying. These factors

have been mapped onto Maslow's Hierarchy of Needs (Figure 3), which describes the

pattern that human motivations generally move through. Using this model, safety at

school is required before connectedness at school, feeling less lonely at school and before

obtaining supportive peers. Similarly, this model suggests these aforementioned social

health variables are required before a student has the capacity to demonstrate empathy in

terms of a pro-victim attitude and negative outcome expectancies to bullying. Adolescence

is a time when young people have an especially high risk of loneliness (Rubenstein &

Shaver, 1982) and school disconnect (Hawkins, Monahan, & Oesterle, 2010), with increased

importance given to peer relationships at this time (Pellegrini & Bartini, 2000). Loneliness,

school connectedness and peer support can be mapped onto the Maslow's level 3 need of

love and belonging and are closely related to a sense of safety at school (Cowie, Hutson,

Oztug, & Myers, 2008; Wingspread, 2004), a level 2 need. Peer support is both a level 3

and level 4 need related to both love, belonging and esteem. Support and acceptance by

peers allows adolescents to maintain healthy self-esteem while a lack of peer support

resulting in social isolation is associated with issues of decreased self-worth and self-

esteem (Hall-Lande, Eisenberg, Christenson, & Neumark-Sztainer, 2007; Hansen, Giacoletti,

& Nangle, 1995). A pro-victim attitude involves empathy towards the victim, while

negative outcome expectancies towards bullying comprises moral reasoning, both of which

relate to achieving self-actualisation at the top of the Maslow pyramid.

In contrast to Maslow's Theory of Human Development (Maslow, 1943) which proposes a

linear hierarchical relationship, the application of the Social Ecological Theory proposed by

Bronfenbrenner (1995) subscribes to a multi-relational cause and effect.   The combination

of the two theories allows an understanding of the complexities of the temporal and

reciprocal relationships between social and mental health and bullying. Applying Social

Ecological Theory to the conceptualisation of bullying and victimisation shows both bullying

and victimisation are reciprocally influenced by the individual, family, school, peer group,

community and society (Swearer, et al., 2006). This study examined the social health of

adolescents in a school context, taking into account both individual and school-level

factors, to determine the temporal relationship between social health and bullying. Even

though social health factors are related, they have been modelled separately to allow

determination of the individual relationships of the different social health variables and

victimisation to give recommendations for schools with limited resources for interventions.
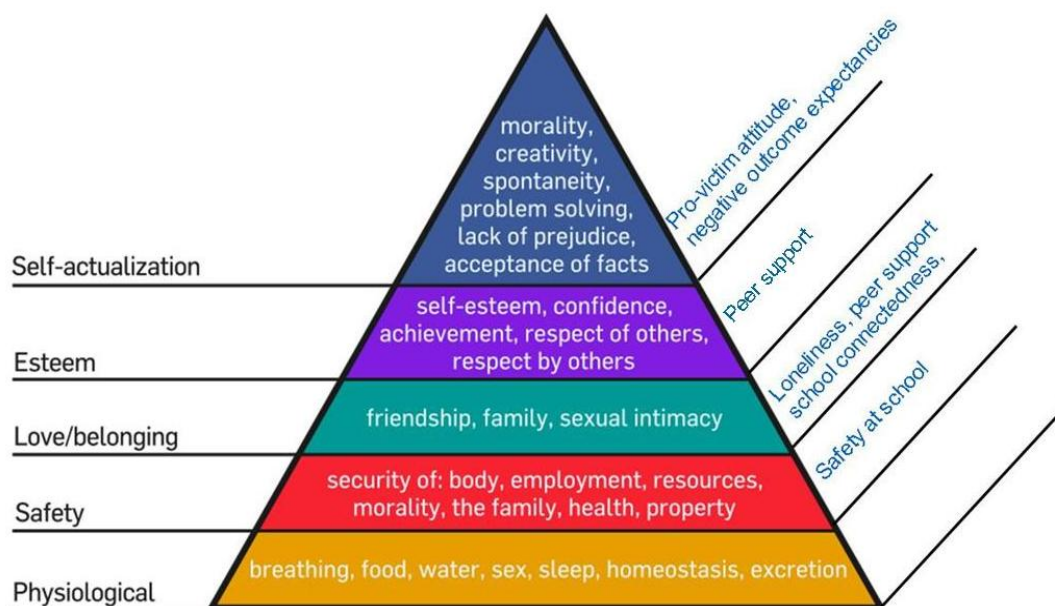
Figure 3 Social health variables in study mapped onto Maslow's Hierarchy of Needs (Graphic adapted from (Finkelstein, 2006))

2.10   Loneliness at school

Loneliness involves both the circumstance of being alone and the feeling of sadness (Cassidy & Asher, 1992). In a review of loneliness in children, Asher (2003) concluded loneliness is influenced by peer acceptance, victimisation, whether a child has friends, and the durability and quality of their friendships.

Most research investigating the relationship between loneliness and bullying has been conducted with primary school children. Young people who were rejected by their peers experienced more loneliness (Cassidy & Asher, 1992) as did students who report being bullied (Slee, 1995). A longitudinal study of primary school children found that social withdrawal predicted subsequent loneliness and bullying victimisation (Boivin, et al., 1995) while, alternatively, a cross-sectional study found pro-social behaviour reduced social isolation and loneliness (Cassidy & Asher, 1992). Children who experience a negative change in peer status and an increase in bullying become lonelier with time, and children

who are initially lonely are more rejected and victimised, and became more rejected over time (Boivin, et al., 1995).

Adolescence is a time of especially high risk for loneliness (Rubenstein & Shaver, 1982). Theoretical frameworks have been used to frame adolescent loneliness where loneliness is conceptualised as the combined effect of personality characteristics (such as social skills) (Theory of Cognitive Dissonance (de Jong-Gierveld, 1987)) and situational factors (Theory of Social-Interaction (Weiss, 1973)). The transference of the attachment bond from parents to peers, an important developmental process in adolescence, is a situational factor that can lead to anxiety and overwhelming feelings of loneliness (Antognoli-Toland & Beard, 1999; Weiss, 1973) due to the importance given to peer relationships at this time (Pellegrini & Bartini, 2000).

Significant relationships between adolescent loneliness and psychological issues such as depression (Baker & Bugay, 2011; Hudson, et al., 2000; Lau, Chan, & Lau, 1999), low self-esteem (Hudson, et al., 2000), suicide and attempted suicide (Page et al., 2006; Stravynski & Boyer, 2001), and low life satisfaction (Çivitci & Çivitci, 2009) have also been found. However, a recent longitudinal study by Lasgaard and colleagues (2011) of adolescents found loneliness did not predict higher levels of depressive symptoms, whereas depressive symptoms led to loneliness. This same study found loneliness did not predict suicidal ideation over time nor was there a significant relationship at the cross-sectional level, when controlling for depressive symptoms.

Baker and Bugay (2011) found loneliness mediates the relationship between peer victimisation and depressive symptoms, however loneliness did not moderate the relationship of peer victimisation to depressive symptoms. The moderating role of loneliness could also be dependent on the type of victimisation, with those relationally victimised, but not directly victimised, reporting increased loneliness and greater risk of

emotional problems (Woods, Done, & Hardeep, 2009). Cross-sectional research has also linked adolescent loneliness with a lack of academic performance (Demir & Tarhan, 2001), and longitudinal research has found adolescents increasingly and chronically lonely experience academic difficulty in terms of academic progress and exam success (Benner, 2011).

Research has linked loneliness during adolescence to social factors, such as the lack of friendship and peer acceptance (Brendgen, et al., 2000; Woodhouse, et al., 2012), less pro-social behaviour (Woodhouse, et al., 2012), social dissatisfaction (Demir & Tarhan, 2001) and to peer victimisation (Hawker & Boulton, 2000; Paul & Cillessen, 2003; Pellegrini, 2002; Storch, et al., 2003; Storch & Masia-Warner, 2004). Hawker and Boulton (2000) suggest a circular iterative relationship between loneliness and peer victimisation exists with loneliness both a cause and consequence of peer victimisation. Loneliness is also associated with bullying others (Nansel, Overpeck, Pilla, & Ruan, 2001); students who bully others and are also victimised are even more likely to be disliked and socially isolated (Georgiou & Stavrinides, 2008; Veenstra, et al., 2005) and lonely with very few friends (Georgiou & Stavrinides, 2008) than those who are only victimised or only bully others.

Having many friends, having friends who are able to help and protect, and having acceptance by the peer group are the main social factors identified as protective against peer victimisation (Hodges & Perry, 1996). Friendship is a moderator between victimisation and loneliness (Prinstein, Boergers, & Vernberg, 2001; Storch, et al., 2003), while poor friendship quality has been associated with high levels of loneliness (Woods, et al., 2009). Lonely adolescents are more likely to be victimised by peers (Berguno, Leroux, McAinsh, & Shaikh, 2004) as they may be an easier target (Nansel, Overpeck, Pilla, Ruan, et al., 2001; Scholte, Engels, Overbeek, de Kemp, & Haselager, 2007). On the other hand, victimised adolescents are more likely to be lonely (Berguno, et al., 2004) as other students

avoid them for fear of being bullied themselves or losing social status among their peers (Nansel, Overpeck, Pilla, Ruan, et al., 2001).

A deficit in the number and quality of friends, being disliked by peers and the establishment of a hierarchy within new social groups can contribute to bullying and victimisation during the transition from primary to secondary school (Pellegrini & Bartini, 2000). Adolescents often have to develop new friendships and lose friends at a time when great importance is placed on peer relationships which can result in feelings of isolation (Pellegrini & Bartini, 2000). Great importance is placed on social relationships and peer support in adolescence with conflict commonly related to friendship groups. Thus, the context of conflict means students who are victimised are often unable to escape the mesh of social relationships, which results in perpetrators often remaining within their victim's networks (Besag, 2006).

There is a lack of longitudinal and some contradictory research examining the relation between loneliness and bullying over and beyond the transition from primary to secondary school. In the current study it is hypothesised that adolescents who are socially isolated and lonely at the end of Grade 7 are more likely to be targets of bullying than those who are not lonely and experience greater victimisation at the beginning of Grade 8. Loneliness at the end of primary school will also be examined to determine if it predicts membership to particular victimisation trajectory classes.

2.11   Connectedness to school

Maslow's Theory of Human Development (Maslow, 1943) proposes that fundamental needs such as physiological, safety/security, belongingness/love and self-esteem must be met in order for a person to reach self-actualisation. In contrast, the Social Ecological Theory proposed by Bronfenbrenner (1995) suggests the peer group, family and school are

important environments which impact on adolescent development with the interactions between these contexts contributing positively or negatively to educational and behavioural outcomes (Gilman, Meyers, & Perez, 2004). Deficiency in needs, or needs not being met, in the fundamental need of belongingness to school, family, peers, and others, impacts on an adolescent's ability to progress their development of self-esteem and self-actualisation, in turn affecting their ability to form and maintain emotionally significant relationships (Maslow, 1943).

School connectedness describes the quality of the social relationships within a student's experience of school. That is, the extent to which a student feels like he/she belongs at school and feels cared for by the school community (McNeely, Nonnemaker, & Blum, 2002) which includes students, families, school staff and the wider community (Rowe, Stewart, & Patterson, 2007). Individual, interpersonal and school factors affect the development of student connectedness to school.

Libbey (2004) describes school connectedness in terms of nine different constructs: academic engagement, discipline/fairness, student voice, extra-curricular activities, liking school, safety, belonging, peer relations, and teacher support. A sense of belonging to school can be described as involvement in school through participation in tasks that provide opportunities for feeling valued (Albert, 1991). Students' belief in fair, appropriate and consistent school policies and practices (Libbey, 2004) and their ability to contribute to decision making with respect to developing and reviewing school rules and regulations increases their sense of feeling valued (Samdal, Nutbeam, Wold, & Kannas, 1998). Participation in extra-curricular activities (McNeely, et al., 2002; Osterman, 2000), liking school, and feeling safe at school (Samdal, et al., 1998) all influence students' feeling of connectedness with school. The influence of peers and positive and respectful interactions with teachers and other school staff are also correlated with school connectedness (Blum,

2005; McNeely, et al., 2002). The level of family encouragement to achieve in school

(McNeely, et al., 2002; Vieno, Perkins, Smith, & Santinello, 2005) may also impact on

feelings of connectedness to school.

Research into school connectedness has been mainly cross-sectional involving varying

definitions of school connectedness (i.e., connectedness, belonging, bonding and

engagement) and has been found to be associated with a number of behavioural,

emotional, social, mental, physical and academic outcomes in adolescence. Vieno and

colleagues (2005) study of over 4000 adolescents found school connectedness is positively

associated with increased happiness, self-esteem, improved coping skills, social skills, social

supports and reduced loneliness. Connectedness is also associated with a more positive

attitude towards others, better psychological adjustment, lower emotional distress, and

reduced suicide involvement (Resnick, et al., 1997). School connectedness increases as

academic competence and achievement (Libbey, 2004; Samdal, et al., 1998; Vieno, et al.,

2005), interest in school (Vieno, et al., 2005), physical activity (Carter, McGee, Taylor, &

Williams, 2007) and safety (condom use and bicycle helmet use (Carter, et al., 2007))

increases. Less school alienation (Samdal, et al., 1998) and truancy (Vieno, et al., 2005) are

also associated with greater connectedness to school.

Connectedness to school is protective against health compromising behaviours such as

participation in aggressive and violent behaviours (Chapman, Buckley, Sheehan, Shochet, &

Romaniuk, 2011; Resnick, et al., 1997; Vieno, et al., 2005), criminal behaviour (Resnick, et

al., 1997), transport risk-taking behaviour and injury (Chapman, et al., 2011), substance use

(Bonny, Britto, Klostermann, Hornung, & Slap, 2000 ; Henry & Slater, 2007; Resnick, et al.,

1997; Vieno, et al., 2005) and early sexual activity (Resnick, et al., 1997). A long-term

longitudinal study which followed students from upper primary school to age 27, found

students with higher levels of school connectedness had better long-term health and

educational outcomes, academic achievement and social competence (Catalano, Oesterle, Fleming, & Hawkins, 2004). This same study found higher levels of school connectedness reduced the likelihood of tobacco, alcohol or other harmful drug use, criminal involvement, gang membership and school dropout (Catalano, et al., 2004).

The transition from primary to secondary school has been identified as an opportunity to improve school connectedness due to the large proportion of adolescents who are disconnected by the time they reach secondary school (Hawkins, et al., 2010). During the transition period students, particularly victimised students (Bradshaw, O'Brennan, & Sawyer, 2008), report a reduced sense of school connectedness and perceived quality of school life (Barton & Rapkin, 1987; Pereira & Pooley, 2007) and connectedness (O'Brennan & Furlong, 2010). Students physically, verbally and relationally victimised are more likely to report feeling disconnected from school compared to non-involved students (Bradshaw, et al., 2008; O'Brennan & Furlong, 2010) while students who feel more connected are more considerate and accepting of others, are more likely to help others and more likely to resolve conflicts in a prosocial manner (Osterman, 2000) and report less peer harassment (Eisenberg, et al., 2003). Students involved in bullying as perpetrators and bully-victims are also less likely to feel connected to school, with bully-victims feeling the least connected (Bradshaw, et al., 2008).

It has yet to be determined whether lack of connectedness to school is a result of bullying or a factor contributing to bullying over and beyond the transition period. The current study uses longitudinal data to determine whether adolescents who feel less connected to school at the end of Grade 7 will experience greater victimisation at the beginning of Grade 8 than those who feel more connected, while bully-victims with higher levels of connectedness at the end of Grade 7 will report lower levels of perpetration-victimisation

at the beginning of Grade 8. Connectedness to school at the end of primary school was also explored as a predictor of victimisation trajectory class membership.

2.12   Safety at school

In Maslow's Hierarchy of Needs (Maslow, 1943), after the fundamental physiological needs are satisfied, safety and security need to be addressed before adolescents can develop feelings of belonging, self-esteem and self-actualisation. The Wingspread Declaration on School Connections (Wingspread, 2004), which suggests strategies for schools to use to increase student connectedness, states feelings of physical and emotional safety at school are a critical requirement for school connectedness. Adolescents need support through the provision of physical and emotional safety to succeed (Hall, Yohalem, Tolman, & Wilson, 2003) as a sense of safety in school is associated with their academic, behavioural, socio-emotional, and physical wellbeing (Reiss & Roth, 1993).

In a cross-sectional study of 105,000 students across 188 schools in the United States (Brand, et al., 2003), schools that students rated as having fewer safety problems reported higher self and teacher expectations, academic aspirations, self-esteem and efficacy and lower levels of depression. Schools that students rated as having greater safety problems, reported higher levels of delinquency, smoking, drinking and drug use, and more favourable attitudes towards substance use (Brand, et al., 2003). Research suggests that a school's sociological and organisational structures contribute to feelings of safety at school with feelings of safety positively related to feelings of school satisfaction and student perception of the fairness of school discipline policies, teacher and adult support (Samdal, et al., 1998) and negatively related to large and impersonal school settings (Olweus, 1993).

Having and valuing peer support also enhances feelings of school safety (Cowie & Oztug, 2008). Students' perception of safety at school is negatively influenced by behavioural

reactions of their peer group (Gini, Pozzoli, Borghi, & Franzoni, 2008), if they hear others being mean (Beran & Tutty, 2002), if they feel adults at school are not supportive (Beran & Tutty, 2002) and bullying (Bradshaw, et al., 2008; Cowie & Oztug, 2008). In a UK study of approximately 900 secondary students, twenty percent reported feeling unsafe due to bullying with action against bullying the most common student suggestion for making the school a better place (Cowie & Oztug, 2008).

Cross-sectional studies have shown that students who are involved in bullying through being bullied, bullying others, or are bully-victims are also likely to perceive lower levels of safety at school than those uninvolved in bullying (Bauman, 2008; Beran & Tutty, 2002; Bradshaw, et al., 2008; Burns, et al., 2008; Glew, Ming-Yu, Katon, Rivara, & Kernic, 2005). In a cross-sectional study of secondary school students, Bradshaw and colleagues (2008) demonstrated that victimised students were more likely to report feeling disconnected and unsafe at school. Further, the authors reported that victimisation at primary school was associated with lower feelings of school connectedness and safety at secondary school across the transition period. Feeling unsafe at school may be the result of bullying behaviours but, conversely, can also result in perpetration of bullying behaviours.

As the main research in this area has been cross-sectional in nature, it is unknown whether feelings of safety at school are a precedent or consequence of bullying behaviour. In the current study it is hypothesised that adolescents who don't feel safe at school at the end of Grade 7 will experience greater victimisation at the beginning of Grade 8. Perception of safety at the end of primary school was also be explored as a predictor of victimisation trajectory class membership.

2.13   Peer support

As with connectedness to school, peer support is also related to the concept of belonging in Maslow's Hierarchy of Needs, with adolescents needing support and acceptance by their peers to progress to healthy self-esteem and positive self-actualisation (Maslow, 1943). Peer support is also related to the level 4 need of esteem which encompasses respect of others and respect by others. The Social Ecological Theory of Bronfenbrenner (1995) suggests adolescents need the support of their peer group as well as family and school for their development while McGraw and colleagues (2007) suggest adolescents need support through positive peer relationships for healthy adolescent development. The perception of peer support refers to the quality of students' friendships. That is, both the level of validation and social support they receive through their friends (Ladd, Kochenderfer, & Coleman, 1996a).

Developmentally, adolescence is a time when there is a shift from a relatively greater reliance on parents for support and interaction to a reliance on peers (Collins & Steinberg, 2006). School is an important context for peer relationships as it provides the opportunity for adolescents to meet, form friendships and become a part of peer groups (Rubin, Bukowski, & Parker, 2006).

The formation of positive relationships with peers at school has been identified as a construct required for school connectedness (Libbey, 2004), and is associated with greater rates of school retention (Bond et al., 2007), improved academic motivation (Vitoroulis, Schneider, Vasquez, de Toro, & Gonzáles, 2012; Wentzel, Battle, Russell, & Looney, 2010) and successful academic outcomes (Wentzel, et al., 2010).

Positive peer support can also be protective against adolescent students participating in problem behaviours (Ary et al., 1999; McGraw, et al., 2007) and experiencing poor mental health (Buchanan & Bowen, 2008). Students who are successful in establishing peer

relationships display higher levels of self-perception (Jessor & Jessor, 1977), emotional wellbeing and lower levels of emotional distress (Wentzel, Barry, & Caldwell, 2004).

Positive peer support in adolescence is important for the continued development and maintenance of cognitive, social and emotional functioning (King, et al., 2002) and reduces the risk of mental and emotional problems in early adulthood (McGraw, et al., 2007). Negative peer interactions can disengage students from their schools (Espelage & Swearer, 2003) and may result in greater feelings of school dislike and school disconnectedness (Eisenberg, et al., 2003). Adolescents interacting with negative peers may also be exposed to problem behaviours including substance use and school dropout (Shin & Daly, 2007).

During primary to secondary school transition, friendships are an important component of adolescent development with peers playing an increasingly important role (Goodenow, 1993; Ladd, Buhs, & Troop, 2004). The transition period can result in increased feelings of isolation as a major change in social structure occurs with adolescents often having to develop new friendships and lose friends at a time when great importance is placed on peer relationships (Pellegrini & Bartini, 2000). This dependence on peer relationships and reliance on peers for social support comes with increasing pressures to attain high social status (Espelage & Holt, 2001). Social comparisons between peers (Pellegrini, 2002), being disliked by peers and the establishment of hierarchy and new social roles in new social groups (Pellegrini & Bartini, 2000) can contribute to victimisation during this time as social status goals (increased prestige and perceived popularity) become more important and are one of the driving motivations behind bullying behaviour (Salmivalli, 2010; Sijtsema, Veenstra, Lindenberg, & Salmivalli, 2009). Conversely, the ability to make new friends (Akos & Galassi, 2004), the number of friends and quality of friendships (Pellegrini & Bartini, 2000), having friends who are able to help and protect, and being accepted by the peer group are the main social factors identified as protective against bullying victimisation (Hodges & Perry, 1996). It is suggested that the positive perception of peer support is also

protective against victimisation itself (Pellegrini, 2002) and experiencing distress from victimisation (Davidson, 2007; Pellegrini, Bartini, & Brooks, 1999)

Victimised students perceive less peer support and place greater importance on peer support than those who bully or are uninvolved (Malecki & Demaray, 2004). In general, students who bully others and are also victimised are more likely to be disliked and socially isolated, lonely with very few friends and less able to form positive friendships with peers compared to students who only bully or who are only victimised (Georgiou & Stavrinides, 2008; Haynie, et al., 2001). These students find peer support from others who bully and those who bully others and are victimised, but generally have low peer support from the general student population (Georgiou & Stavrinides, 2008; Pellegrini, et al., 1999). In a mixed research design study of Australian adolescents, Lodge and Frydenburg (2005) found students with greater peer support are more likely to intervene to stop bullying.

Whether peer support, or lack thereof, is a precedent or consequence of bullying victimisation has yet to be determined as much of the current research has been primarily cross-sectional in design. It is hypothesised that victims and bully-victims with higher levels of peer support at the end of Grade 7 will report lower levels of victimisation and perpetration-victimisation at the beginning of Grade 8 respectively. Peer support at the end of primary school was also explored as a predictor of victimisation trajectory class membership.

2.14   Pro-victim attitude

In Maslow's Hierarchy of Needs (Maslow, 1943) the need for self-actualisation is realised at the top of the model indicating it is seen as part of a developmental process.   Maslow describes self-actualisers as having a democratic character structure with a general feeling

of empathy towards humanity as a whole and being willing to listen and learn without being inhibited by prejudice (Maslow, 1968). Empathy is defined as sharing another person's emotional state and has both affective and cognitive aspects (Eisenberg & Fabes, 1998). Affective empathy is the ability to share others' feelings, whereas cognitive empathy comprises the skills of recognising and discriminating emotions and taking others' perspectives (Feshbach & Feshbach, 1982). A lack of empathy enhances aggressive, externalising and anti-social behaviours (Jolliffe & Farrington, 2004) with those lacking in empathy more likely to experience adjustment problems (Gleason, Jensen-Campbell, & Ickes, 2009). However, high levels of empathic responsiveness enhance pro-social behaviours and are related to low levels of physical, verbal and indirect aggression (Kaukiainen et al., 1999).

A pro-victim attitude (including support for the victim, empathy towards the victim and disapproval of bullying behaviours) is a possible predictor of students' participation in bullying behaviour. While studies have found empathy to be negatively related to bullying (Gini, et al., 2007), Pellegrini and colleagues (1999) found students who are bullied by others, or are both victimised and bully others, have a negative attitude towards bullying perpetration, whereas students who bully others without ever being victimised have a positive attitude towards bullying perpetration.

Students may take on various roles in a bullying situation dependent on their social status (Salmivalli, et al., 1996). Supporters (those who comfort, support or stand up for those being victimised) have greater empathic skills, are perceived as and are positive models for the peer group (Caravita, Di Blasio, & Salmivalli, 2010; Poyhonen, Juvonen, & Salmivalli, 2010; Sainio, Veenstra, Huitsing, & Salmivalli, 2011; Schwartz et al., 1998) and, as such, are awarded high social status (Caravita, et al., 2010). Students who perceive they have more emotional support from their friends are more likely to intervene to stop bullying (Lodge &

Frydenburg, 2005) whereas those who are more supportive of bullying lack empathic understanding of the victims (Poyhonen & Salmivalli, 2008) and show low emotional support from friends (Lodge & Frydenburg, 2005).

Previous research indicates that the majority of students in late primary and early secondary school have supportive attitudes towards those being victimised but attitudes become less supportive with age (Gini, et al., 2008). An increasing number of adolescents over time dislike the person being bullied, tend to blame the target and be more approving of aggression (Gini, et al., 2008; Menesini et al., 1997; Rigby, 1997; Rigby & Slee, 1991). In this study, it is hypothesised that students who are both perpetrators and victims with higher levels of pro-victim attitudes at the end of Grade 7 will report lower levels of perpetration-victimisation at the beginning of Grade 8.

2.15   Negative outcome expectancies

Social Cognitive Theory (Miller & Dollard, 1941) posits that people learn by observing others, with the reciprocal factors of environment, behaviour and cognition influencing development. Bandura (1991) expanded the theory to the Social Cognitive Theory of the Moral Self linking moral reasoning to moral action through self-regulation. This theory emphasises a distinction between moral competence (i.e., knowledge, skills, awareness and ability to construct behaviours) and moral performance (i.e., behaviour). Moral performance is influenced by motivation and the possible rewards and incentive to act in a certain way. The self-regulatory process involves an individual developing moral standards of right and wrong and adapting these standards as guides and restraints for their behaviour. This process implies people behave in ways which provide them with satisfaction and a sense of self-worth and refrain from engaging in behaviours which result in self-condemnation (Gini, 2006) therefore attaching an expected outcome to a behaviour. Positive outcome expectancies for a behaviour occur when there is an expectation of a

perceived benefit, negative expectations for a behaviour occur when there is an expectation of a perceived risk or cost. An individual's outcome expectancies are linked to their moral self. Maslow (1943) describes morality as a component of self-actualisation in the hierarchy of needs for development.

Outcome expectancies have been described in relation to adolescent health risk behaviours such as drug use (Nickoletti & Taussig, 2006), smoking (JØSendal & AarØ, 2012), gambling (Wickwire, Whelan, & Myers, 2010), sexual behaviour (Nickoletti & Taussig, 2006), and delinquent behaviours such as shop lifting (Nickoletti & Taussig, 2006). Cross sectional studies have also explored the relationship between outcome expectancies and physical and relational aggression in adolescents (Goldstein & Tisak, 2004; Nickoletti & Taussig, 2006).

Outcome expectancies with respect to bullying behaviour include: perceptions of the consequences of bullying another student; how adolescents believe others will view their bullying behaviour and what will happen as a result; and how the adolescent would feel about themselves if they bullied another student. Negative outcome expectancies, including parents finding out and parental and peer disapproval, are strong motivational forces to prevent involvement in bullying behaviours (Rigby, 1997). Students are also less likely to engage in aggressive behaviours if there is an expectation there will be negative consequences (Hall, Hertzberger, & Skowronski, 1998).

One of the driving motivations behind bullying behaviour in adolescence are social status goals which include increased prestige and perceived popularity (Salmivalli, 2010; Sijtsema, et al., 2009). Manipulation and aggression are often used as deliberate strategies to acquire power and influence, gain dominance and to increase and maintain popularity with peers (LaFontana & Cillessen, 2010; Salmivalli, 2010). Bullying is more likely to occur if students think they will be rewarded socially in terms of respect and status by those who equate

bullying with power and dominance, and by those who place value on victim suffering (Andreou & Metallidou, 2004).

Those who bully others and are also bullied by others (bully-victims) have higher expectations that bullying will lead to status rewards than those who are only bullied or who only bully others (Andreou & Metallidou, 2004). Bully-victims are the most aggressive subgroup of students who bully (Peeters, Cillessen, & Scholte, 2010; Salmivalli & Nieminen, 2002) displaying characteristics of both proactive and reactive aggression. Proactive aggression includes behaviour that is directed at a victim to obtain a particular goal and allows the aggressor to successfully attain and maintain dominance and high status within peer groups (Pellegrini & Bartini, 2001; Salmivalli, 2010). In contrast, reactive aggression is described as a response to a perceived provocation or threat and is characterised by emotional and impulsive behaviour which is used to relieve frustration, anxiety, or fear and is a more typical response from bully-victims (Espelage & Swearer, 2003; Mayberry & Espelage, 2007).

To date, there are no longitudinal studies examining the temporal relationship between negative outcome expectancies and bully-victims in adolescents. It is hypothesised in the current study that bully-victims who perceive less positive outcomes and more negative consequences arising from bullying at the end of Grade 7 will report lower levels of perpetration-victimisation at the beginning of Grade 8.

2.16   The relationship between bullying and mental health

Adolescents who experience both direct and indirect forms of bullying experience higher levels of depression (Bauman, 2008; Bond, et al., 2001; Hawker & Boulton, 2000; Kaltiala-Heino, et al., 2000; O'Brennan, Bradshaw, & Sawyer, 2009; Roland, 2002; Sweeting, et al., 2006; Ybarra, 2004), anxiety (Kaltiala-Heino, et al., 2000; Salmon, James, & Smith, 1998),

psychosomatic complaints (Fekkes, Pijpers, & Verloove-Vanhorick, 2004; Kaltiala-Heino, et al., 2000), suicidal ideation (Bauman, 2008; Kaltiala-Heino, et al., 1999; Rigby & Slee, 1999; Salmon, James, Cassidy, & Javaloyes, 2000) and have a greater risk of manifesting anxiety and depressive disorders in adulthood (Menesini, 2009). The prevalence of anxiety and depression among adolescents who are victims of bullying is higher than for those who are not victimised (Kaltiala-Heino, et al., 2000; Pranjic & Bajraktarevic, 2010; Riittakerttu, et al., 2010) (Nair, Paul, & John, 2004; Sawyer, et al., 2000) suggesting victimisation may further exacerbate depressive symptoms. Furthermore, the more ways an adolescent is victimised, the higher the risk of depression (Klomek, Marrocco, Kleinman, Schonfeld, & Gould, 2008). Persistent victimisation is also a strong predictor of the onset of depression and anxiety (Bond, et al., 2001) with those chronically victimised showing more negative effects (Menesini, 2009) than those only recently victimised.

Depression could be a consequence of victimisation, caused by the trauma of victimisation and lowering of self-esteem (Riittakerttu, et al., 2010; Sourander, Helstelä, Helenius, & Piha, 2000) and loneliness (Sourander, et al., 2000), and/or a precedent due to the impairment of social skills and self-assurance, and an inability to defend themselves (Riittakerttu, et al., 2010). Prior studies of primary school children revealed that those with a propensity to internalise problems and those with depressive symptoms are at increased risk of being victimised, as their behaviour may indicate a vulnerability which rewards their attackers with a sense of power (Fekkes, Pijpers, Fredericks, Vogels, & Verloove-Vanhorick, 2006). Alternatively, they may be unable or less able to defend themselves, ward off aggressors, or report the incident to others (Hodges & Perry, 1999), making them an easier target. Fekkes and colleagues (2006) suggested that children may consider it more permissible to bully those who are psychologically fragile (e.g., depressed) and non-assertive than those with physical ailments.

Evidence of causal relationships in primary school children is supported by several longitudinal studies indicating peer victimisation may play a causal role in the development of depressive symptoms (Arseneault et al., 2008; Gazelle & Ladd, 2003; Goodman, Stormshak, & Dishion, 2001; Hanish & Guerra, 2002). A reciprocal relationship between victimisation and depression (where depression is both a cause and consequence of victimisation) has also been reported (Hodges & Perry, 1999; Nishina, Juvonen, & Witkow 2005). In general, the longitudinal research conducted with secondary students is limited and contradictory, with only two studies involving adolescents investigating the direction of the relationship between victimisation and depression. These studies measured victimisation and mental health within two different age groups (13-15 and 15-17), found opposite results, and noted the existence of gender differences, raising important issues in relation to the temporal sequencing of post-victimisation mental health problems (Riittakerttu, et al., 2010; Sweeting, et al., 2006).

This study aims to use longitudinal data to determine the direction of causality between victimisation, depression and anxiety over the transition from primary to secondary school and to investigate if gender differences occur in these associations. The effect of persistent victimisation on depression and anxiety was also examined.

2.17 The relationship between bullying and other problem behaviours

Problem Behaviour Theory (Jessor & Jessor, 1977) is a psychosocial model used to explain dysfunction and maladaptation in adolescence. It suggests that proneness to specific problem behaviours entails involvement in other problem behaviours and less participation in conventional behaviours. That is, problem behaviours cluster as society views each of the behaviours as unacceptable, deviant or rebellious. Adolescents are at high risk for the development of distressing and socially disruptive problem behaviours which can have serious consequences for the adolescent, their family, peers, school and society (Bartlett,

et al., 2007). Jessor and Jessor (1977) suggested interrelated problem behaviours in adolescence included antisocial behaviour; drug, alcohol, and tobacco use; academic failure; and precocious and risky sexual behaviour. More recent research has also found property destruction and truancy cluster with other problem behaviours (Bartlett, et al., 2005).

Problem behaviours in adolescence may be short-lived or may be an indication of longer-term behavioural concerns (Bartlett, et al., 2005). A retrospective study of 2,429 Australian adults concluded that adolescent delinquency and aggression problem behaviour at age 14 predicted long term substance use disorders (Hayatbakhsh et al., 2008). A US study followed 10,000 adolescents and found adolescent alcohol and substance use predicted drink- and drug-driving in young adults (Bingham & Shope, 2004).

On the other hand, low prevalence of involvement in problem behaviours has been linked with more positive academic self-efficacy, greater participation in extra-curricular activities and more positive life events (Chung & Elias, 1996). Adolescents who develop positive social bonds with their school are less likely to be involved in anti-social problem behaviour (Simons-Morton, Crump, Haynie, & Saylor, 1999). In a longitudinal study of adolescent problem behaviour, associations with deviant peers was a strong predictor of involvement in problem behaviours such as substance use, academic failure, risky sexual behaviour and antisocial behaviour (Ary, et al., 1999).

Cross-sectional associations have been found to exist between perpetration of both traditional and cyberbullying and problem behaviours such as poor academic achievement and drinking alcohol (Mitchell, et al., 2007), vandalism, stealing, and intentionally hurting other people (Hay, et al., 2010), and other delinquent behaviours. A prospective study of Finnish males found that childhood bullying involvement at age 8 predicted heavy daily smoking at age 18 (Niemelä, et al., 2011). A recent longitudinal study by Dukes and

colleagues (2010) found both relational and physical bullying were significant predictors of weapon carrying. Bullying victimisation has also been found to be cross-sectionally associated with problem behaviours with both traditional and cyber victimisation associated with stealing, vandalism, getting in trouble with the police, fighting and substance use (Hinduja & Patchin, 2007, 2008; Mitchell, et al., 2007). Cyber victimisation is also significantly and positively related to school problems (i.e., absenteeism, cheating on an exam or being sent home for poor behaviour), shoplifting, carrying a weapon, and running away from home (Hinduja & Patchin, 2007, 2008).

There is a lack of research using longitudinal data to examine the relationship between bullying and other problem behaviours. The current study tests the hypotheses that higher levels of traditional victimisation and perpetration at the beginning of secondary school (Grade 8) predict higher levels of engagement in problem behaviours at the end of Grade 9. Given the strong association between traditional bullying and cyberbullying, it is hypothesised that levels of cyber victimisation and perpetration represent independent risk factors over and above levels of traditional victimisation and perpetration for higher levels of engagement in problem behaviours.

2.18 Transitioning from primary to secondary school

Adolescents experiencing major physiological, cognitive, social and emotional developmental changes associated with the rapid emergence of puberty often also have to contend with another important developmental process - the transition from primary to secondary school (Aikins, Bierman, & Parker, 2005; Barton & Rapkin, 1987). School transitions have been found to have numerous effects on the psychological, social and intellectual wellbeing of students. For many adolescents the transition period represents new possibilities, a time to excel academically, socially, emotionally and in extracurricular activities (Roeser, Eccles, & Freedman-Doan, 1999) with many looking forward to

transitioning (Yates, 1999). However, this period can be challenging socially and emotionally for some adolescents as they need to adapt to new organisational and social structures within their school environment, while having mixed feelings of fear and anticipation about the social relationships which dominate the school transition experience (Frey, Hirschstein, Edstrom, & Snell, 2009; Pereira & Pooley, 2007). During transition, students report liking school less (Barber & Olsen, 2004), having lower perceptions of the quality of school life (Barton & Rapkin, 1987) and a reduced sense of school belonging and connectedness (O'Brennan & Furlong, 2010; Pereira & Pooley, 2007). Health compromising behaviours such as substance use, unsafe sexual practices, depression and antisocial behaviour escalate during early adolescence often coinciding with the transition to secondary school (Shortt, Toumbourou, Chapman, & Power, 2006).

The success of any transition is understood as a process of coping, with resilience research indicating that protective factors (such as supportive relationships, sense of belonging and positive self esteem) can prevent or mitigate poor developmental outcomes (Garmezy, 1985). Students typically experience a new social environment moving from small, personal school environments in primary school to secondary schools which are generally larger (Pereira & Pooley, 2007) and more impersonal (Mizelle, 2005), with teachers, classrooms and often classmates constantly changing (Simmons, Burgeson, Carlton-Ford, & Blyth, 1987).

Friendship and peer support have been identified as important contributors to a successful transition from primary school to secondary school (Crockett, et al., 1989). The transition period can result in increased feelings of isolation due to a major change in social structure requiring the development of new friendships (Pellegrini & Bartini, 2000).

There is evidence to suggest that the transition to secondary school may be a critical period to intervene on bullying (Patton et al., 2000; Sourander, Helstelä, Helenius, & Piha, 2000) as

the risk of being bullied is higher than at other times (Cross, et al., 2009). The dependence on peer relationships and reliance on peers for social support comes with increasing pressures to attain high social status which may result in bullying behaviours (Espelage & Holt, 2001). Social factors which can contribute to bullying and victimisation during this time include social comparisons between peers (Pellegrini, 2002), the number and quality of friends, being disliked by peers, and the establishment of hierarchy and new social roles in new social groups (Pellegrini & Bartini, 2000). The social support of peers, parents and teachers playing a mediating role in the relationship between victimisation and school adjustment (Malecki, Demaray, & Davidson, 2008). A combination of other factors including a focus on academic competition, teachers' attitudes towards bullying, a lack of school community, changes in friendship structure, as well as a peak in social aggression may also contribute to the peak in bullying behaviours during the transition period (Patton et al., 2000; Pellegrini, 2002; Pellegrini & Bartini, 2000; Spriggs, Iannotti, Nansel, & Haynie, 2007; Underwood, Beron, & Rosen, 2009).

Academic, procedural and transition programs have been recommended for a successful adjustment to secondary school (Akos & Galassi, 2004) with the ability to cope with the transition dependent on the level of preparation and social support available prior to and during transition (Crockett, et al., 1989). The next section of the literature review discusses the effectiveness of programs designed to enhance student transition.

2.19   Effective transition programs

Research suggests the effect of transitioning from primary to secondary school is widespread significantly affecting students' socially, emotionally, and academically, with early intervention and a continuously supportive environment required to address the needs of students (Cohen & Smerdon, 2009). From a US study of approximately 8,000 students from over 700 schools, full or partial transition programs specifically designed to

provide information about academic, social and organisational aspects were found to be effective in easing the problems of transition (Smith, 1997).

Cohen and Smerdon (2009) advise intervention programs which seek to address academic, social and logistic details have the greatest positive effect on secondary school retention and experiences. They also advise intervention programs need to involve the whole school community - students, parents, and teachers. In contrast, programs only targeting a single aspect of transition (students, parents or teachers) showed no independent effect on secondary school retention and experiences. Smith and Brain (2000) agree a whole-school policy has the best student outcomes.

Effective transition programs have been described as an inclusive process emphasising the importance of social interaction (Smith & Brain, 2000). The most effective transition programs provide students with information about their new school, involve parents in the new school, give students social support, and bring schools together to learn about each others' curriculum and requirements (Mizelle, 2005).

Akos and Galassi (2004) surveyed students, parents and teachers regarding the transition to secondary school concluding there is a need to increase a sense of student belonging which also impacts on peer acceptance within the school context. Recommendations for transition programs include non-academic activities allowing social interaction between peers and teachers (Pereira & Pooley, 2007), more opportunities for student interaction during the day (Akos & Galassi, 2004), and the opportunity to build students' sense of community through small group activities during orientation, team building, and cooperative learning (Akos & Galassi, 2004). Social skills training may also be necessary to initiate and maintain positive social contact with peers (Smith & Brain, 2000).

The majority of research investigating transition has been cross-sectional (Pellegrini & Bartini, 2000) while existing longitudinal studies are primarily short-term (assessing student outcomes one time point prior to transition and one time point after) which do not show whether the negative effects of transition are a temporary setback or maintained during secondary school (Benner & Graham, 2009). Pereira and colleagues (2007) highlight the need to develop a deeper understanding of the importance of social relationships in a school context during this period as current research has focussed on factors such as school size and the effect on student outcomes, such as grades and self-esteem.

Research in the area of bullying and victimisation is desperately needed (Pellegrini, 2002) to address the lack of transition programs dealing directly with bullying (Smith, 2006). Primary school students have been the focus of most current studies on the predictors of victimisation with relatively little known empirically about the antecedents of victimisation over longer intervals and into adolescence (Paul & Cillessen, 2003). Bullying intervention during early adolescence is extremely important to minimise the consequences on both those who bully and are bullied and the impact on the school environment (Espelage, et al., 2000). Bullying should be seen as an indicator of risk of various mental disorders in adolescence (Kaltiala-Heino, et al., 2000) highlighting the need for early identification and intervention with students at risk for peer relations problems (Slee, 1995).

This study aims to address some of these concerns by longitudinally examining the relationship between social health factors and bullying in primary school and the first two years of secondary school and the associated mental health outcomes. The information gained from the current study is important as there is a need for more flexible and better targeted transition programs with a focus on early intervention (Cohen & Smerdon, 2009; Paul & Cillessen, 2003).

2.20   Summary and Rationale for the Current Study

The transition period from primary to secondary school is a critical time in adolescent development (Aikins, et al., 2005). This period provides both challenges and opportunities for adolescents as they experience environmental, physiological, cognitive and social changes (Barton & Rapkin, 1987) with evidence suggesting that the effects and rates of victimisation are worse over the transition from primary to secondary school. The prevalence, seriousness and negative impacts of school bullying contribute to significant physical, psychological and social health problems, and can affect all students within the school community (Bosworth, 1999; Espelage, et al., 2000). Social health factors such as loneliness at school, connectedness to school, peer support, feeling safe at school, pro-victim attitudes, and negative outcome expectancies can either contribute to, or be protective of, bullying and victimisation during this time.

Loneliness (involves both the circumstance of being alone and the feeling of sadness), school connectedness (the quality of the relationships within the school) and support of peers at school are all related to a sense of belonging (Asher, 2003; Ladd, et al., 2004; McNeely, et al., 2002), while feeling physically and emotionally safe at school is a requirement for school connectedness (Libbey, 2004).   High levels of empathy and pro-victim attitudes and moral reasoning, and performance associated with negative outcome expectancies, enhance pro-social behaviours (Gini, 2006; Jolliffe & Farrington, 2004). Given the high prevalence of chronic adolescent victimisation and the associated consequences, it is important to understand the causal pathways of victimisation and social health.

The relationship between bullying victimisation, social health and mental health over and following the transition to secondary school is not well established. The majority of research investigating factors related to adolescent victims and bully-victims has been cross-sectional in design, and the limited longitudinal research conducted with secondary

students is contradictory. Given the high prevalence of adolescent mental health problems and that chronic victimisation negatively affects mental health, it is crucial to understand the key predictive social health factors of victimisation. The use of victimisation trajectories allows the longitudinal examination of victimisation, revealing those who are chronically victimised as well as associated social health predictors and mental health outcomes of victimisation trajectories. Importantly, the social health factors investigated in this study are all amenable to school intervention.

The outcomes of this research will be used to inform recommendations for policy and practice for stakeholders, such as policy makers, school administrators, teachers, and parents, for primary to secondary school transition programs. Transition programs focussing on early prevention and targeted intervention whilst providing social support are needed to reduce the negative impact of transition effects and minimise the impact of bullying on the school community. The period of transition from primary to secondary school presents an important opportunity to address and intervene in peer victimisation (Rueger, Malecki, & Demaray, 2011).

Chapter 3: Problem behaviours, traditional and cyberbullying among adolescents: A longitudinal analyses

Citation

Contribution of authors

The candidate was responsible for the preparation of data, data analyses and interpretation of the analyses in this paper as well as writing the literature review and general discussion.   Professor Cross assisted with the structure and clarity of the literature review and general discussion.   Ms Shaw assisted with the data analysis, results and interpretation of the analysis.

Relevance to thesis

This chapter presents analyses central to Research Question 1 of this thesis. This chapter explores the relationship between bullying (traditional and cyber) and the level of involvement in problem behaviours.   It also examines the forms of bullying which are predictors of levels of involvement in problem behaviours and explores whether cyberbullying represents an independent risk factor over and above traditional bullying. The outcomes of this Chapter inform the recommendations and the following papers presented in this thesis.

Abstract

Problem Behaviour Theory suggests that young people's problem behaviours tend to cluster. We examined the relationship between traditional bullying, cyberbullying and engagement in problem behaviours using longitudinal data from approximately 1,500 students. Levels of traditional victimisation and perpetration at the beginning of secondary school (Grade 8, age 12) predicted levels of engagement in problem behaviours at the end of Grade 9 (age 13). Levels of victimisation and perpetration were found to moderate each other's associations with engagement in problem behaviours. Cyberbullying did not represent an independent risk factor over and above levels of traditional victimisation and perpetration for higher levels of engagement in problem behaviours. The findings suggest that to reduce the clustering of cyberbullying behaviours with other problem behaviours, it may be necessary to focus interventions on traditional bullying, specifically direct bullying.

Keywords: bullying, cyberbullying, problem behaviours

Introduction

Relative to other age groups adolescents have a disproportionately higher risk of engaging in problem behaviours that can have serious consequences for the individual, their family, friends and the community (Bartlett, et al., 2007). Problem Behaviour Theory (Jessor & Jessor, 1977) is a psychosocial model used to explain dysfunction and maladaptation in adolescence. It suggests that proneness to specific problem behaviours entails involvement in other problem behaviours and less participation in conventional behaviours. The theory has previously been employed to investigate a wide range of behaviours defined socially as a problem or undesirable, and which elicit a negative social response. The generality and robustness of the theory has been tested investigating behavioural outcomes such as substance use, deviancy, delinquency and risky sexual behaviours.

During adolescence, problem behaviours including anti-social behaviour, school failure, precocious sexual behaviour, drinking, cigarette smoking and substance use are intercorrelated (Petterson, 1993) and tend to covary (Barrera, et al., 2001). Jessor and Jessor (1977) suggest one reason young people's problem behaviours tend to cluster, is that society views each of them as unacceptable, deviant or rebellious. Social Cognitive Theory suggests adolescents model their friends' behaviours, including bullying and other anti-social behaviours (Mouttapa, Valente, Gallaher, Rohrbach, & Unger, 2004). Consequently, adolescents who bully and/or cyberbully others may feel they have crossed the boundary of acceptable conduct, and become part of a "deviant" subculture, where these behaviours are more prevalent and acceptable.

Traditionally, bullying behaviour is defined as a type of aggressive behaviour involving the systematic abuse of power through unjustified and repeated acts intended to inflict harm (Smith, 2004) and includes both direct (overt) and indirect (covert) forms. Cyberbullying, or

bullying using the internet and mobile phones, appears to be a form of bullying including both direct and indirect aggressive components (Dooley, et al., 2009). Accordingly, problem behaviours associated with traditional bullying may also be associated with cyberbullying.

Cross-sectional research suggests that the perpetration of face-to-face bullying and cyberbullying are associated with problem behaviours such as poor academic achievement (Mitchell, et al., 2007), drinking alcohol (Mitchell, et al., 2007), smoking and other substance use problems (Niemelä, et al., 2011), vandalism (Hay, et al., 2010), stealing (Hay, et al., 2010), intentionally hurting other people (Hay, et al., 2010), weapon-carrying (Dukes, et al., 2010) and other delinquent behaviours. Cyberbullying victimisation is significantly and positively related to school problems (such as absenteeism, cheating on an exam or being sent home for poor behaviour), shoplifting, carrying a weapon, and running away from home (Hinduja & Patchin, 2007, 2008). Both traditional and online victimisation are associated with stealing, vandalism, getting in trouble with the police, fighting and substance use (Hinduja & Patchin, 2007, 2008; Mitchell, et al., 2007). This previous research measured either victimisation only or victimisation and perpetration separately, but did not take into account those who are bully-victims; which may explain the relationships found between victimisation (a non-problem behaviour) and problem behaviours.

Direct bullying perpetration has been found to be a stronger predictor than indirect bullying perpetration of violence, delinquency and other anti-social behaviours in adolescence (Bender & Lösel, 2011; Hampela, et al., 2009), while indirect perpetration was a stronger predictor of weapon carrying than direct perpetration (Dukes, et al., 2010).

In a study of 7,200 students within Australia, 7% of secondary school students (Grades 8 and 9) reported being cyberbullied frequently (every few weeks or more often in the

previous term), 4% reported cyberbullying others frequently, and 2% reported frequent cyber victimisation-perpetration. Frequent cyber victimisation was more prevalent for females and frequent cyber perpetration more prevalent for males (Cross, et al., 2009).

Cyberbullying perpetration can be seen as a newer manifestation of deviant behaviour that adolescents are adopting. Moreover, reviews show high correlations between traditional bullying and cyberbullying with adolescents reporting traditional perpetration also reporting cyber perpetration and those reporting traditional victimisation also reporting cyber victimisation (Li, et al., 2012; Tokunaga, 2010).

To test the hypotheses of a relationship between traditional bullying and engagement in problem behaviours, we examined traditional victimisation and perpetration simultaneously to take into account victims, perpetrators and bully-victims to determine if higher levels of traditional victimisation and perpetration predict higher levels of engagement in problem behaviours. As traditional bullying includes both direct and indirect forms and direct bullying has previously been linked with problem behaviours, we also examine the associations between these different forms of traditional victimisation and perpetration and levels of engagement in problem behaviours. Lastly, given that bullying at school has been found to be a gateway behaviour to other problem behaviours such as anti-social problems, delinquency, violence and aggression (Bender & Lösel, 2011), we examined whether cyberbullying also has a significant influence on levels of engagement in problem behaviours.

The following three hypotheses will be examined: (1) higher levels of traditional victimisation and perpetration at the beginning of secondary school (Grade 8) predict higher levels of engagement in problem behaviours at the end of Grade 9; (2) higher levels of traditional *direct* victimisation and perpetration at the beginning of secondary school (Grade 8) predict higher levels of engagement in problem behaviours at the end of Grade 9;

and (3) levels of cyber victimisation and perpetration represent independent risk factors over and above levels of traditional victimisation and perpetration for higher levels of engagement in problem behaviours.

Methods

Sample and procedure

Data were obtained from the Supportive Schools Project. This project aimed to enhance the capacity of secondary schools to implement a whole-school bullying intervention (including strategies to enhance student transition to secondary school) and compare this intervention to the standard behaviour management practices used in Western Australian secondary schools using a cluster randomised comparison trial. The longitudinal data collected included adolescents' experiences of bullying victimisation and perpetration during the transition from primary school into secondary school. Secondary schools affiliated with the Catholic Education Office (CEO) of Western Australia were approached to participate in the study; students within Australian Catholic schools are more likely than students attending schools in other sectors (e.g. government schools) to move in intact groups, so this reduced the rate of transition attrition as students moved from primary to secondary schools.

Schools were stratified according to the total number of students enrolled and each school's Socio-Economic Status and then were randomly assigned within each stratum to an intervention or comparison group. Twenty-one of the 29 schools approached, consented to participate; eight schools declined citing reasons including other priorities within their school and demanding staff workloads. Following Edith Cowan University's Human Research Ethics Committee approval of the research protocol, a combination of active and passive consent was obtained from parents of the Grade 8 students (13 years of age) enrolled in the schools in 2005. Parental consent was provided for 3,462 of the 3,769

(92%) students eligible to participate from 21 secondary schools in Perth, Western Australia. Data used in this paper were collected from 1,782 students assigned to 11 comparison schools. Data from intervention students were not used to ensure results are not confounded by the intervention program.

Four waves of student data were collected from 2005 to 2007. Here we analyse data from the second wave, after students transition to secondary school, when the cohort completed questionnaires in April 2006 at the beginning of Grade 8 (12 years old) (n=1,745, 98% of those eligible), and the fourth wave, in October/November 2007 at the end of Grade 9 (14 years of age) (n=1,616, 95% of those eligible). Over the three-year study period, approximately 50% of the participants were males and 70% attended a co-educational (n=8) versus single sex (n=3) secondary schools.

Measures

Traditional victimisation and perpetration. Traditional victimisation was assessed using a seven-item categorical index adapted from Rigby and Slee (1998) and Olweus (1996): being hit, kicked or pushed around; someone deliberately broke their things or took money or other things away; were made to feel afraid they would get hurt; were made fun of and teased in a hurtful way; were called mean and hurtful names; other students ignored them, didn't let them join in, or left them out on purpose; and others told lies about them and tried to make other students not like them, over the previous school term. For each item students were asked how often they were bullied, rating each item on a 5 point scale (1 = never, 2 = only once or twice, 3 = every few weeks, 4 = about once a week, 5 = most days). A victimisation score was calculated for each student by averaging the seven victimisation items, with a higher score indicating more victimisation experiences (alpha=0.82). Perpetration was assessed using a seven-item perpetration index, similar to the victimisation index, which asked students how often they bullied others in the different ways listed. A perpetration score was calculated for each student by averaging the

perpetration items, with a higher score reflecting greater involvement in bullying perpetration (alpha=0.79). In addition, an indirect victimisation and perpetration score was calculated by combining the relational items (n=2), and a direct victimisation and perpetration score was calculated by combining the verbal and physical items (n=5).

Cyber victimisation and perpetration. Cyber victimisation was assessed using two items from the 2004 Youth Internet Survey (Ybarra & Mitchell, 2004). The items assessed the frequency of receiving mean and hurtful text (SMS) messages (text messages, pictures or video clips) and mean and hurtful messages on the internet (email; pictures, webcam or video clips; chat rooms; MSN messenger or another form of instant messenger; social networking sites like MySpace; Internet game; Web log/Blog or Web page/Web site). Students rated each item on the same 5 point scale as for traditional victimisation. A cyber victimisation score was calculated for each student by averaging the two items (r=0.46), with a higher score indicating more cyber victimisation experiences. A cyber perpetration score was calculated in a corresponding way (r=0.40).

Problem Behaviours. Problem behaviours in the last month were assessed using six items adapted from Resnicow et. al (1995): stealing from a shop or person; being involved in a physical fight; breaking something of their own on purpose; damaging or destroying things that did not belong to them; not paying for something like sneaking onto a bus or train or into a movie; smoking cigarettes and drinking alcohol without parental knowledge. All items were measured on a five point scale (1 = never, 2 = once, 3 = twice, 4 = three times, 5 = more than three times). Level of involvement in problem behaviours was calculated for each student by averaging all items, with a higher score reflecting a greater involvement (i.e. more behaviours, more frequently) (average alpha=0.83). Involvement in individual problem behaviours was also examined with items recoded into binary variables of not being involved or being involved in the behaviour at least once in the past month.

Data Collection

Grade 8 and Grade 9 data collection was conducted by trained research staff who administered questionnaires to students during class time according to a strict procedural and verbal protocol. Students not participating were given alternate learning activities.

Statistical Analysis

Analyses were conducted using STATA v10 and PASW v18. Multi-level Tobit regression models with random effects were used to determine predictors of the level of involvement in problem behaviours at the end of Grade 9. Tobit regression models were used due to the extreme skew of problem behaviours with 47% at the minimum value. The level of involvement in problem behaviours at the beginning of Grade 8, gender, victimisation, perpetration, the interaction of victimisation and perpetration, and clustering at the school level were taken into account in all models. Direct and indirect forms of bullying were tested separately. Cyber victimisation and perpetration were added to the models. Multi-level logistic regression models with random effects were used to determine the predictors of involvement in individual problem behaviours at the end of Grade 9, taking into account clustering and the variables mentioned above.

Results

Table 2 lists the means and standard deviations for victimisation, perpetration and engagement in problem behaviours at the two time points. On average students did not report frequent victimisation or perpetration through traditional bullying, or cyberbullying, and did not report engaging in many problem behaviours at either time point. However, involvement in traditional bullying, cyberbullying and problem behaviours increased from the beginning of Grade 8 to the end of Grade 9. By the end of Grade 9, at least 1 in 4 students were involved in physically fighting and drinking alcohol without their parents' knowledge in the previous month, while 1 in 5 students were not paying for something like sneaking onto a bus, train or in a movie and breaking something of their own on purpose.

Table 2 Descriptive statistics of sample and bullying involvement, and prevalence of problem behaviours

	Beg. of Grade 8	End of Grade 9
Number of students	*n (%)*	*n (%)*
Total	1745	1616
Male	847 (48.6)	791 (49.0)
Female	896 (51.4)	823 (51.0)
Average Age	*12*	*14*
Descriptive Statistics[t]	*Mean (SD)*	*Mean (SD)*
Traditional victimisation (1-5)	1.30 (0.50)	1.49 (0.69)
Traditional perpetration (1-5)	1.13 (0.30)	1.28 (0.56)
Cyber victimisation (1-5)	1.06 (0.27)	1.17 (0.54)
Cyber perpetration (1-3)	1.02 (0.17)	1.12 (0.49)
Problem behaviours (1-5)	1.16 (0.39)	1.34 (0.62)
Problem behaviours	*n (%)*	*n (%)*
None in past month	1015 (56.1)	704 (39.5)
At least once in past month		
Stealing from a shop or person	159 (9.4)	255 (16.7)
In a physical fight	379 (22.5)	420 (27.6)
Breaking something of their own on purpose	250 (14.8)	297 (19.6)
Damaging or destroying things not belonging to them	92 (5.5)	161 (10.6)
Not paid for something like sneaking onto a bus, train or into a movie	177 (10.5)	342 (22.5)
Smoked cigarettes	51 (3.0)	111 (7.3)
Drunk alcohol without parents knowledge	163 (9.7)	377 (24.9)

[t]Higher scores correspond to greater victimisation, greater perpetration and greater involvement in problem behaviours.

Table 3 shows traditional bullying and cyberbullying were significantly correlated with each other and with the level of engagement in problem behaviours. Given the significant correlation between traditional and cyberbullying, the effects of traditional bullying were taken into account when estimating the effect of cyberbullying on the level of engagement in problem behaviours.

Table 3 Bivariate correlations between bullying and problem behaviours

	Traditional Victimisation	Traditional Perpetration	Cyber Victimisation	Cyber Perpetration
Traditional Victimisation[#]	1			
Traditional Perpetration[#]	.333**	1		
Cyber Victimisation[#]	.366**	.253**	1	
Cyber Perpetration[#]	.191**	.507**	.435**	1
Level of engagement in problem behaviours[ŧ]	.073**	.216**	.042	.061*

[#]Measured at beginning of Grade 8, [ŧ]Measured at end of Grade 9, n ranges from 1494 to 1704
 * Significant at 5% level **Significant at 1% level

Level of engagement in problem behaviours, traditional victimisation and perpetration

Table 4 shows gender, problem behaviours, victimisation and perpetration at the beginning of Grade 8 were significant predictors of the level of engagement in problem behaviours at the end of Grade 9. Boys were more engaged in problem behaviours than girls and higher engagement in Grade 8 was associated with higher engagement in Grade 9.

Levels of victimisation and perpetration were also found to moderate each other's associations with engagement in problem behaviours (the interaction term of victimisation and perpetration was significant). These effects are illustrated in Figure 4. Non-involved students (neither perpetrated nor victimised) were least involved in problem behaviours. Frequent perpetrators (every few weeks or more often) had the highest average levels of engagement in problem behaviours; however, the level of engagement in problem behaviours decreased if they also experienced some victimisation (i.e. if they were 'bully-victims'). In contrast, for those who did not bully others, their level of engagement in problem behaviours (although relatively low) increased as their level of victimisation increased. For those who bullied others once or twice, mean engagement in problem behaviours was similar for all levels of victimisation. No gender differences were found with regard to these moderation effects (p=0.684).

Table 4 Tobit regression results for problem behaviours and victimisation and perpetration

	β	SE	95% Confidence interval	P value
Traditional bullying and cyber victimisation				
Problem behaviours Grade 9 (n=1465)				
Problem behaviours Grade 8	0.40	0.04	(0.32, 0.48)	<0.001**
Gender – male	0.14	0.03	(0.08, 0.21)	<0.001**
Victimisation	0.28	0.07	(0.14, 0.42)	<0.001**
Perpetration	0.52	0.11	(0.31, 0.74)	<0.001**
Cyber victimisation	0.03	0.06	(-0.09, 0.15)	0.651
Victimisation*perpetration	-0.22	0.05	(-0.32, -0.12)	<0.001**
Traditional bullying and cyber perpetration				
Problem behaviours Grade 9 (n=1465)				
Problem behaviours Grade 8	0.39	0.04	(0.31, 0.48)	<0.001**
Gender – male	0.14	0.03	(0.08, 0.21)	<0.001**
Victimisation	0.28	0.07	(0.14, 0.43)	<0.001**
Perpetration	0.51	0.11	(0.30, 0.73)	<0.001**
Cyber perpetration	0.06	0.08	(-0.09, 0.22)	0.419
Victimisation*perpetration	-0.21	0.05	(-0.31, -0.12)	0.007**

Predictors measured at beginning of Grade 8
*Significant at 5% level, **Significant at 1% level-

Level of engagement in problem behaviours, traditional direct and indirect bullying

Table 5 shows results from the separate models testing direct and indirect forms of traditional bullying as predictors of level of engagement in problem behaviours, used to further examine the relationship between traditional bullying and level of involvement in problem behaviours. Gender, problem behaviours, traditional direct victimisation (verbal and physical) and traditional direct perpetration at the beginning of Grade 8 were significant predictors of the level of engagement in problem behaviours at the end of Grade 9. Levels of traditional direct victimisation and direct perpetration were also found to moderate each other's associations with engagement in problem behaviours. Traditional

indirect victimisation and perpetration were not significant predictors of the level of engagement in problem behaviours at the end of Grade 9.
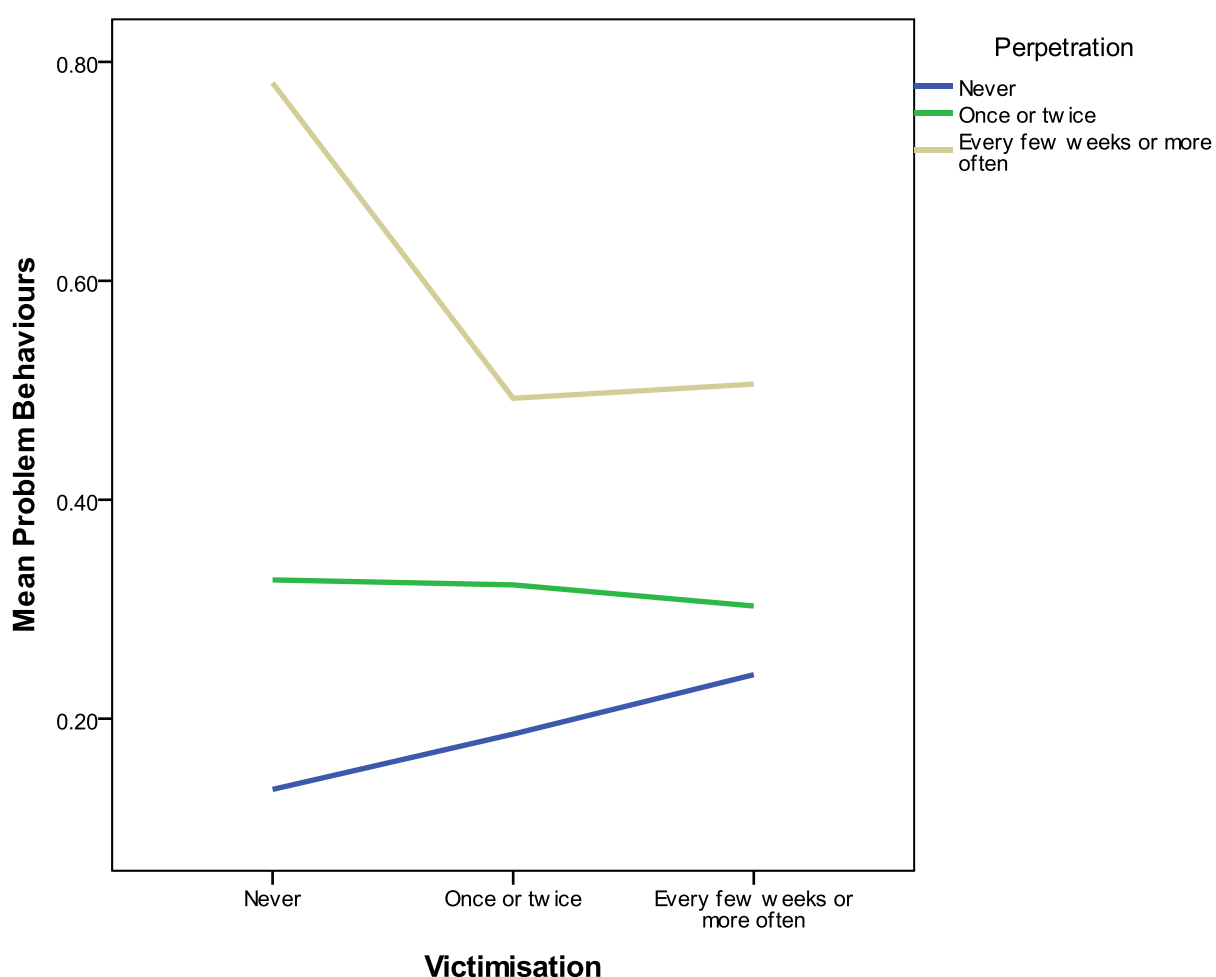
Figure 4 Interaction of victimisation with perpetration and average problem behaviours.

Table 6 shows logistic regressions on individual problem behaviour involvement. Students with higher involvement in traditional victimisation and perpetration had increased odds of breaking something of their own on purpose, not paying for something like sneaking onto a bus, train or in to a movie and drinking alcohol without their parents' knowledge. In addition, traditional perpetration was a predictor of damaging and destroying things that did not belong to them.

Table 5 Tobit regression results for problem behaviours and traditional direct and indirect bullying

	β	SE	95% Confidence interval	P value
Traditional direct bullying				
Problem behaviours Grade 9 (n=1465)				
Problem behaviours Grade 8	0.42	0.04	(0.34, 0.50)	<0.001**
Gender – male	0.13	0.03	(0.10, 0.19)	<0.001**
Victimisation	0.23	0.06	(0.12, 0.35)	<0.001**
Perpetration	0.42	0.09	(0.25, 0.60)	<0.001**
Victimisation*perpetration	-0.18	0.04	(-0.25, -0.10)	<0.001**
Traditional indirect bullying				
Problem behaviours Grade 9 (n=1465)				
Problem behaviours Grade 8	0.43	0.04	(0.36, 0.51)	<0.001**
Gender – male	0.14	0.03	(0.09, 0.21)	<0.001**
Victimisation	-0.04	0.07	(-0.18, 0.10)	0.557
Perpetration	-0.001	0.10	(-0.20, 0.20)	0.990
Victimisation*perpetration	0.05	0.06	(-0.06, 0.16)	0.373

Predictors measured at beginning of Grade 8
*Significant at 5% level, **Significant at 1% level

Level of engagement in problem behaviours and cyber victimisation and perpetration

Cyber victimisation was added to the Tobit regression model to determine the independent effect of cyber victimisation over traditional victimisation and perpetration on engagement in problem behaviours. The same process was followed with cyber perpetration. After taking into account traditional victimisation and perpetration, neither cyber victimisation or cyber perpetration were significant independent predictors of the level of student engagement in problem behaviours (Table 4).

Discussion

The results of this study support the hypotheses that higher levels of traditional victimisation and perpetration at the beginning of secondary school (Grade 8) predict higher levels of engagement in problem behaviours at the end of Grade 9, and specifically, traditional direct victimisation and perpetration are significant predictors of levels of

engagement in problem behaviours. The hypothesis that cyberbullying represents an independent risk factor over and above levels of traditional bullying for higher levels of engagement in problem behaviours was not supported in this research.

Table 6 Logistic regression results for involvement in individual problem behaviours and traditional victimisation and perpetration

OR (95% CI)	Victimisation	Perpetration
Stealing from a shop or person	1.3 (0.6,3.0)	1.7 (0.5,5.8)
In a physical fight	1.6 (0.7,3.5)	2.9 (0.9,9.6)
Breaking something of their own on purpose	2.4 (1.3,4.4)**	4.0 (1.5,10.3)**
Damaging or destroying things not belonging to them	1.9 (0.9,3.9)	3.5 (1.1,10.4)**
Not paid for something (ie sneaking onto a bus, train, into a movie)	3.3 (1.7,6.6)**	9.6 (3.2,28.6)**
Smoked cigarettes	1.6 (0.7,3.9)	3.2 (0.9,10.5)
Drunk alcohol without parents' knowledge	2.5 (1.2,4.9)*	9.5 (3.2,28.6)**

Models controlled for gender and level of involvement in problem behaviours at the beginning of Grade 8. n ranges from 1451 to 1463
*Significant at 5% level, **Significant at 1% level

The results for frequent perpetrators of traditional bullying provide further evidence of the clustering of some problem behaviours, as suggested by Problem Behaviour Theory (Jessor & Jessor, 1977). It appears that engagement in problem behaviours over time was higher for students who also perpetrated bullying frequently, however engagement in problem behaviours decreased as their level of victimisation increased. Adolescents' involvement in problem behaviours is more likely if supported by others as peer influence and association with deviant peers is the most proximal social influence on engagement in problem behaviours (Ary, et al., 1999). Students who use proactive bullying are more likely to be part of a highly structured social group and are adept at negotiating allegiances, jostling for power positions, or coercing gang members to take orders (Sutton & Smith, 1999) while adolescents who are victimised are more likely to be lonely as other peers avoid them for fear of being bullied themselves or losing social status among their peers (Nansel,

Overpeck, Pilla, Ruan, et al., 2001) and perhaps therefore less likely to be involved in problem behaviours.

Social Cognitive Theory helps to understand a circular relationship between reprehensible behaviour and level of moral disengagement which allows one to engage in behaviours that are contrary to one's basic moral beliefs (Bandura, 1991). The association/relationship between bullying and engagement in problem behaviours shown in this research and other bullying-related research (Bender & Lösel, 2011) suggests perpetrators can more easily deactivate moral controls to justify themselves and their negative behaviour, and that these cognitive mechanisms, in turn, can reinforce other negative behaviours (Menesini et al., 2003).

Further analysis of the relationship between traditional bullying and problem behaviours found that while direct forms of traditional bullying (both verbal and physical) were significantly associated with the level of engagement in problem behaviours, indirect bullying (relational) was not. Direct bullying by its nature (involving direct physical harm, or associated threats or challenges towards the target (Archer & Coyne, 2005)) may be more likely to be associated with problem behaviours intended to cause direct physical harm. Further, Nansel et al (2003) suggest bullying others is consistently associated with violence related behaviours (weapon carrying, weapon carrying in school, and physical fighting for boys and girls).

The Problem Behaviour Theory model is not supported in this study for cyber perpetration. This finding may be due to the largely indirect nature of cyberbullying afforded through opportunities for anonymity when a young person is bullying using technology. Recent studies have shown direct bullying to be a stronger predictor than indirect bullying of problem behaviours in adolescence (Bender & Lösel, 2011; Hampela, et al., 2009). Problem Behaviour Theory suggests motives for involvement in problem behaviours include overt

repudiation of conventional norms which result in a form of social control response (Jessor & Jessor, 1977). Respectively, the motives for perpetrating cyber and traditional bullying include revenge (cyber) and domination (traditional) (Vandebosch & Van Cleemput, 2009) resulting in harm or a reaction from the target person (Dooley, et al., 2009).

Consequently, it appears essential for schools to implement actions to stop or reduce the frequency of all forms of traditional bullying but especially direct bullying (e.g. physical and verbal teasing) prior to transition and during the first few years of secondary school to reduce the likelihood of perpetrators engaging in other problem behaviours. These actions by schools may similarly help to reduce the number of victimised students who will potentially engage in other problem behaviours. Encouragement of pro-social behaviour (Jessor & Jessor, 1977), high academic self-efficacy and involvement in extra-curricular activities are also protective against involvement in problem behaviours (Chung & Elias, 1996).

The correlations between traditional bullying, cyberbullying and problem behaviours were low, indicating that only a small proportion of variance in the problem behaviours measured is accounted for by victimisation and perpetration. Other confounders such as family structure, family functioning, socio-economic status, and parental substance use may impact on involvement in problem behaviours (Hayatbakhsh, et al., 2008). Separate models were used to examine the independent effect of cyberbullying over and above the effects of traditional bullying on problem behaviours. The relatively low prevalence of cyberbullying behaviours compared to traditional bullying behaviours may however, have affected the results found in this study. As technology with online access becomes more readily available to adolescents, it is possible that increased time spent on the Internet combined with increasing technology expertise will increase the likelihood of cyberbullying behaviour (Walrave & Heirman, 2011). Future research needs to continue to investigate

the relationship between traditional bullying, cyberbullying and involvement with problem behaviours as relationships may change as accessibility to technology increases. Research also needs to involve students from earlier younger age, especially as age of access to technology decreases, to identify opportunities for intervention.

The strengths of this study include the large sample size and the longitudinal nature of the research design enabling the examination of predictors as well as consequences of victimisation-perpetration. The limitations include the reliance on student self-report of traditional and cyberbullying and involvement in problem behaviours during adolescence rather than peer, teacher or parent report. These self-report data may result in underreporting of involvement in bullying perpetration, victimisation and problem behaviours and may inflate the estimates of the correlation between bullying behaviours and problem behaviours.

The use of mean scores for the traditional and cyberbullying scales provides the students' frequency of involvement in different forms of bullying behaviours not the severity of the different acts in terms of impact on the targeted student. Impact as experienced by the victimised student, for example, could be assessed using separate questions asking students about the extent to which they were upset by the bullying. Similar limitations apply to the calculation of mean scores for involvement in problem behaviours. The equal weighting assigned to each of the different forms of bullying and problem behaviours may have impacted on the observed associations between these outcomes. The measurement of cyberbullying was also limited to only the number of nasty text messages or emails sent / received which may also have resulted in the under-reporting of involvement in these bullying behaviours.

Missing data from absentee students and students lost to attrition during transition may have led to fewer students who bully and engage in problem behaviours frequently being

included in the analyses. To minimise this potential transition attrition the research was conducted with only Catholic secondary schools within the Perth metropolitan area. This does however, limit the generalisability of the results, and further research which includes students from rural areas and Government and Non-government schools is needed.

The results suggest that bullying intervention programs are critical prior to and at the beginning of secondary school as both direct victimisation and perpetration predict the level of engagement in problem behaviours. In their meta-analysis and review of anti-bullying programs, Ttofi and Farrington (2009) found the anti-bullying intervention program components which had the greatest effect in decreasing victimisation and perpetration included the use of videos, working with peers, group work, parent training and information for parents, playground supervision, classroom rules and management and disciplinary methods. However, their conclusions with respect to working with peers and disciplinary methods have been challenged (Smith, Salmivalli, & Cowie, 2012). Pearce et al. (2011) conclude that raising awareness and educating the whole school community is one of the key strategies to help reducing cyberbullying in schools. The transition to secondary school provides an opportune period in which to intensify whole-school bullying intervention programs.

Conclusion

Problem Behaviour Theory is supported for traditional direct bullying but not for cyberbullying. Students engaging in cyber perpetration behaviours did not also engage in higher levels of other problem behaviours. While this study supports the correlation between cyberbullying and traditional forms of bullying, it found levels of traditional victimisation and perpetration at the beginning of secondary school (Grade 8) predicted levels of engagement in problem behaviours at the end of Grade 9. Cyberbullying was not found to represent an independent risk factor over and above levels of traditional

victimisation and perpetration for higher levels of engagement in problem behaviours. The

results suggest it will be most beneficial to focus interventions on traditional bullying,

specifically reducing direct bullying during the first few years of secondary school.

Chapter 4: Adolescent bully-victims: Social health and the transition to secondary school

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Citation

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Contribution of authors

The candidate was responsible for the preparation of data, data analyses and interpretation of the analyses in this paper as well as writing the literature review and general discussion Professor Cross and Dr Dooley assisted with the structure and clarity of the literature review and general discussion of this manuscript. Ms Therese Shaw assisted with the data analysis, results and interpretation of the analysis.

Relevance to thesis

This chapter presents analyses central to Research Question 2 of this thesis. The purpose of this chapter is to investigate the temporal relationships between peer support, pro-victim attitudes, school connectedness and negative outcome expectancies and bullying for bully-victims transitioning from primary to secondary school.   It explores critical times in which to intervene to reduce victimisation and determines the factor which has the greatest impact on reducing perpetration-victimisation over the first year of secondary school.   This chapter also offers recommendations for intervention components to minimise the impact of victimisation.

Abstract

This study aimed to investigate the causal pathways and factors associated with being involved in bullying behaviour as a bully-victim using longitudinal data from students aged 11-14 years over the transition time from primary to secondary school. Examination of bully-victim pathways suggest a critical time to intervene is prior to transition from the end of primary school to the beginning of secondary school to prevent and reduce the harm from bullying. Negative outcome expectancies from bullying perpetration were a significant predictor of being a bully-victim at the end of the first year of secondary school. The findings show an association between peer support, connectedness to school, pro-victim attitudes, outcome expectancies and level of bullying involvement. Implications for intervention programs are discussed.

Keywords: bully-victim, peer support, pro-victim attitudes, connectedness, outcome expectancies

Bullying is a type of aggressive behaviour that involves the systematic abuse of power through unjustified and repeated acts intended to inflict harm (Smith, 2004). The prevalence, seriousness and negative impacts of school bullying contribute to significant physical, psychological and social health problems, and can affect all students within the school community (Bosworth, 1999; Espelage, et al., 2000). Loss of friendships, feelings of isolation and hopelessness, loneliness, unhappiness and lack of self esteem and disruptions to learning have been associated with involvement in bullying behaviours (Bosworth, 1999; Espelage, et al., 2000; Glover, et al., 2000; Pellegrini, 2002). Evidence from longitudinal studies found that bullying impacts on physical health and is linked to depression, anxiety and psychosomatic complaints (Kaltiala-Heino, et al., 2000; Tremblay, et al., 2004).

Students may take on various roles in a bullying situation dependent on their social status: those who bully others, those who are victimised, those who reinforce bullying behaviours, those who assist with bullying behaviours, those who defend the victimised, and those who are uninvolved (Salmivalli, et al., 1996). This study focuses on an additional participant role of students who self-report both perpetrating bullying behaviours and being a target of bullying behaviours from others and will be referred to as 'bully-victims' (Haynie, et al., 2001).

A recent large-scale survey in 40 countries revealed 10.7% of adolescents reporting involvement in bullying as perpetrators only, 12.6% as victimised only, and 3.6% as bully-victims (Craig, et al., 2009). The majority of countries involved in this study showed a trend of increasing prevalence in perpetration and a decreasing prevalence in victimisation with increasing age, with no trend observed for bully-victims. Approximately 10% of Australian school students reported being bullied most days or more often, with 27% reporting being victimised every few weeks or more often in the previous term (10-12 weeks) at school and 9% reported bullying others every few weeks or more often in the previous term (Cross, et

al., 2009). Four percent of school students within that study reported being bullied every few weeks or more often and bullying others every few weeks or more often (Unpublished data, Cross et al., 2009).

Proactive and reactive aggression are characteristics of bully-victims, with bully-victims the most aggressive subgroup of students who bully (Peeters, et al., 2010; Salmivalli & Nieminen, 2002). Proactive aggression includes behaviour that is directed at a victim to obtain a particular goal and allows the aggressor to successfully attain and maintain dominance and high status within peer groups (Pellegrini & Bartini, 2001; Salmivalli, 2010). This form of aggression is reinforced by peer support (Mayberry & Espelage, 2007). In contrast, reactive aggression is described as a reaction to a perceived provocation or threat and is characterised by emotional and impulsive behaviour which is used to relieve frustration, anxiety, or fear and is a more typical response from bully-victims (Espelage & Swearer, 2003; Mayberry & Espelage, 2007). In general, bully-victims are more likely to be disliked and socially isolated, lonely with very few friends and less able to form positive friendships with peers than students who only bully or who are only victimised (Georgiou & Stavrinides, 2008; Haynie, et al., 2001). They find peer support from other students who bully and bully-victims but generally have low peer support from the general student population (Georgiou & Stavrinides, 2008; Pellegrini, et al., 1999)

Adolescent bully-victims are the highest risk subgroup involved in bullying as they function more poorly socially, emotionally and behaviourally than those who are only bullied or only victimised (Demaray & Malecki, 2003; Nansel, Overpeck, Pilla, Ruan, et al., 2001; Stein, et al., 2007). They typically are victimised more often, engage in more perpetration, and have more experiences of physical, relational and cyberbullying victimisation (Demaray & Malecki, 2003; Georgiou & Stavrinides, 2008; Perren, et al., 2010). They also demonstrate more internalising (e.g. depression, anxiety, psychosomatic and eating disorders) and

externalising (e.g. conduct problems, aggressiveness, attention deficit and hyperactivity disorders) symptoms than any other sub-group involved with bullying (Menesini, 2009). Bully-victims report more involvement in other problem behaviors such as alcohol use problem, eating disorders, delinquency, violations of parental rules, and weapon carrying and report the most physical injury compared to their peers (Haynie, et al., 2001; Kaltiala-Heino, et al., 2000; Stein, et al., 2007; Veenstra, et al., 2005). They also have increased risk of future psychiatric problems, anti-social behaviour and having a criminal record as adults (Haynie, et al., 2001; Kumpulainen & Räsänen, 2000; Perren & Hornung, 2005). Importantly, bullying involvement in the role of bully, victim and bully-victim has been found to be stable over time and life changing (Hixon, 2009).

Among Australian students, an increase in bullying behaviour appears to occur at age 11 and in the immediate transition period from primary school to secondary school (Cross, et al., 2009). This increase in bullying behaviours may be due to a combination of factors including a focus on academic competition, teachers' attitudes towards bullying, a lack of school community and a peak in social aggression (Pellegrini, 2002; Pellegrini & Bartini, 2000; Underwood, et al., 2009). Adolescence coincides with the transition from primary to secondary school contributing to a major change in social structure with students often needing to develop new friendships and define their place in a new social hierarchy (Pellegrini & Bartini, 2000). In adolescence, social status goals (increased prestige and perceived popularity) become more important and are one of the driving motivations behind bullying behaviour (Salmivalli, 2010; Sijtsema, et al., 2009). Manipulation and aggression are often used as deliberate strategies to acquire power and influence, gain dominance and to increase and maintain popularity with peers during adolescence (LaFontana & Cillessen, 2010; Salmivalli, 2010). Adolescent bully-victims are also more likely to be disliked and socially isolated, lonely with very few friends and are less able to form positive friendships with peers (Haynie, et al., 2001).

There are a large number of other factors which may mediate involvement in bullying behaviours both at the individual and the school level: bullying behaviours may be affected by attitudes, beliefs and responses of the whole school community. Factors examined in this paper include peer support, connectedness to school, pro-victim attitudes, and outcome expectancies of bullying another student. In this study, peer support (the quality of students' friendships, the level of validation and social support they receive from their friends (Ladd, et al., 1996a)) and the relationship between perpetration-victimisation are examined across the transition period and into secondary school. School connectedness, the quality of the social relationships within the school, and the extent to which a student feels they belong and cared for by people at their school (McNeely, et al., 2002), are related to connectedness to teachers, family and peers (Osterman, 2000). Students involved in bullying are less likely to feel connected to school compared to non-involved students with bully-victims feeling the least connected (Bradshaw, et al., 2008). Adolescent perceptions of the consequences of bullying another student (outcome expectancies), include how they believe others will view their bullying behaviour and what will happen as a result and how the student would feel about themselves if they bullied another student. Expectations that aggression will lead to rewards or to victim suffering, and the value placed on rewards and victim suffering, determine the role a student takes in bullying situations (Andreou & Metallidou, 2004). A pro-victim attitude (including support for the victim, empathy towards the victim and disapproval of bullying behaviours) is a possible predictor of students' participation in bullying behavior. In contrast a negative attitude towards perpetration is positively related to students who are only victimised or are bully-victims, and negatively related to students who bully only (Pellegrini, et al., 1999).

The majority of research investigating factors related to adolescent bully-victims has been cross-sectional rather than longitudinal in design. To date, longitudinal research has primarily focused on psychological health factors such as self-esteem, aggression,

externalising behavioural problems and social immaturity (Kim, Leventhal, Koh, Hubbard, & Boyce, 2006; Pollastri, Cardemil, & O'Donnell, 2010). Despite this, the causal direction of the relationships between bully-victimisation and social health factors over and following the transition to secondary school have not been established. Identifying factors impacting on adolescent bullying behaviours will enable primary to secondary school transition programs to more effectively target those factors contributing to bullying perpetration and victimisation.

Gender differences will be explored in this paper as previous research has shown males are more likely to be within the bully-victim group, have higher expectations that bullying will lead to status rewards and report less peer social support than females (Andreou & Metallidou, 2004; Holt & Espelage, 2007). While no gender differences have been found between bully-victims and their feelings of safety at school or school belonging (Bradshaw, et al., 2008), further research is needed to determine whether gender effects occur for bully-victims and other social health indicators.

This study explores, for bully-victims, the direction of the relationships between the degree of perpetration-victimisation and peer support, pro-victim attitudes, connectedness to school, and negative outcome expectancies of bullying others during students' transition from primary to secondary school. Factors that are protective against higher levels of perpetration-victimisation in the first year of secondary school will be determined and gender differences in causal pathways examined. It is hypothesised that bully-victims with higher levels of peer support, pro-victim attitudes, school connectedness and negative outcome expectancies of bullying behavior will report lower levels of perpetration-victimisation.

Methods

Sample and procedure

Supportive Schools Project (SSP) longitudinal study collected data on adolescents' knowledge, attitudes, and experiences of bullying victimisation and perpetration during the transition from primary school to secondary school and included 3,459 students from 21 secondary schools in Perth, Western Australia. The aim of this project was to enhance the capacity of secondary schools to implement a whole-of-school bullying reduction intervention (including strategies to enhance student transition to secondary school) and compare this intervention using a randomised (cluster) comparison trial to the standard behaviour management practices currently used in WA secondary schools.

Data used in this paper were collected in four waves from 2005 to 2007. In the final year of primary school (Grade 7, mean age 11 years) the student cohort was administered a self-completion questionnaire. Students were followed and completed questionnaires after the transition to secondary school (the beginning of Grade 8), end of Grade 8 (13 years old) and end of Grade 9 (14 years old).

To reduce the rate of transition attrition as students move from primary to secondary schools, secondary schools affiliated with the Catholic Education Office (CEO) of Western Australia were recruited to participate in the study as students within Australian Catholic schools are more likely than students attending schools in other sectors (e.g. government schools) to move in intact groups. Schools were stratified according to the total number of students enrolled at the school and each school's Socio-Economic Status (SES) and were randomly selected. Additional schools were selected to account for non-participation. Schools were then randomly assigned within each stratum to an intervention or comparison group. Twenty-one of the 29 selected eligible schools consented to participate. Additional schools within the same stratum assigned to the same condition were approached in the event of a school refusing participation. The eight schools that declined to participate cited other priorities within their school and demanding staff

workloads. To collect data relating to pre-transition experience, all students enrolled in Year 8 at each of the 21 participating secondary schools received a baseline survey while in Year 7 at their primary school. The potential student cohort at the start of the study was enrolled at almost 400 primary schools in the Perth metropolitan area.

Active followed by passive consent (Ellickson & Hawes, 1989) was sought from parents of the Year 7 students enrolled in the 21 recruited secondary schools in Terms 3 and 4 of 2005. Parents were also sent a copy of the student questionnaire, and a reply paid envelope to return the consent form and the questionnaire once completed. Parents who did not respond were sent up to two follow-up letters. Secondary schools either directly mailed the information to parents or provided the researchers with labels to send mail to the parents of their incoming Year 8 students. Researchers were contacted by school staff when new enrolments occurred or when students left the school.

Parental consent was provided for 3,462 of the 3,769 (92%) students eligible to participate with 3,123 (90%) of the students involved in the SSP study responding to at least three of the four data collection points and 1,771 responding to all four data points (51%). Over the study period, participants comprised 50% males and 70% attended a co-educational versus single sex secondary school.

The SSP intervention comprised three components targeting parents, students and the whole school. The parent intervention aimed to increase parents' understanding of the issues associated with the transition from primary to secondary school, bullying, and the importance of friendships. The student intervention provided students with information and strategies to manage the transition from primary school to secondary school, to improve their social competence and to enhance social responsibility to reduce and cope adaptively with bullying. The whole-school component comprised strategies to help schools to systematically review and implement their whole-school bullying policy, as well as implement effective mechanisms to manage student bullying behaviour, to modify the

physical environment to reduce bullying and to build a positive whole-school ethos. The intervention also included six hours of classroom curriculum implemented in each of Grade 8 and Grade 9. As comparisons of the study conditions are not the focus of this paper, the results from all students were used in this secondary analysis with the study condition included as a covariate in the statistical models, controlling for any intervention impact.

Measures

Bullying perpetration-victimisation. Bullying perpetration was assessed using a nine-item category index derived from items used in Rigby and Slee (Rigby & Slee, 1998), Olweus (Olweus, 1996) and the 2004 Youth Internet Survey (Ybarra & Mitchell, 2004). The items assessed physical (hit, kicked or pushed others around; deliberately broke someone's things or took money or other things away; made others feel afraid they would get hurt), verbal (made fun of and teased others in a hurtful way; called others mean and hurtful names), relational (ignored other students, didn't let others join in, or left them out on purpose; told lies about others and tried to make other students not like them) and cyber bullying (sent mean and hurtful text (SMS) messages; sent mean and hurtful messages on the internet) over the previous school term.

For each item students were asked how often they bullied others, rating each item on a 5 point scale (1 = never, 2 = only once or twice, 3 = every few weeks, 4 = about once a week, 5 = most days). A perpetration score at each time point was calculated for each student by averaging the nine perpetration items, with a higher score indicating more perpetration experiences. Victimisation was assessed using a similar nine-item victimisation index which asked students how often they were bullied by others in the ways listed to measure perpetration. A perpetration-victimisation score at each time point was calculated for each student by averaging the perpetration and victimisation items, with a higher score reflecting more overall bullying experiences (average alpha = 0.87). Only students who

reported both perpetrating bullying and being victimised at least once or twice in the previous term (last three months) are included in the analyses.

Peer support. The peer support at school scale (adapted from the 24-item Perceptions of Peer Social Support Scale (Ladd, et al., 1996a)) comprised eleven items (how often would other students: choose you on their team at school; tell you you're good at things; explain something if you didn't understand; invite you to do things with them; help you if you are hurt; miss you if you weren't at school; help you if something is bothering you; ask to work with you on group work; help you if other students are treating you badly; ask you to join in when you are alone; and share their things with you?) were measured on a three point scale (1 = never, 2 = sometimes, 3 = lots of times). A peer support score at each time point was calculated for each student by averaging all items, with a higher score reflecting greater feelings of peer support (average alpha = 0.88).

Pro-victim attitudes. The nine-item Pro-victim attitude scale used in this study was adapted from Rigby and Slee's (1991) 20 item Pro-victim Scale. The Scale comprises seven pro-victim items (A person who bullies is really a coward; it makes me angry when someone is picked on; students should tell someone if they are being bullied; students who pick on someone weaker should be told off; I like it when students stand up for themselves; you should not pick on someone who is weaker than you; I like it when someone sticks up for students who are bullied; I feel uncomfortable when I watch someone being bullied) and two items not supportive of victims (students who get picked on all the time usually deserve it; it's funny to see students get upset when they are teased) with three response choices of 1 = agree, 2 = not sure and 3 = disagree. After reverse coding the non-supportive items, an average pro-victim score was calculated from the nine items, with a higher score reflecting attitudes more supportive of victims (average alpha = 0.70).

Connectedness. The four item connectedness to school scale (I feel close to people at this school; I feel like I am part of this school; I am happy to be at this school; the teachers at this school treat students fairly) was adapted from the Resnick et al. (Resnick, et al., 1997) six item School Connectedness Scale and was measured on a five point scale (1 = unsure, 2 = never, 3 = sometimes, 4 = usually, 5 = always). For each student at each time point an average connectedness to school score was calculated, with a higher score reflecting greater feelings of connectedness to school (average alpha = 0.80).

Outcome expectancies. The outcome expectancies scale (from bullying others) was adapted from a scale developed by Rigby (2003) and comprised eleven items (other students would be scared of me; other students would like me; my parents would find out and talk to me about it; I would feel bad about myself; other students would think I was tough; I would get into trouble; I would feel bad for the student I bullied; other students would not want to be my friend; my parents would be unhappy with me; I would feel good about myself; other students wouldn't bully me) with three response choices of 1 = yes, 2 = maybe and 3 = no. After reverse coding the negative items, an average outcome expectancies score was calculated, with a higher score reflecting a belief of greater negative outcomes for the student if they engage in bullying behaviours (average alpha = 0.71).

Data Collection

Data were collected in two ways – firstly when the cohort were in Grade 7 baseline data were collected at home from all Year 7 students enrolled in recruited secondary schools for Year 8, and secondly from school when the cohort were in Grade 8 and Grade 9. Parents of Year 7 students were mailed a package which contained: a letter describing the study requesting their active consent for their Year 7 child to participate, as well as providing a contact telephone number for parents to call should they have any questions; a student questionnaire which provided instructions on how to complete the questionnaire; a

contact phone number of a trained research staff member if they would like to complete the questionnaire via telephone; and a reply paid envelope for them to return their questionnaire once completed.

Year 8 and Year 9 student data collection was conducted by trained research staff who administered questionnaires to students during class time according to a strict procedural and verbal protocol. Students not participating in the data collection were given alternate learning activities.

Statistical Analysis

Analyses were conducted using MPlus v6, STATA v10 and PASW v18. Cross-lagged models within the Structural Equation Modeling (SEM) framework were used to model causal paths, between factors of interest and perpetration-victimisation with longitudinal data collected over and following the students' transition from primary to secondary school.

All four time-points were represented in all models tested to determine the direction of association between the factors and the degree of bullying perpetration-victimisation as observed at a later time point. Espelage and Swearer (2003) describe bullying as a dynamic behaviour with involvement falling along a continuum. Hence, rather than analyzing the outcome as a dichotomy, this paper uses a continuous measure for each student involved in at least one bullying incident of perpetration and victimisation, with a higher score reflecting greater involvement.

Linear regression models with random effects were used determine the predictors of the level of perpetration-victimisation for bully-victims during the first year of secondary school. Previous bullying involvement, gender, study condition (to control for any possible intervention effects) and clustering at the school level were taken into account in all models. Missing data on scale items were handled using the Expectation-Maximisation

(EM) procedure in PASW v 18 where scores were calculated for scales where 80% of items had responses, and missing data at time points through Full Information Maximum Likelihood (FIML) estimation in Mplus v 6 enabling the use of all students with at least one valid score in the analyses.

Results

Table 7 describes the sample by gender, study condition and time point and lists the means and standard deviations for factors of interest and perpetration-victimisation at the four time points. The data represent adolescents classified as bully-victims (i.e., those involved in at least one incident of perpetration and at least one incident of victimisation in the previous three months). Slightly fewer females than males self identified as bully-victims, particularly in Grade 8. On average bully-victims believed they were supported by their peers (range of mean 2.43 to 2.49), had pro-victim attitudes (range of mean 2.57 to 2.74), felt connected to their school (range of mean 3.81 to 4.22) and had greater negative outcome expectancies of bullying (range of mean 2.37 to 2.55) over the four time points. Most bully-victims did not report high levels of perpetration-victimisation (range of mean 1.41 to1.64) (Table 7).

Bivariate correlation coefficients describing the concurrent relationships between the factors of interest and perpetration-victimisation for bully-victims, show higher levels of peer support, pro-victim attitudes, connectedness to school and outcome expectancies were significantly correlated with lower levels of perpetration-victimisation at all time points (Table 8). For almost all factors the correlations increased over time.

Table 7 Descriptive statistics of sample, factors and perpetration-victimisation for bully-victims.

	End of Grade 7	Beg. of Grade 8	End of Grade 8	End of Grade 9
Number of students	*n (%)*	*n (%)*	*n (%)*	*n (%)*
Total	900	1121	1363	1349
Male	464(51.6)	668(59.5)	738(54.1)	691(51.0)
Female	436(48.4)	453(40.5)	623(45.9)	658(49.0)
Intervention	450(50.0)	584(52.0)	651(47.8)	640(47.3)
Comparison	450(50.0)	538(48.0)	712(52.2)	714(52.7)
Average Age	*11*	*12*	*13*	*14*
Descriptive Statistics[ŧ]	*Mean (SD)*	*Mean (SD)*	*Mean (SD)*	*Mean (SD)*
Peer Support (1-3)	2.48(0.34)	2.43(0.35)	2.47(0.41)	2.49(0.45)
Pro-victim Attitude (1-3)	2.74(0.22)	2.65(0.28)	2.62(0.33)	2.57(0.42)
School Connectedness (1-5)	4.22(0.61)	3.97(0.79)	3.96(0.77)	3.81(0.83)
Outcome Expectancies (1-3)	2.55(0.27)	2.46(0.31)	2.43(0.35)	2.37(0.40)
Perpetration-victimisation (1-5)	1.41(0.31)	1.41(0.36)	1.51(0.49)	1.64(0.72)

[ŧ]Higher scores correspond to greater peer support, pro-victim attitudes, school connectedness, negative outcome expectancies of bullying others and greater perpetration-victimisation.

Causal pathways

Cross-lagged models, which allow for assessment of reciprocal causal effects across time, were used to examine causal pathways between perpetration-victimisation and factors of interest from Grade 7, the last year of primary school (12 years of age), to the end of Grade 9 (14 years of age). Crossed-lag model fit indices within MPlus indicate good model fit for all mediator variables and perpetration and perpetration-victimisation (all CFI>0.9; all RMSEA<0.08). Models were tested for gender and study group invariance using the Satorra Bentler Scaled Chi-square, with results indicating significant parameters equally apply to males and females and to each of the study conditions for peer support, connectedness to school and outcome expectancies. Gender differences existed in the causal pathways for pro-victim attitudes with a cyclical relationship shown for males and a reciprocal

relationship shown for females. Figures 5 to 8 show the relevant path coefficients for the causal pathways between factors and perpetration-victimisation.

Table 8 Bivariate correlations between factors and perpetration-victimisation for bully-victims

	Peer Support	Pro-victim Attitudes	Connectedness	Outcome Expectancies
End of Grade 7				
Peer Support	1			
Pro-victim Attitude	.036	1		
Connectedness	.498**	.109**	1	
Outcome Expectancies	.028	.379**	.136**	1
Perpetration-victimisation	-.409**	-.072*	-.445**	-.133**
Beginning of Grade 8				
Peer Support	1			
Pro-victim	.095**	1		
Connectedness	.417**	.168**	1	
Outcome Expectancies	.056	.455**	.101**	1
Perpetration-victimisation	-.335**	-.130**	-.298**	-.162**
End of Grade 8				
Peer Support	1			
Pro-victim	.163**	1		
Connectedness	.438**	.181**	1	
Outcome Expectancies	.119**	.519**	.175**	1
Perpetration-victimisation	-.382**	-.368**	-.331**	-.311**
End of Grade 9				
Peer Support	1			
Pro-victim	.397**	1		
Connectedness	.448**	.316**	1	
Outcome Expectancies	.257**	.647**	.253**	1
Perpetration-victimisation	-.511**	-.607**	-.396**	-.484**

*$p < .05$, **$p < .01$
Outcome expectancies refers to negative outcome expectancies of bullying others

$$\text{Y-B } \chi^2(\text{df}=12) = 240.488 \qquad \text{CFI}=0.934 \qquad \text{RMSEA}=0.074$$
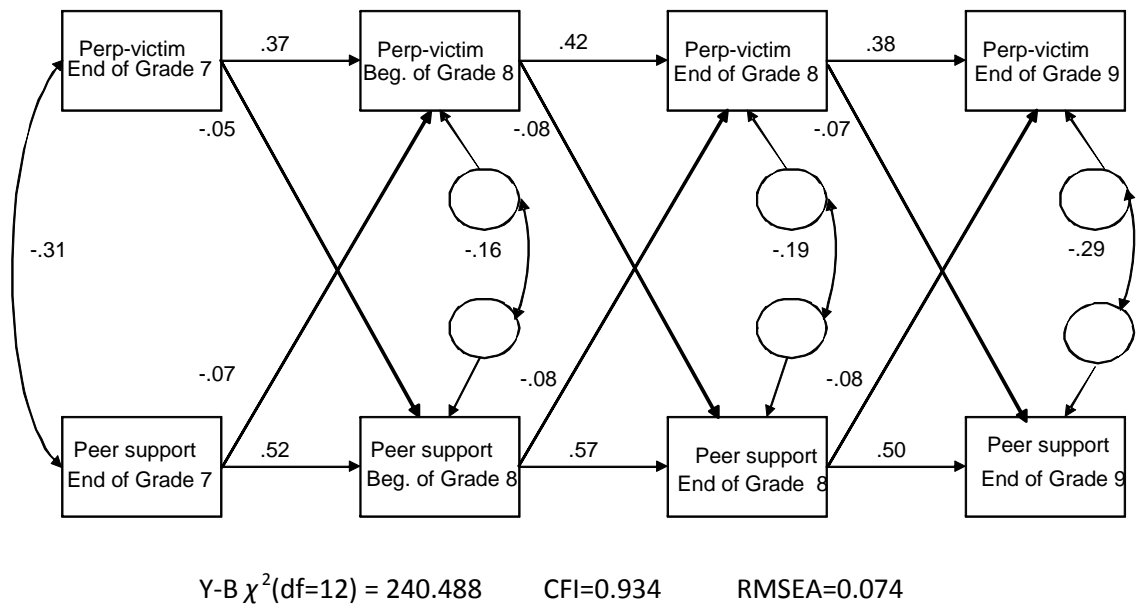
Figure 5 Cross-lagged model for perpetration-victimisation and peer support

Straight and curved single arrows represent causal paths modeled. The corresponding decimals are standardised regression coefficients. Unbroken lines are used for paths with a corresponding $p<0.05$: broken lines are used for paths with a corresponding $p>0.05$. The curved line between variables represents a correlation; the number is the corresponding correlation coefficient. Small circles represent residual paths; the number is the corresponding correlation coefficient.

Y-B χ^2 is the Yuan-Bentler-scaled Chi-square which adjusts for non-normal data; CFI Comparative Fit Index; RMSEA Root Mean Square Error of Approximation.

Male
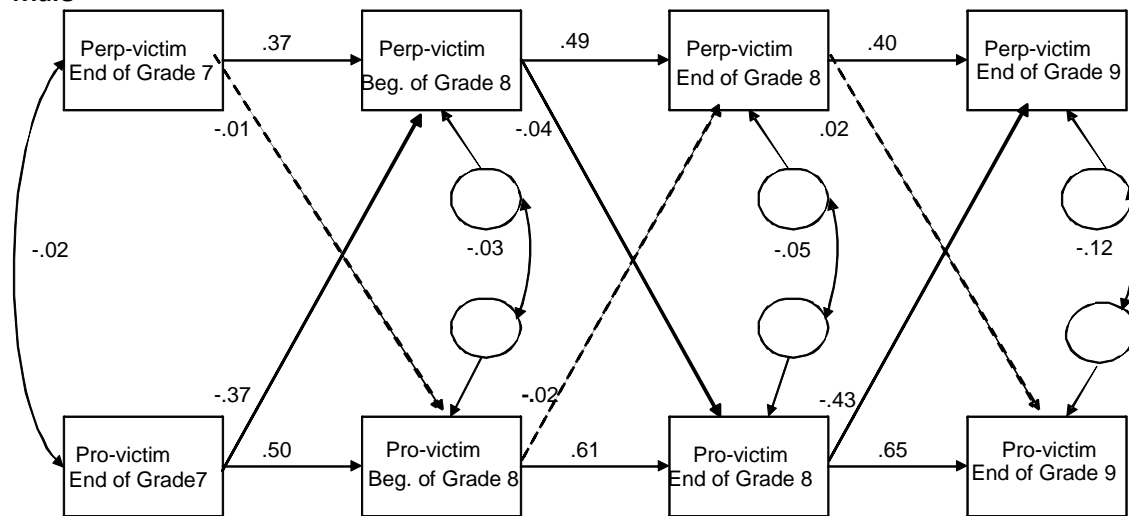
Female
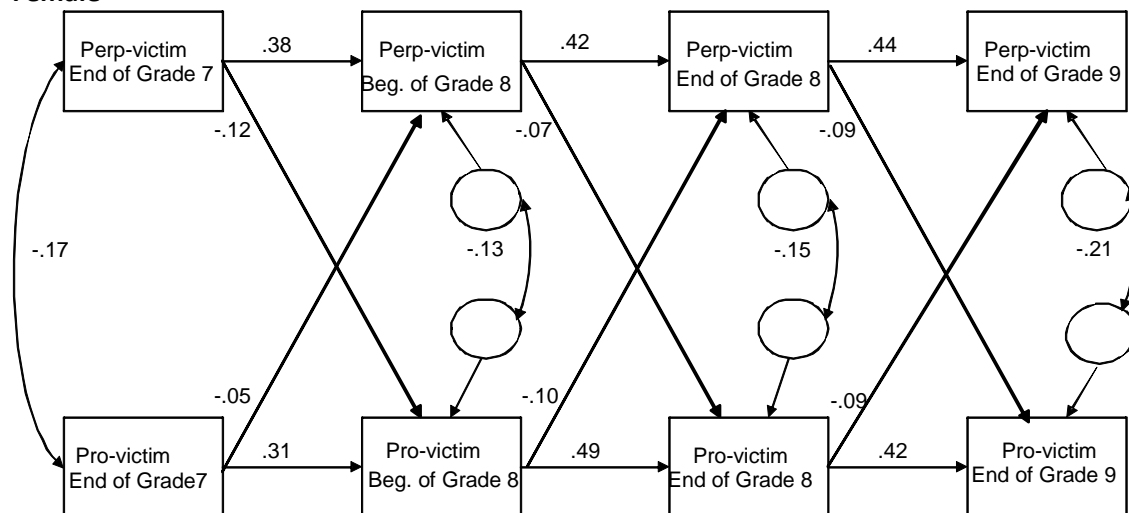
Y-B χ^2(df=12) = 276.472   CFI=0.908   RMSEA=0.080

Figure 6 Cross-lagged models by gender for perpetration-victimisation and pro-victim attitudes
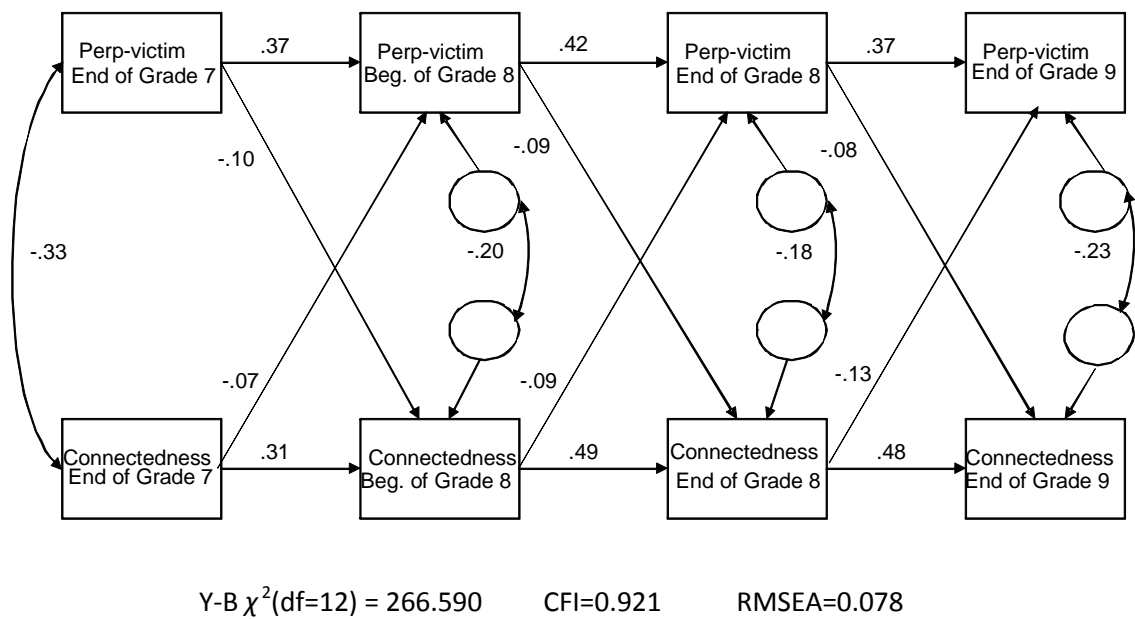
Figure 7 Cross-lagged model for perpetration-victimisation and connectedness
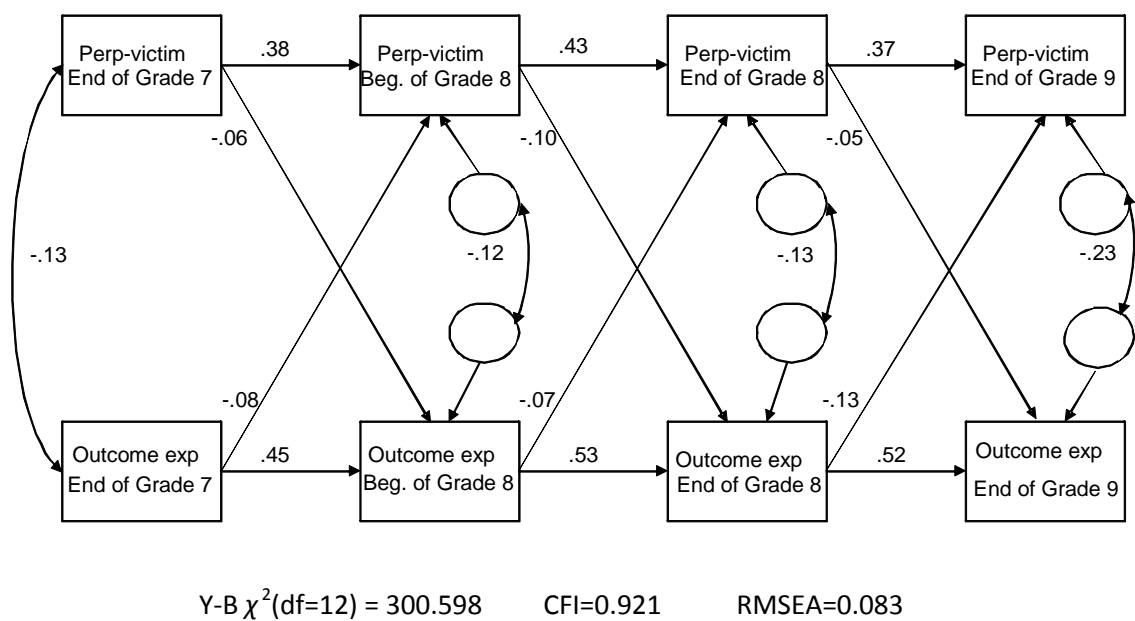
Figure 8 Cross-lagged model for perpetration-victimisation and outcome expectancies

Model results reveal higher peer support, school connectedness and negative outcome expectancies of bullying are associated with less perpetration-victimisation at later time points. The coefficients of the pathways from the factors to perpetration-victimisation at

later time points are strongest for students from the end of Grade 8 (13 years) to the end of Grade 9 (14 years). The reciprocal relationships are also significant with increased perpetration-victimisation associated at each time point with less peer support, less school connectedness and more positive outcome expectancies at the later time point.

Reciprocal relationships also exist between pro-victim attitudes and perpetration-victimisation for females at all time points. For males, a cyclical pattern emerges – higher pro-victim attitudes in Grade 7 relate to lower perpetration-victimisation scores at the beginning of Grade 8, higher perpetration-victimisation scores at this time are associated with lower pro-victim attitudes at the end of Grade 8, which in turn are associated with higher perpetration-victimisation scores at the end of Grade 9.

An increase in correlated residuals from the start of secondary school to the end of Grade 9 between the factors and perpetration-victimisation within each year indicate the associations tended to increase with time.

Predictors of level of perpetration-victimisation in first year of secondary school

The level of perpetration-victimisation at the beginning of secondary school was a significant predictor of the level of perpetration-victimisation at the end of the first year of secondary school (Table 9). Students with greater negative outcome expectancies at the beginning of secondary school had significantly lower perpetration-victimisation scores at the end of the year.

Table 9 Linear regression results for perpetration-victimisation

DV: perpetration-victimisation at end of Grade 8 (*n*=717)	Coefficient	95% Confidence interval	P value
Perpetration-victimisation[t]	0.56	(0.46, 0.67)	<0.001**
Peer Support[t]	-0.10	(-0.21, 0.02)	0.096
School Connectedness[t]	-0.01	(-0.06, 0.04)	0.737
Pro-victim Attitude[t]	0.07	(-0.08, 0.21)	0.366
Outcome Expectancies[t]	-0.21	(-0.34, -0.07)	0.002**
Gender[t]	-0.02	(-0.10, 0.06)	0.615

*p< .05, **p< .01

[t] measured at the beginning of Grade 8

Discussion

All adolescents who were involved in at least one incident of both perpetration and victimisation, regardless of the frequency of involvement, were included in this research as bully-victims are at greater risk of negative mental, emotional, physical and social outcomes.

The existence of causal relationships between perpetration-victimisation and peer support, pro-victim attitudes, school connectedness and negative outcome expectancies were supported using cross-lagged models within a structural equation modeling framework. Significant paths between factors and perpetration-victimisation were found to exist at the end of primary school (Grade 7) confirming previous research of associations starting earlier in primary school (Demaray & Malecki, 2003; Rigby, 1997). Reciprocal relationships between less peer support, fewer negative outcome expectancies if bullying others, feeling less connected to school, less pro-victim attitudes (among females only) and higher perpetration-victimisation were found during the first year of secondary school, indicating these factors may be determinants as well as consequences of bullying behaviours. These findings suggest by secondary school the behaviours and outcomes for students are fairly

established. This suggests prior to transition or the beginning of secondary school is a critical time to provide targeted bullying intervention programs. This presents an opportune time to intervene as students are presented with a new secondary school ecology.

After accounting for prior perpetration-victimisation and gender, negative outcome expectancies for perpetrators have a significant impact on reducing perpetration-victimisation over the first year of secondary school. Hence, a strong school ethos against bullying behavior, and consistent staff implementation of the school policy if students bully others appears to be critical.

Peer support

Peer support in this study was a protective factor over the transition period for bully-victims. Reciprocal paths exist with greater peer support associated with less perpetration-victimisation and greater perpetration-victimisation associated with less peer support, highlighting the importance of addressing peer support at the commencement of secondary school.

Intervention programs based on increasing peer support have been shown to be successful in reducing the incidence of bullying at school and reducing the negative effects of bullying for students who are victimised (Gini, et al., 2008; Menesini, Codecasa, Benelli, & Cowie, 2003). Successful whole school interventions to increase peer support include encouraging student interaction between families, teachers and students; students engaging in extracurricular activities; and meetings of students who share similar goals (Buchanan & Bowen, 2008). While the design of curriculum content to encourage co-operative and helpful behaviour and peer support and student counseling services can be used to counter bullying behaviours (Rigby, 2000), it is recommended that schools are proactive in promoting peer support schemes to the school population as students in schools who are

aware of the existence of peer support systems worry significantly less about being bullied (Cowie, et al., 2008).

Connectedness to school

In this study a reciprocal relationship between perpetration-victimisation and school connectedness existed across the transition where a student generally moves from a primary school that is a smaller more personal school environment where they are known into a larger more impersonal environment (Mizelle, 2005). Students in secondary school often report a decrease in sense of school belonging and perceived quality of school life (Barton & Rapkin, 1987; Pereira & Pooley, 2007). The path of less school connectedness as a consequence of perpetration-victimisation is the stronger, which may indicate students who more frequently perpetrate bully-victim behaviours in primary school are more likely to be less connected in primary school and may therefore expect to feel less connectedness in secondary school. Reciprocal relationships also exist during secondary school, with the strongest path between feeling less connected at school at the end of Grade 8 (first year of secondary school) and increased perpetration-victimisation at the end of Grade 9. This research also found connectedness to school decreased as bully-victims progressed through school highlighting the need for developmentally appropriate strategies for increasing bully-victims' connectedness to school.

Waters, Cross and Shaw (2010) suggested that interventions to improve students' school connectedness at the beginning of secondary school should focus on the school culture and ways to improve the school's physical environment. Recommended pastoral care strategies include the promotion of health and wellbeing, resilience, academic care, and social capital through implementation of school policies and programs at the school, teacher, student and school-community levels (Nadge, 2005a, 2005b; Quigley, 2004; WHO, 1998). Enabling students to achieve their highest academic potential and to participate in

extracurricular activities such as sport, recreation, music, arts and service can also contribute to an increase in students' school connectedness (Hamilton, Cross, Hall, & Townsend, 2003; Waters, Cross, & Shaw, 2010). The school's built environment and the care taken by the school community to maintain the school grounds can have an impact on students' connectedness with the school (Waters, et al., 2010).

Outcome expectancies

Perceptions of greater negative consequences of bullying in this study were associated with less perpetration-victimisation, and greater perpetration-victimisation with less negative consequences of bullying. However, on average, negative outcome expectancies for bully-victims declined with age perhaps reflecting school policies where outcomes for bullying were unclear, inconsistently implemented or minimal or social norms where it is more accepted to be pro-bully decreasing with age.

Bullying is more likely to occur if students think they will be rewarded socially in terms of respect and status by those who equate bullying with power and dominance (Andreou & Metallidou, 2004). Both students who bully and bully-victims are less likely to take responsibility and make amends when involved in aggressive behaviour to others (Morrison, 2006). Negative outcome expectancies, including parents finding out and parental and peer disapproval, are strong motivational forces to prevent involvement in bullying behaviours (Rigby, 1997). Students are also less likely to engage in aggressive behaviours if there is an expectation there will be consequences (Hall, et al., 1998).

A zero tolerance approach to bullying mandates the application of predetermined consequences which are most often punitive in nature and intended to be applied regardless of the gravity of behavior, mitigating circumstances or situational context (Skiba et al., 2008). Skiba and colleagues (2008) conclude a zero tolerance approach has not been

shown to improve school climate, school safety or student behaviour and may not be appropriate for early adolescents where bullying incidents may arise due to poor judgment resulting from developmental immaturity. In reviewing anti-bullying programs, Ttofi and Farrington (2009) found the use of clear sanctions and disciplinary methods were effective in reducing bullying. Results of the review may have been influenced by the number of studies utilising The Olweus Bullying Prevention Program (Olweus & Limber, 2010) which recommends a confronting approach to reduce the prevalence of bullying behaviour. This approach involves setting firm limits to unacceptable behaviour and the use of consistent consequences when rules are broken. Smith and colleagues (2006) found school rules, which discourage bullying behaviours and identify negative consequences for active bullying and positive consequences for active defending, when developed in conjunction with students were seen by the students as fair and meaningful. In a recent study, a non-confronting approach (which aims to arouse awareness of and empathy for victims suffering) was more effective in primary school and a confronting approach was more effective for group bullying in reducing the prevalence of bullying behaviours (Garandeau, Little, Kärnä, Poskiparta, & Salmivalli, 2011). Pikas (2002) suggests the method of Shared Concern (a non-confronting method) may be more appropriate for adolescents.

Pro-victim attitudes

Previous research indicates that attitudes towards students who are victimised become less supportive with age with adolescents tending to despise and blame the target and be more approving of aggression (Gini, et al., 2008; Menesini, et al., 1997; Rigby, 1997; Rigby & Slee, 1991). Pro-victim attitudes of bully-victims in this study also on average declined with age. A reciprocal relationship existed for female bully-victims, whereas strong paths between increased pro-victim attitudes and lower levels of perpetration-victimisation over the transition period and from the end of Grade 8 to the end of Grade 9 was found for male

bully-victims. These results emphasise the importance of promoting pro-victim attitudes in primary and secondary school.

Bullies tend to choose victims who are vulnerable ie submissive, insecure, physically weak, in a rejected position in the group, having very few friends or displaying differences from others in some manner and are often seen as personally responsible for their failures (Hodges & Perry, 1999; Ladd & Troop-Gordon, 2003; Salmivalli & Isaacs, 2005; Schuster, 2001; Schwartz, et al., 1998; Teräsahjo & Salmivalli, 2003). Importantly, intervention programs need to acknowledge the high status imparted on those who support students who are being bullied (Caravita, et al., 2010). Supporters (those who comfort, support or stand up for those being victimised) have greater empathetic skills, are perceived as and are positive models for the peer group (Caravita, et al., 2010; Poyhonen, et al., 2010; Sainio, et al., 2011; Schwartz, et al., 1998). Those who are more supportive of bullying lack empathic understanding of the victims (Poyhonen & Salmivalli, 2008). Programs which focus on empathy and positive bystander behaviour, responsiveness with victimised peers and encourage students to perceive all cases of bullying as severe and unjust while reflecting on their own beliefs and beliefs of their peer group in relation to bullying episodes are critical in increasing pro-victim behaviour and reducing bullying prevalence rates (Almeida, Correia, & Marinho, 2010; Fox, Elder, Gater, & Johnson, 2010; Gini, et al., 2007; Nickerson, Mele, & Princiotta, 2008).

In an earlier study by the authors (Lester, Cross, Dooley, & Shaw, In submission), similar pathway results were found over the transition from primary to secondary school and the first year of secondary school for victimisation and peer support as was found in this study on perpetration-victimisation. However, over the transition period connectedness to school was a significant protective factor of perpetration-victimisation and not victimisation. Different significant pathways of victimisation and perpetration-victimisation imply targeted intervention programs during this period need to be developed for both

victims and bully-victims, with programs for victims more focused on increasing peer support and programs for bully-victims focused on increasing peer support, connectedness to school, pro-victim attitudes and perceptions of greater negative consequences of bullying.

The strengths of this study include the large sample size and the longitudinal nature of the research design enabling the examination of predictors as well as consequences of victimisation-perpetration. The reliance on self-report of bullying perpetration and victimisation over the adolescent years rather than also using peer, teacher or parent report may result in underreporting of involvement in bullying behaviours, particularly perpetration. As social health was also measured using self report, shared variance is a limitation of the study as estimates of the correlation between bullying behaviours and social health may be inflated. The victimisation and perpetration scores do not contribute evenly to the mean score due to the higher number of victimisation incidents reported, thus the study results reflect victimisation experiences to a greater degree than perpetration. Missing data due to absentee students and students lost to attrition may mean that students with greater levels of involvement in bullying perpetration or victimisation behaviours were not included in the analyses. Data collection procedures in Grade 7 were not consistent with procedures in Grade 8 and Grade 9. Parents may have been present during questionnaire completion by students in Grade 7 which may result in different responses compared to completion in a classroom situation, as was the case in Grades 8 and 9. This reduces the comparability of the data across the time points to some degree. To reduce attrition during the conduct of the study, the research was conducted with a sample of Catholic secondary schools within the Perth metropolitan area, which may affect the generalisability of results. The student cohort followed in this study involved students from over 400 primary schools transitioning to 21 secondary schools. Approximately 4% of students were enrolled in Kindergarten to Grade 12 schools and may

not have as disruptive transition experience of changing school grounds from primary to secondary school as students who change schools. Research which includes students from rural areas and Government, non-Government and Independent schools, as well as a comparison with students who have not changed schools is needed to interrogate the generalisability of the results. It is recommended that further longitudinal research be undertaken following younger primary school students until the end of secondary school enabling further clarification and validation of the relationships found in this research.

Conclusion

There is a need for transition programs with a focus on early and targeted intervention to minimise health risks to students from bullying and to minimise the impact on the school environment. The findings from this study suggest a critical time to implement bullying intervention programs that address peer support, connectedness to school, pro-victim attitudes and in particular negative outcome expectancies around perpetration, is prior to the transition to and within the first year of secondary school.

Chapter 5: Bullying victimisation and adolescents: Implications for school based intervention programs

Citation

Contribution of authors

The candidate was responsible for the preparation of data, data analyses and interpretation of the analyses in this paper as well as writing the literature review and general discussion. Professor Cross and Dr Dooley assisted with the structure and clarity of the literature review and general discussion of this manuscript. Ms Therese Shaw assisted with the data analysis and interpretation of the analysis.

Relevance to thesis

This chapter presents analyses central to Research Question 3 of this thesis. The purpose of this chapter is to investigate the temporal relationships between social health and bullying victimisation in students' transitioning from primary to secondary school. This chapter explores critical times in which to intervene with targeted social health and bullying intervention programs and offers recommendations for the components of social health interventions to minimise the impact of victimisation.

Abstract

Schools have become increasingly aware of the prevalence, seriousness and negative impacts of bullying. Investigation into the direction and strength of the relationship between social health factors and bullying victimisation during early adolescence and the determination of a critical time to focus school-based bullying intervention programs is a high priority. Data were collected using a self-completion questionnaire four times over three years from 3,459 students' aged 11–14 years during the transition from primary to the end of the second year of secondary school. Results show the path coefficients for bullying victimisation to social heath factors were stronger at the beginning of secondary school than the reverse paths, with bullying victimisation associated with greater loneliness, less peer support, less connectedness to school, and feeling less safe at school. Consequently, the time prior to the transition to secondary school appears to be a critical time to implement a whole-school bullying intervention program to reduce victimisation.

Keywords: connectedness, loneliness, peer support, safety, school bullying, victimisation

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Schools have become increasingly aware of the prevalence, seriousness and negative impacts of bullying - a type of aggressive behaviour involving the systematic abuse of power through unjustified and repeated acts intended to inflict harm (Smith, 2004). Approximately 10% of Australian school students in Grades 4-9 reported being bullied most days or more often, with 25% reporting being bullied every few weeks or more often in the previous term (10 weeks) at school (Cross, et al., 2009). This, victimisation impacts on social health (the ability to get along with others, how others react to them, how they react to social institutions and societal mores), physical health (Tremblay, et al., 2004), as well as mental health (Gini & Pozzoli, 2009; Kaltiala-Heino, et al., 2000).Cross-sectional studies found victimisation was associated with many social health factors including a loss of friendships (Espelage, et al., 2000), feelings of isolation and hopelessness (Espelage, et al., 2000), unhappiness and lack of self-esteem (Glover, et al., 2000) and disruptions to learning (Bosworth, 1999).

The application of social-ecological theory to the conceptualisation of bullying and victimisation suggests how bullying perpetration and victimisation are reciprocally influenced by the individual, family, school, peer group, community and society (Swearer, et al., 2006). Social health factors which have been identified as protective against bullying victimisation include the ability to make new friends (Akos & Galassi, 2004), the number and quality of friends (Pellegrini & Bartini, 2000), peer support (Pellegrini, 2002), feeling comfortable in new social situations (Cohen & Smerdon, 2009), positive evaluation of self by others (Storch, et al., 2003) and having a positive self-image (Mizelle, 2005). Liking school (Barber & Olsen, 2004), school belonging (Benner & Graham, 2009), connectedness to school (O'Brennan & Furlong, 2010), and feeling safe at school (Espelage, et al., 2000) are also protective against victimisation.

There is evidence that during a student's school life there are periods of time when their risk of being bullied is higher than at other times. For example, bullying peaks twice for Australian school students – first at age 10 and then again following their transition to secondary school, around age 12 (Cross, et al., 2009). The transition from primary to secondary school provides both challenges and opportunities for adolescents as they experience environmental, physiological, cognitive and social changes (Barton & Rapkin, 1987). During this period, students need to learn to adapt to new organisational and social structures within their school environment, while having mixed feelings of fear and anticipation about the social relationships which dominate the school transition experience (Pereira & Pooley, 2007). Friendship and peer support have been identified as important contributors to a successful transition from primary school to secondary school (Crockett, et al., 1989), with the social support of peers, parents and teachers helping to mediate the relationship between victimisation and school adjustment (Malecki, et al., 2008).

Factors which can contribute to bullying and victimisation during this time include social comparisons between peers (Pellegrini, 2002), the number and quality of friends, being disliked by peers and the establishment of hierarchy and new social roles in new social groups (Pellegrini & Bartini, 2000). The transition period can result in increased feelings of isolation as a major change in social structure occurs with adolescents often having to develop new friendships and lose friends at a time when great importance is placed on peer relationships (Pellegrini & Bartini, 2000). This dependence on peer relationships and reliance on peers for social support comes with increasing pressures to attain high social status (Espelage & Holt, 2001). The social and emotional changes associated with moving into secondary school can manifest in frustration and anxiety and have been associated with negative and disruptive social behaviours (Cohen & Smerdon, 2009).

Of all the factors mentioned, two individual and two school-based variables related to social health, bullying victimisation and transition were opportunistically examined in this study. These variables included loneliness at school, peer support, connectedness to school and feeling safe at school. Evidence suggests lonely children are more likely to be victimised by peers (Berguno, et al., 2004) and, in turn, those victimised are more likely to be lonely as other peers avoid them for fear of being bullied themselves or losing social status among their peers (Nansel, Overpeck, Pilla, Ruan, et al., 2001). Having many friends, having friends who are willing and able to support and protect, and being accepted by the peer group are the main social factors identified as protective against victimisation (Hodges & Perry, 1996). Importantly, friendship moderates the relationship between victimisation and loneliness (Storch, et al., 2003), which involves both the circumstance of aloneness and the feeling of sadness (Cassidy & Asher, 1992), while poor friendship quality is associated with high levels of loneliness (Woods, et al., 2009). The perception of peer support – which refers to the quality of students' friendships, both the level of validation and social support they receive through their friends (Ladd, et al., 1996a) – was also found to be protective against victimisation (Pellegrini, 2002). Furthermore, victimised students perceive less peer support and place greater importance on peer support than those who bully or are uninvolved (Malecki & Demaray, 2004).

School connectedness describes the quality of the social relationships within the school: the extent to which a student feels like he/she belongs at and feels cared for by the school (McNeely, et al., 2002). Students who are physically, verbally and relationally victimised are more likely to report feeling disconnected from school (O'Brennan & Furlong, 2010; You et al., 2008). In contrast, students who feel more connected are more considerate and accepting of others (Osterman, 2000) and report less peer harassment (Eisenberg, et al., 2003). Students' perception of safety at school is negatively influenced by bullying (Bradshaw, et al., 2008) and the behavioural reactions of their peer group (Gini, et al.,

2008), if they hear others being mean (Beran & Tutty, 2002), and if they feel adults at school are not supportive (Beran & Tutty, 2002). Feeling unsafe at and disconnected to school may be the result of being bullied but, conversely, may also result in perpetration of bullying behaviours (Bradshaw, et al., 2008).

As the majority of research in this area is cross-sectional in design, the relationship between bullying victimisation and social health factors as examined in this research during and two years following school transition, is not well established. This paper examines the nature of the association between the social health outcomes and victimisation over time to determine whether the relationships are reciprocal or unidirectional at each time point and how the relationships may change. Through examining the relationships between the social health variables and victimisation over time, we hope to determine whether the time following transition, identified as a challenging period for students, or the time prior to transition is a critical time to intervene to prevent victimisation.

Methods

Sample and procedure

Data were drawn from a longitudinal study, the Supportive Schools Project (SSP). These data included adolescents' knowledge, attitudes, and experiences of bullying victimisation and perpetration during the transition from primary to secondary school. Data were collected in four waves from 2005 to 2007, from students in Catholic secondary schools in Perth, Western Australia. The student cohort completed a baseline self-completed questionnaire in Grade 7, the last year of primary school (11 years old). After the transition to secondary school, the cohort completed questionnaires at the beginning (Term 1) of Grade 8 (12 years old), the end (Term 3) of Grade 8 (13 years old) and Term 3 of Grade 9 (14 years of age).

Catholic secondary schools were chosen to participate in the SSP study to reduce the rate of transition attrition, as students within Australian Catholic primary schools are more likely to move to their local Catholic secondary school than is the case within government schools. Schools were stratified according to the number of students enrolled and each school's socio-economic status and then randomly assigned to the intervention or comparison group. Of the 29 eligible schools, 21 schools consented to participate with ten schools randomly allocated to the intervention group (n = 1,789) and eleven to the comparison group (n = 1,980). Eight schools declined because of other priorities and demanding staff workloads.

Of the 3,769 students eligible to participate, parental consent was obtained for 92% (n = 3,462). The numbers of students and response rates at each data collection wave are given in Table 10. Approximately 3,100 (90%) students responded to at least three data collection points and 1,771 responded to all four data points (51%). Active followed by passive consent (Ellickson & Hawes, 1989) was sought via mail from parents of Grade 7 students enrolled in the 21 recruited secondary schools. Over the study period participants comprised approximately 50% males and 70% attended a co-educational (n=8) versus single sex (n=3) secondary school. Ethics approval has been granted by Edith Cowan University ethics committee.

As comparisons between the study conditions were not the focus of this paper, the results from all students were used in this secondary analysis with the study condition included as a covariate in the statistical models, controlling for any intervention impact.

Table 10 Consent and questionnaire completion rates

	End of Grade 7 (Primary) n (%)	Beg. of Grade 8 (Secondary) n (%)	End of Grade 8 n (%)	End of Grade 9 n (%)
Total eligible	3769	3462	3379	3332
Total with parental consent	3462(92)	3462(100)	3379(100)	3332(100)
Left school	0	83	47	163
Total sample	3462	3379	3332	3169
Total completed	2078(60)	3317(98)	3263(98)	3025(95)
Total completed male	1003(48)	1675(50)	1651(51)	1542(51)
Total completed female	1074(52)	1639(50)	1608(49)	1478(49)

Measures

Bullying victimisation: To assess physical, relational, and verbal bullying victimisation, a seven item categorical index adapted from items/scales developed by Rigby and Slee (1998) and Olweus (1996) was used. Students were asked how often they were bullied in the following ways: hit, kicked and pushed around; had money or other things broken or taken away from them; made to feel afraid they would get hurt; made fun of and teased in a hurtful way; called mean and hurtful names; students ignored them, didn't let them join in, or left them out on purpose; and students told lies about them and tried to make other students not like them, during the prior term at school. Each item was measured on a five-point scale equivalent to that recommended by Solberg & Olweus (2003) (1 = never, 2 = once or twice, 3 = every few weeks, 4 = about once a week, 5 = most days).   A factor analysis performed on the victimisation scale confirmed its unidimensionality (CFI >0.9, SMR<0.10 at all time points). A victimisation score was calculated at each time point for

each student by averaging the seven items with a higher score reflecting more experiences of victimisation (average alpha = 0.86).

Peer Support: The peer support at school scale (adapted from the 24-item Perceptions of Peer Social Support Scale; (Ladd, et al., 1996a) comprised eleven items (How often would students: choose you on their team; tell you you're good at things; explain something if you didn't understand; invite you to do things with them; help you if you are hurt; miss you if you weren't at school; help you if something is bothering you; ask to work with you; help you if other students treat you badly; ask you to join in when alone; and share things with you?) measured on a three point scale (1 = never, 2 = sometimes, 3 = lots of times). A factor analysis performed on the adapted peer support scale confirmed its unidimensionality (CFI >0.9, SMR<0.10 at all time points). A peer support score at each time point was calculated for each student by averaging all items, higher scores reflecting greater feelings of peer support (average alpha = 0.88).

Loneliness: Loneliness was measured using seven items adapted from Cassidy and Asher's 15 item loneliness at school scale (Cassidy & Asher, 1992). The seven items (I feel alone at school; I have lots of friends to talk to at school; It's hard for me to make friends at school; I have nobody to talk to in my classes; I don't have anyone to spend time with at school; I'm lonely at school; I feel left out of things at school) were measured on a five point scale ranging from 1 = strongly disagree to 5 = strongly agree. A factor analysis performed on the adapted loneliness scale confirmed its unidimensionality (CFI >0.9, SMR<0.10 at all time points). A mean loneliness score was calculated at each time point for each student, higher scores reflected greater feelings of loneliness (average alpha = 0.72).

Connectedness: The connectedness to school scale comprised four items adapted from the Resnick and McNeely (1997) six item School Connectedness Scale (I feel close to people at school; I feel like I am part of this school; I am happy to be at school; the teachers treat

students fairly) measured on a five point scale (1 = never, 2 = unsure, 3 = sometimes, 4 = usually, 5 = always). The unidimensionality of the adapted scale was confirmed in a factor analysis (CFI >0.9, SMR<0.10 at all time points). For each student at each time point an average school connectedness score was calculated, with a higher score reflecting greater feelings of connectedness to their school (average alpha = 0.80).

Safety: Safety at school was a single item adapted from the Peer Relations Questionnaire (Rigby & Slee, 1998) and measured on a three point scale (1 = No, I never feel safe at school, 2 = Yes, some of the time, 3 = Yes, all or most of the time) for each time point with a higher value reflecting greater feelings of safety at school.

Data Collection

All Grade 7 students enrolled in the 21 recruited secondary schools were invited to participate in the SSP via a package mailed to each parent. Each package contained a parental consent form, a student questionnaire, instructions on how to complete the questionnaire, a reply paid envelope for them to return their questionnaire once completed and a contact phone number of a researcher. In Grades 8 and 9, students with consent completed hard copy questionnaires in the classroom during a normal school period administered by trained research personnel according to a strict procedural and verbal protocol. Students without consent were given alternate learning activities.

Statistical Analysis

Analyses were conducted using MPlus v6, STATA v10 and SPSS v17. Cross-lagged models within the Structural Equation Modeling (SEM) framework were used to model causal paths with longitudinal data between the social health factors and bullying victimisation. Due to the skewed nature of the victimisation and social health variables, the MLR estimator (robust maximum likelihood parameter estimator) was used within the cross-lagged models as it implements non-normality robust standard error calculations. Differences

between study condition and gender were examined within the cross-lagged models to ensure models fit equally well and the associations were the same in the different groups. Social health factors were modeled separately to determine the individual relationships of the different social health variables and bullying victimisation. All four time-points were represented in all cross-lagged models tested to determine the direction of the associations between social heath factors and victimisation as observed at a later time point (see Figures 9 to 12). Additionally, the results from the cross-lagged models were examined to determine the point at which the relationships between bullying victimisation and social health were the strongest, to determine whether there is a critical time point in which to intervene with targeted bullying intervention programs. Missing data were handled using the Expectation-Maximisation (EM) procedure in SPSS and Full Information Maximum Likelihood (FIML) estimation in MPlus, enabling the use of all students with at least one valid score in the analyses.

Results

Table 11 lists the means and standard deviations for the social health factors and victimisation at the four time points. On average students were not lonely (range of mean 1.94 to 2.00, maximum score of 5), believed they were supported by their peers (range of mean 2.44 to 2.58, maximum of 3), felt connected to their school (range of mean 4.00 to 4.40, maximum of 5), and felt safe at school (range of mean 2.70 to 2.82, maximum of 3) over the four time points. Most students did not report being frequently victimised (range of mean 1.28 to 1.47, maximum of 5) with 8 - 12% of students reporting they were bullied frequently (every few weeks or more often) at each time point. A significant drop in bullying victimisation was found between the end of primary school and the beginning of secondary school (t=4.44, p<0.001), with victimisation significantly increasing between the start of secondary school and the end of Grade 8 (t=6.28, $p<0.001$).

Table 11 Descriptive statistics of social health factors and victimisation

	End of Grade 7 (Primary) *n*=2037-2070	Beg. of Grade 8 (Secondary) *n*=3213-3301	End of Grade 8 *n*=3162-3254	End of Grade 9 *n*=2935-3015
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Loneliness (1-5)	1.94(0.47)	1.97(0.52)	1.96(0.55)	2.00(0.62)
Peer Support (1-3)	2.58(0.34)	2.52(0.35)	2.44(0.39)	2.57(0.43)
Connectedness (1-5)	4.40(0.60)	4.20(0.75)	4.20(0.77)	4.00(0.84)
Safety (1-3)	2.82(0.41)	2.78(0.43)	2.72(0.50)	2.70(0.52)
Victimisation (1-5)	1.42(0.59)	1.33(0.52)	1.45(0.62)	1.53(0.79)

Frequency of bullying Victimisation in the past term (10 weeks)

	n(%)	n(%)	n(%)	n(%)
Not victimised	1305(64)	2310(70)	2051(64)	1910(64)
Once or twice	509(25)	744(22)	818(25)	719(24)
Every few weeks	127(6)	95(3)	167(5)	129(4)
Once a week	46(2)	74(3)	100(3)	123(4)
Most days	54(3)	61(2)	93(3)	120(4)

As shown in Table 12, at all time points significant correlations were found between the four social health factors (all *p*<.01). Bivariate correlation coefficients describing the concurrent relationships between the social health factors and bullying victimisation were also significant (all *p*<.01), and showed a temporary significant decrease in association over the transition from primary to secondary school, as the beginning of Grade 8 values were lower than for the other time points for each of the social health variables' associations with victimisation.

Table 12 Bivariate correlations between social health factors and Victimisation

	Peer Support	Loneliness	Connectedness	Safety
End of Grade 7				
Peer Support	1			
Loneliness	-.604**	1		
Connectedness	.535**	-.490**	1	
Safety	.349**	-.411**	.430**	1
Victimisation	-.497**	.558**	-.495**	-.485**
Beginning of Grade 8				
Peer Support	1			
Loneliness	-.545**	1		
Connectedness	.500**	-.520**	1	
Safety	.363**	-.437**	.465**	1
Victimisation	-.412**	.435**	-.369**	-.417**
End of Grade 8				
Peer Support	1			
Loneliness	-.560**	1		
Connectedness	.457**	-.480**	1	
Safety	.373**	-.426**	.487**	1
Victimisation	-.472**	.546**	-.397**	-.428**
End of Grade 9				
Peer Support	1			
Loneliness	-.585**	1		
Connectedness	.487**	-.449**	1	
Safety	.420**	-.419**	.509**	1
Victimisation	-.539**	.595**	-.401**	-.461**

*$p < .05$, **$p < .01$

Cross-lagged models

As a first step, the cross-lagged models were tested for invariance across gender groups and study condition, to determine whether the associations between the social health variables and bullying victimisation were equivalent across these groups and therefore, whether one model could be fitted for each social health variable using the combined gender and study condition data. Tests using the Satorra Bentler Scaled Chi-square were non-significant (all p>0.05, Table 13), indicating it was not necessary to fit separate models for the gender groups or the study conditions. The subsequent cross-lagged models for

each of the social health variables and victimisation are given in Figures 9-12. Fit indices

indicate good model fit for all variables and victimisation (all *CFI >0.9, all RMSEA <0.08*).

Table 13 Satorra-Bentler scaled Chi-Square model fit test of gender and study condition invariance for the cross-lagged models

	Gender			Study Condition		
	T	df	p	T	df	p
Loneliness	16.349	12	0.176	9.150	12	0.690
Peer support	9.147	12	0.690	7.394	12	0.831
Connectedness to school	10.301	12	0.590	3.793	12	0.987
Safety at school	19.905	12	0.069	9.569	12	0.654

*p < .05, **p < .01

Firstly, considering the associations over the transition period, model results reveal that

victimisation in the last year of primary school is associated with loneliness (β = 0.08, *p* =

0.035, Figure 9), less peer support (β = -0.06, *p* = 0.044, Figure 10), feeling less connected to

secondary school (β = -0.06, *p* < 0.001, Figure 11) and feeling less safe at the start of

secondary school (β = -0.15, *p* < 0.001, Figure 12). Peer support was the only variable to

show an association in the opposite direction with greater peer support (β = -0.09, *p* =

0.003) in the last year of primary school associated with less victimisation at the start of

secondary school).

Reciprocal relationships exist between social health factors and bullying victimisation in the

first two years of secondary school. The coefficients between the beginning and end of the

first year of secondary school for victimisation to the social heath factors (loneliness: β =

0.17, *p* < 0.001; peer support: β = -0.15, *p* < 0.001; connectedness to school: β = -0.10, *p* <

0.001; feeling safe at school: β = -0.20, *p* < 0.001) were stronger than those from the social

health factors to victimisation (loneliness: β = 0.09, *p* < 0.001; peer support: β = -0.11, *p* <

0.001; connectedness to school: β = -0.07, *p* < 0.001; feeling safe at school: β = -0.05, *p* =

0.023).

Between the end of the first year of secondary school and the end of the second year of secondary school the coefficient for bullying victimisation to loneliness (β = 0.14, *p* < 0.001) was higher than that from loneliness (β = 0.06, *p* = 0.023) to bullying victimisation. The reciprocal coefficients for peer support were similar in magnitude (β = -0.10, *p* < 0.001 and β = -0.09, *p* < 0.001 respectively), and the same for feeling safe at school (β = -0.10, *p* < 0.001). However, the coefficient from connectedness (β = -0.11, *p* < 0.001) to bullying victimisation was stronger than from bullying victimisation to connectedness (β = -0.08, *p* < 0.001. This suggests that after one to two years of secondary school, victimisation is more likely to occur when a student feels disconnected than feeling disconnected contributing to victimisation.

$$\text{Y-B } \chi^2(df=12) = 159.231 \qquad CFI=0.944 \qquad RMSEA=0.060$$
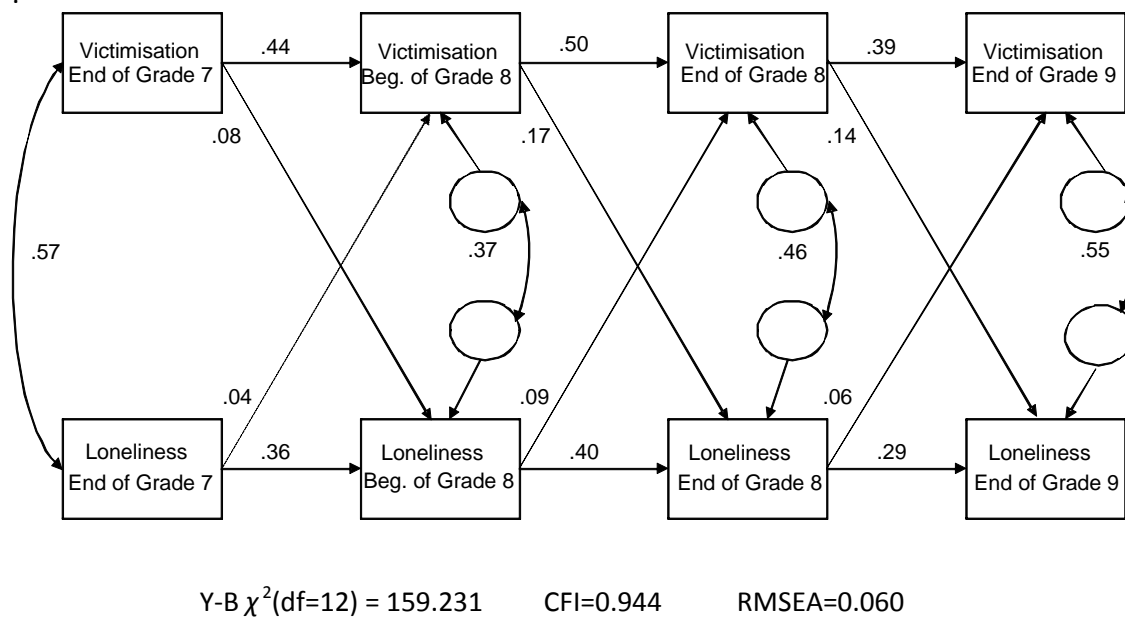
Figure 9 Cross-lagged model for victimisation and loneliness

Straight and curved single arrows represent causal paths modeled. The corresponding decimals are standardised regression coefficients. Unbroken lines are used for paths with a corresponding $p<0.05$: broken lines are used for paths with a corresponding $p>0.05$. The curved line between variables represents a correlation; the number is the corresponding correlation coefficient. Small circles represent residual paths; the number is the corresponding correlation coefficient.

Y-B χ^2 is the Yuan-Bentler-scaled Chi-square which adjusts for non-normal data; CFI Comparative Fit Index; RMSEA Root Mean Square Error of Approximation.
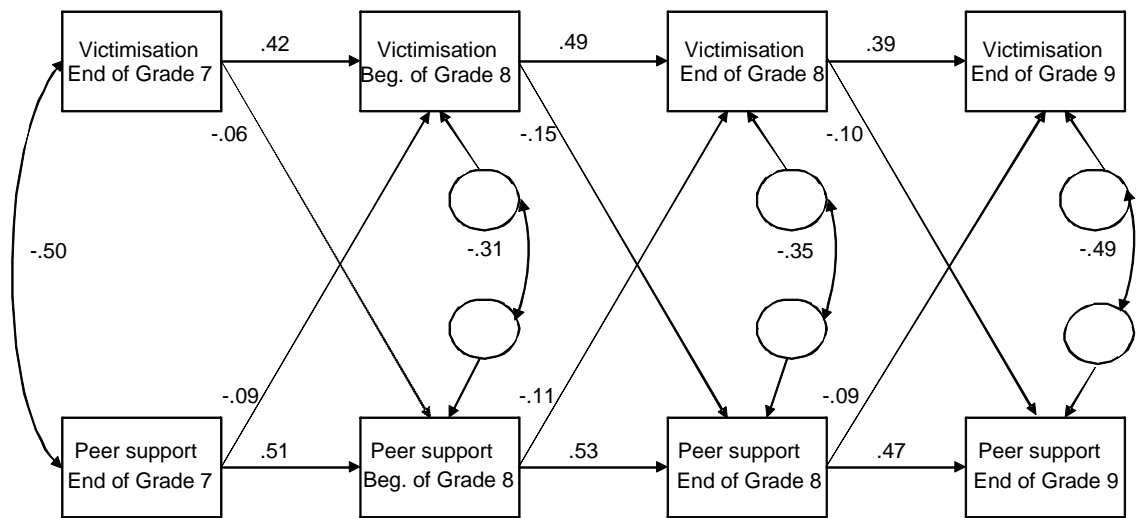
Y-B χ^2(df=12) = 203.938   CFI=0.958   RMSEA=0.068

Figure 10 Cross-lagged model for victimisation and peer support
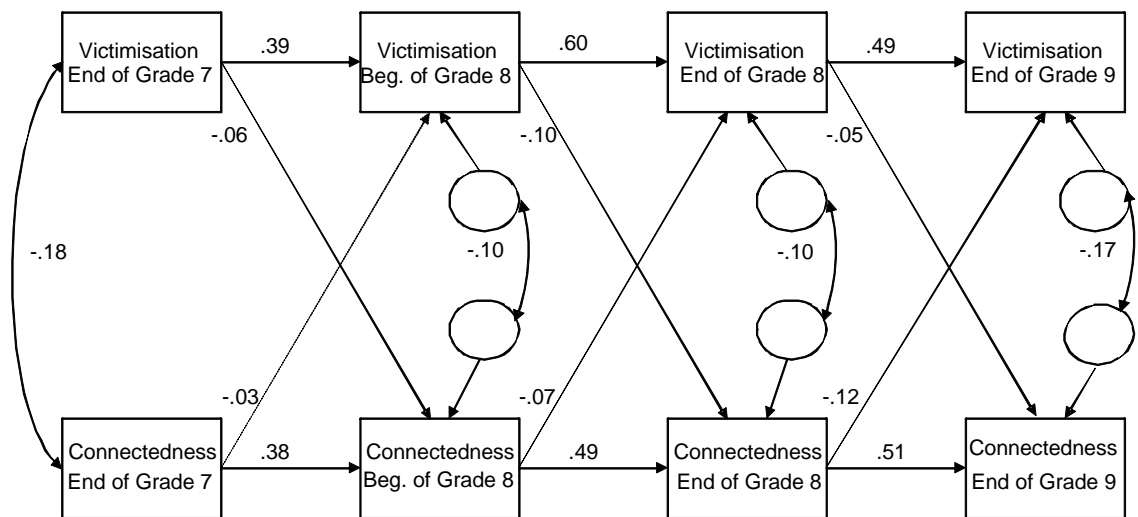
Y-B χ^2(df=12) = 255.708   CFI=0.926   RMSEA=0.072

Figure 11 Cross-lagged model for victimisation and connectedness to school

Y-B χ^2(df=12) = 171.077   CFI=0.939   RMSEA=0.062
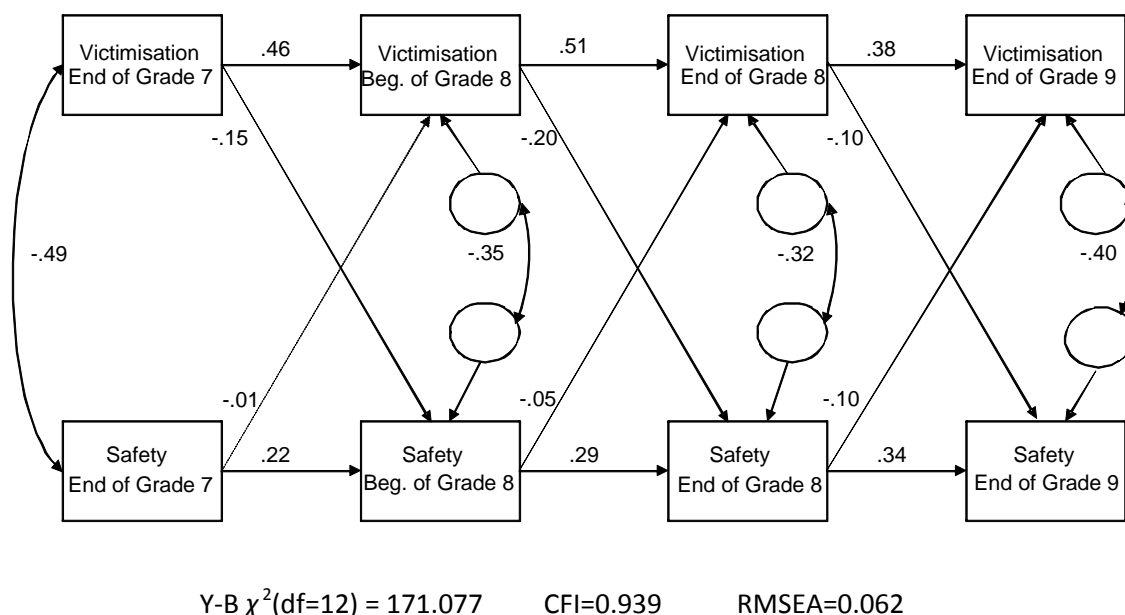
Figure 12 Cross-lagged model for victimisation and safety at school

Discussion

The significant reciprocal associations found in the cross-lag models in the first two years of secondary school indicate the need to intervene during the transition period to improve students' social health outcomes (and thereby reduce their victimisation in Grades 8 and 9) as well as reduce their victimisation experiences to avoid flow on effects on their social health. Based on the magnitude of the coefficients, the strongest associations in the direction from victimisation to the social health variables occurred from the beginning to the end of Grade 8. Reducing students' victimisation in Grade 8 may, therefore, protect against poorer outcomes on the social health variables, such as feeling safe at school, for students in the first year of secondary school.

Individual level social health variables and victimisation

The results of this study support the hypothesis that students who had less peer support at the end of primary school would experience higher levels of bullying victimisation at the

beginning of secondary school. However, this study found loneliness at the end of primary

school was not associated with greater bullying victimisation at the start of secondary

school, rather that victimisation at the end of primary school is associated with greater

loneliness at the beginning of secondary school. Reciprocal relationships between

victimisation and loneliness and peer support existed in the first two years of secondary

school with the path from victimisation to social health stronger than the alternate path.

These results support previous cross-sectional studies that show students' who are bullied

report greater loneliness as they may experience avoidance by others who fear being

bullied themselves or through losing social status amongst their peers (Nansel, Overpeck,

Pilla, Ruan, et al., 2001). However, similar to the findings by Nansel and colleagues (2001),

associations were found in the opposite direction, with students in this study who are

socially isolated and lonely more likely to be victimised.

These results are consistent with previous studies where the majority of students in late

primary and early secondary school report supportive attitudes towards those being

victimised, but attitudes become less supportive with age (Gini, et al., 2008) with an

increasing number of students over time disliking those who are victimised (Rigby & Slee,

1991). Importantly, it has been found that the number and quality of friends and being

liked by peers may protect against victimisation (Pellegrini & Bartini, 2000) suggesting the

development of healthy and multiple friendship groups would reduce the negative impact

of victimisation and reduce the probability of further victimisation and loneliness.

Victimised students report lower peer acceptance and family support (Perren & Hornung,

2005) as well as lower teacher support (Rigby, 2000). Peers can reduce bullying by

intervening and helping the person being victimised (Salmivalli, 1999), while student,

parent and teacher support can buffer victimised students from internalizing distress

(Rigby, 2000). Given the impact of student victimisation and over the transition period, the

development of stress coping skills will promote healthy coping in victimised students.

Thus, intervention approaches that provide opportunities for students to practice and develop coping behaviours will greatly assist with dealing with bullying victimisation.

School level social health variables and victimisation

The strongest paths in this study were found between feeling connected and safe at school at the end of the first year of secondary school leading to decreased bullying victimisation at the end of the second year of secondary school. Conversely, the paths leading from feeling less connected and safe at school to victimisation were stronger from the end of the first year of secondary school to the end of the second year of secondary school. Similarly, in a cross-sectional study of secondary school students, Bradshaw and colleagues (Bradshaw, et al., 2008) found that victimised students were more likely to report feeling disconnected and unsafe at school and that victimisation at primary school was associated with lower feelings of school connectedness and safety across the transition period to secondary school. During transition students typically experience a new social environment moving from small, personal primary school environments to secondary schools which are generally larger (Pereira & Pooley, 2007) and more impersonal (Mizelle, 2005), with teachers, classrooms and often classmates constantly changing (Simmons, et al., 1987). Consistent with this study, during this time students report a reduced sense of school belonging (Pereira & Pooley, 2007) and connectedness (O'Brennan & Furlong, 2010).

School connectedness and feeling safe at school, needs to be actively fostered in primary school and during the first few years of secondary school through a strong school ethos of care (Cowie, Naylor, Talamelli, Chauhan, & Smith, 2002), clear social support systems where relationships promote health and well-being (Cowie, et al., 2002) and positive classroom management. Increasing adult supervision, enhancing and encouraging the ability of adults to prevent, detect and intervene in bullying incidents, enabling students to support victimised students, easily report bullying, and effectively communicating to

students and the other members of the school community the school's bullying prevention policy and actions will also help to reduce victimisation and increase the students' perceived sense of safety at school (Beran & Tutty, 2002; Bradshaw, et al., 2008). The perception that school staff are pro-active in their efforts to intervene and reduce bullying (Beran & Tutty, 2002) can influence the students' perceived sense of safety at school. In this study, school connectedness and feeling safe at school declined steadily after the transition to secondary school highlighting the need for further longitudinal research to better understand the relationship between connectedness to school and feeling safe at school and bullying victimisation over time and how actions taken by the school increases feelings of connectedness and safety and their influences on victimisation.

The transition period

There was an unexpected significant decrease in overall reported bullying victimisation between the end of Term 4 primary school and the start of secondary school, but then victimisation significantly increased again over the first year of secondary school. This increase suggests that the first year of secondary school represents a critical time to focus on strategies to prevent bullying and support students who are victimised and that the final years of primary school need to focus on building students' skills to prevent, discourage and manage bullying behaviour. During this time reciprocal relationships the between bullying victimisation and all measured social health factors commence. This study suggests that this socially challenging time for adolescents is also when the associations between social health variables and victimisation may already be well established from primary school. Due to the increased importance placed on peer relationships during early adolescence and the risk of sustained victimisation (Rueger, et al., 2011), provision of social support to reduce the negative impact of transition effects and minimise harm to higher risk students is essential at this time (Espelage, et al., 2000).

Strengths and limitations

There are several strengths of this study. Most importantly, the longitudinal nature of the research design over the transition from primary into secondary school enabled the investigation of bullying victimisation and social health at a time that can be challenging for many students. Moreover these findings are robust due to the large sample of students (90%) who completed questionnaires in at least three data collection points. The limitations of this study include relying on student self-report of bullying victimisation and associated factors over the adolescent years. The research was conducted with a sample of Catholic secondary schools within the Perth metropolitan area which affects the generalisability of results given they represent 11% of all secondary schools (n=186) in Perth, Western Australia. Future research needs to include students from metropolitan and non-metropolitan areas and Government and non-Government schools to clarify and validate the nature of the relationships found in this research, as Catholic schools may support the transition process for students differently compared to other schools. The students who remained in Catholic schools during the transition to secondary school may also have different characteristics from those students who left.

This study also lacks information on the association between social health variables and victimisation before Grade 7, and therefore is limited in its ability to draw causal inference. All students involved in the study were included in this analysis regardless of study condition, with the study condition included as a covariate in the statistical models to control for any intervention impact. The inclusion of the intervention students did not statistically impact on the results (factor invariance in the models demonstrated equivalence of correlations between the groups) and hence have not impacted on the findings. The confounding of aggressive victims on the victimisation results in this study is also thought to be minimal due to the small proportion (between 0 - 4%) of students who

reported at any time point being victimised and also reported victimising others 'every few weeks' or more often. Finally, the questionnaires used in this study were not specifically designed for the secondary analyses which were reported in this paper.

Conclusion

School-based bullying prevention and intervention programs are a high priority to minimise student harm from bullying during adolescence. The findings from this study suggest a critical time to intensify whole-school bullying intervention programs, which focus on decreasing bullying and loneliness, while increasing peer support, school connectedness and school safety, is during the transition to and particularly within the first year of secondary school for higher risk students. The results indicate that increasing peer support and feelings of safety at school during the first year of secondary school may help to reduce bullying victimisation.

Chapter 6: Internalising symptoms: An antecedent or precedent in adolescent peer victimisation?

Contribution of authors

The candidate was responsible for the preparation of data, data analyses and interpretation of the analyses in this paper as well as writing the literature review and general discussion.   Dr Dooley assisted with the theoretical framework, structure of the paper, clarity of the literature review and general discussion of this manuscript.   Professor Cross and assisted with the structure and clarity of the literature review and general discussion.   Ms Shaw assisted with the data analysis, results and interpretation of the analysis.

Relevance to thesis

This chapter describes the direction and strength of the relationship between mental health and victimisation over the transition period, answering Research Question 4.   This paper identified causal pathways and offers recommendations for the type and timing of interventions to minimise the mental health harm from victimisation.   Outcomes from this chapter inform the recommendations presented in this thesis.

Abstract

The transition period from primary to secondary school is a critical time in adolescent development. The high prevalence of adolescent mental health problems makes understanding the causal pathways between peer victimisation and internalising symptoms an important priority during this time. This paper utilises data collected from self-completion questionnaires four times over three years from 3,459 students aged 11–14 to examine directional relationships among adolescents as they transition from primary to secondary school and investigates gender differences in these associations. The findings suggest depression in males is both a precedent and antecedent for victimisation over the transition period, whereas for females depression is an antecedent only. Anxiety is a both a precedent and antecedent for victimisation for males and females. To maintain emotional wellbeing and prevent peer victimisation, interventions prior to and during this transition period are critical, especially among adolescents experiencing symptoms of depression and anxiety.

Keywords: school bullying, victimisation, depression, anxiety, internalising symptoms

Approximately one in every four to five young people will suffer from at least one mental health problem or substance use disorder in any given year (Patel, et al., 2007). Moreover, many mental health problems place young people at an increased risk for difficulties that persist into adulthood (Sawyer, et al., 2000). The most common mental health problems among Australian adolescents are depression and anxiety (Rickwood, et al., 2007), with an estimated 24% of young people 12-25 years suffering from mental health problems (Access Economics, 2009).

The onset for many depressive and anxiety disorders is around age 13 with the incidence of depression and anxiety increasing and peaking in adolescence (Hankin & Abramson, 2001) and persisting into early adulthood (Klomek, et al., 2011). Importantly, gender differences start to emerge around early adolescence. Prevalence rates of depression for girls are higher than for boys (25-40% compared to 20-35%), with girls' depressive symptoms and depressive mood increasing after age 13, whereas boys' symptoms and mood remain constant (Hankin & Abramson, 2001). In their summary of gender differences in adolescence, Perry and Pauletti (2011) stated adolescent girls report increased stress, eating disorders, non-suicidal self-injury and greater depressogenic thoughts (such as self-blaming and negative social comparison) and maladaptive coping compared to males. Whereas males are more likely to exhibit more school problems (Hui, 2000), externalising behaviours (Compas, et al., 1993) and conduct disorders (Bartlett, et al., 2005) than females.

The age of onset for depression and anxiety disorders relates to pubertal development (Hankin & Abramson, 2001) and for many students this timing also coincides with the transition from primary to secondary school. A major change in social structure occurs during the primary-secondary school transition period, with adolescents often having to develop new friendships and lose friends at a time when great importance is placed on

peer relationships. These changes often result in increased feelings of isolation (Pellegrini

& Bartini, 2000), can manifest in frustration and anxiety, and are associated with negative

and disruptive behaviours (e.g. aggression) (Cohen & Smerdon, 2009). Students who are

socially isolated and lonely may be more likely to be targets for being bullied (Nansel,

Overpeck, Pilla, Ruan, et al., 2001).

The seriousness and negative impacts of school bullying - a type of repeated aggressive

behaviour involving the systematic abuse of power through unjustified acts intended to

inflict harm (Smith, 2004) – on the mental health of young people is well documented.

Strong evidence from longitudinal studies show that peer victimisation is associated with

depression (Bond, et al., 2001; Hawker & Boulton, 2000; Kaltiala-Heino, et al., 2000;

O'Brennan, et al., 2009; Roland, 2002; Sweeting, et al., 2006; Ybarra, 2004), anxiety

(Kaltiala-Heino, et al., 2000; Salmon, et al., 1998), psychosomatic complaints (Fekkes, et al.,

2004; Kaltiala-Heino, et al., 2000) and suicidal ideation (Kaltiala-Heino, et al., 1999; Rigby &

Slee, 1999; Salmon, et al., 2000).

Although the prevalence of bullying peaks at ages 10 and 13 (Cross, et al., 2009) there are

specific times of high risk. For example, an increase in bullying occurs following the

transition from primary school to secondary school (Cross, et al., 2009; Rigby, 1994). This

increase was associated with various social factors including social comparisons between

peers, the number and quality of friends, being disliked by peers and the establishment of

hierarchies and new social roles in new social groups contributing to victimisation

(Pellegrini, 2002; Pellegrini & Bartini, 2000).

While the prevalence of depression among adolescents ranges from 4%-8% (Nair, et al.,

2004; Sawyer, et al., 2000), the prevalence of anxiety and depression among adolescents

who are victims of bullying ranges from 16-38% for depression (Kaltiala-Heino, et al., 2000;

Pranjic & Bajraktarevic, 2010; Riittakerttu, et al., 2010) and from 6-11% for anxiety

(Kaltiala-Heino, et al., 2000). This suggests victimisation may exacerbate depressive symptoms and the more ways an adolescent is victimised, the higher the risk of depression (Klomek, et al., 2008). Moreover, the transition period is a socially tumultuous time which can exacerbate feelings of loneliness or depression which, in turn, can impact experiences of victimisation, as in the transactional model (Rudolph et al., 2000). This model emphasises the reciprocal influences between children and their environments rather than children being passive recipients of experiences. Rudolph and colleagues (2000) found depression and externalising psychopathology were associated with self-generated stress: depressed children precipitated stressful events and circumstances in their lives.

Drawing on 20 years of cross-sectional studies, Hawker and Boulton (2000) examined the relationship between peer victimisation and psychosocial maladjustment. The authors concluded that victimisation is most strongly related to depression and least strongly related to anxiety. As presented above, anxiety rates for victims and non-victims are similar. Hawker and Boulton concluded that, while the association between victimisation and psychosocial adjustment has been established in cross-sectional research, further longitudinal research investigating causality (i.e., internalising symptoms are antecedents or precedents of victimisation) is necessary.

Evidence of causal relationships in primary school children is supported by several longitudinal studies indicating peer victimisation may play a causal role in the development of depressive symptoms (Arseneault, et al., 2008; Gazelle & Ladd, 2003; Goodman, et al., 2001; Hanish & Guerra, 2002) while reciprocal relationships between victimisation and depression (where depression is both a cause and consequence of victimisation) have also been found (Hodges & Perry, 1999; Nishina, et al., 2005). In general, the limited longitudinal research conducted with secondary students is contradictory. Only two studies involving adolescents investigated the direction of the relationship between victimisation

and depression. Sweeting and colleagues (Sweeting, et al., 2006), assessed victimisation and depression at ages 11,13 and 15. Victimisation was reported as a stronger predictor of depression than depression was of victimisation at age 13. At age 15, a significant path existed between depression to victimisation for boys but not for girls. Riittakerttu and colleagues (2010) assessed students at age 15 and 17 and found for boys, victimisation at age 15 predicted later depression at age 17, whereas for girls, depression predicted subsequent victimisation. This study suggested experiences of bullying victimisation for boys was a risk factor for later depression whereas for girls, prior depression was a stronger risk factor of subsequent depression than peer victimisation. The noted gender differences raise important issues in relation to the temporal sequencing of post-victimisation mental health problems. Importantly, the impact of the transition experience on how male versus female students cope with victimisation has not yet been examined.

Given the importance of social relationships to adolescent development, and since victims of school bullying have a greater risk of manifesting anxiety and depressive disorders in adulthood (Menesini, 2009), understanding the temporal sequence of the relationship between victimisation and internalising behaviours is crucial to ensuring that intervention efforts and support services are introduced in the appropriate context, at the appropriate time and consider the potential influence of previous or concurrent mental health problems.

This study aimed to determine the direction of causality between victimisation, depression and anxiety and investigate if gender differences occur in these associations using data obtained from a longitudinal study of students transitioning from primary to secondary school.

Methods

The data in this study was taken from a larger longitudinal study, the Supportive Schools Project (SSP) conducted in Perth, Western Australia, which aimed to enhance the capacity of secondary schools to implement a whole-of-school bullying reduction intervention. The Edith Cowan University Human Research Ethics Committee granted ethics approval for this project. As is the procedure, the Catholic Education Office approved project staff to approach school principals.

Sampling and data collection

To reduce the rate of transition attrition as students move from primary (Grade 7) to secondary schools (Grade 8), Catholic schools were recruited to the study. Students within Australian Catholic schools are more likely than students attending non-Catholic schools (e.g., government schools) to move in intact groups. Cohort data were collected during the SSP from 3,462 students from 21 of the 28 Catholic secondary schools in Perth, Western Australia. Schools were stratified according to the total number of students enrolled at the school and each school's Socio-Economic Status (SES) and were randomly selected and randomly assigned to an intervention or comparison group.

Data used in this paper were collected from students in four waves from 2005 to 2007. To collect data relating to pre-transition experience, all Grade 7 students with parental consent who were enrolled to commence Grade 8 in 2006 at each of the 21 participating secondary schools received a baseline survey in 2005 while in Grade 7 at their primary school. The potential student cohort at the start of the study were enrolled at almost 400 primary schools. In 2006, parents of Grade 8 students at the 21 secondary schools, whom had not been recruited in Grade 7 as they were not on the school enrolment lists, were approached for consent for their child's participation.

In the final year of primary school (Grade 7, mean age 11 years) the student cohort were mailed a self-administered questionnaire to complete at home. Students also completed questionnaires after the transition to secondary school (the beginning of Grade 8), end of Grade 8 (13 years old) and end of Grade 9 (14 years old). Trained researchers administered the surveys to the Year 8 and 9 students in classrooms during class time following a strict procedural and verbal protocol. Students not participating (i.e., no parental consent) completed alternate learning activities.

In total, 3,462 (92% of the total recruited) students completed questionnaires at least at one time point with 3,123 (90%) responding to at least three of the four data collection points. One half of the students surveyed were male and 70% attended a co-educational secondary school versus single sex secondary school. Table 14 describes the students by gender and data collection point.

As the evaluation of the intervention and comparison groups is not the focus of this paper, responses from all students are used in the analyses and study condition is included as a covariate and controlled for in the calculation of the results.

Active consent (where parents gave written permission for their child to participate) was requested from all parents. If any parents did not respond to this active consent approach up to two follow-up letters were sent to parents requesting their passive consent where they were asked to opt-out if they did not wish their child to participate (Ellickson & Hawes, 1989). This two layered consent process resulted in ninety-three percent of parents whose children were enrolled in the 21 recruited secondary schools consenting to their child participating in the study.

Measures

Victimisation: To assess physical, relational, verbal and cyber victimisation, a nine item categorical index adapted from items/scales developed by Rigby and Slee (Rigby & Slee, 1998), Olweus (Olweus, 1996) and the 2004 Youth Internet Survey (Ybarra & Mitchell, 2004) were used. The items assessed various forms of bullying experienced in the previous school term: physical (hit, kicked and pushed around; had money or other things broken or taken away from them; made to feel afraid they would get hurt), verbal (made fun of and teased in a hurtful way; called mean and hurtful names), relational (students ignored them, didn't let them join in, or left them out on purpose; students told lies about them and tried to make other students not like them) and cyberbullying (sent mean and hurtful messages via text (SMS) or over the Internet). Students were given a definition and illustrations of different forms of bullying and were asked to indicate how often they were bullied using a five-point scale ranging from 1 = never, to 5 = most days.   A victimisation mean score was calculated at each time point (average alpha=0.80), with a higher score representing greater victimisation.

Depression and *anxiety.* Self-reported depression and anxiety were assessed using the Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995) which comprised seven items relating to depression and seven items related to anxiety measured on a four point scale (scores ranged from 0 = not at all to 3 = applied to me very much, or most of the time). A depression score and an anxiety score were calculated at each time point for each student by adding the items, with higher scores reflecting greater feelings of depression (average alpha=0.89) and anxiety (average alpha=0.82). For descriptive analyses, as recommended by the authors of the scale, students classified as having moderate, severe or extremely severe depression (scores above 14) or anxiety scores (scores above 10) were classified as having depressive or anxious symptoms.

Statistical Analysis

Analyses were conducted using MPlus v6 and PASW v19. Cross-lagged models were used to model causal paths, between victimisation (mean scores) and depression and anxiety (total scores) with longitudinal data collected over and following the transition period from primary to secondary school. All four time-points were represented in all models tested to determine the direction of the causation between depression, anxiety and victimisation as observed at a later time point. Missing data at each time point were handled through Full Information Maximum Likelihood (FIML) estimation in Mplus v 6 enabling the use of all students with at least one valid score in the analyses.

Results

The prevalence of victimisation ranged from 62% to 69% over the three study years with the lowest prevalence at the start of secondary school (Grade 8) (Table 14). Average depression and anxiety scores were higher for victimised (i.e., those who reported being involved in at least one incident of victimisation in the previous three months) than non-involved students, as were the prevalence of depressive and anxious symptoms. There were no significant differences in the prevalence for depressive and anxious symptoms between males and females for victimised and non-involved students. A significant increase in the proportion of victimised students with depressive symptoms (χ^2=75.738, p<0.001) and anxious symptoms (χ^2=66.153, p<0.001) occurred over the transition period from primary (end of grade 7) to secondary school (beginning of grade 8).

Table 14 Prevalence and descriptive statistics of victimisation, depression and anxiety at four time points.

	End of Grade 7	Start of Grade 8	End of Grade 8	End of Grade 9
Average Age	*11*	*12*	*13*	*14*
	n (%)	*n (%)*	*n (%)*	*n (%)*
Total Sample	2077	3314	3259	3020
Male	1003(48.3)	1675(50.5)	1651(50.7)	1542(51.1)
Female	1074(51.7)	1639(49.5)	1608(49.3)	1478(49.9)
Victimised[a]	1418(68.3)	2054(62.0)	2252(69.2)	2106(69.7)
Uninvolved	486(23.4)	989(29.9)	726(22.3)	622(20.6)
Victimised students				
Victimisation (1-5) *Mean (SD)*	1.23(0.40)	1.17(0.32)	1.25(0.42)	1.33(0.64)
Depression (0-21) *Mean (SD)*	5.01(7.17)	6.67(8.79)	6.30(9.21)	7.46(10.28)
Anxiety (0-21) *Mean (SD)*	4.34(5.88)	5.78(7.63)	4.99(7.69)	5.82(8.73)
	n (%)	*n (%)*	*n (%)*	*n (%)*
Depressive Symptoms[b]	168(12.0)	375(18.7)	377(17.2)	434(21.3)
Male	84(12.2)	218(19.8)	186(16.6)	207(19.9)
Female	84(11.9)	157(17.3)	191(17.9)	227(22.7)
Anxious Symptoms[b]	223(16.0)	440(21.9)	394(18.0)	438(21.5)
Male	108(15.7)	244(22.1)	216(19.3)	218(21.0)
Female	115(16.2)	195(21.5)	178(16.7)	220(22.0)
Uninvolved students				
Depression (0-21) *Mean (SD)*	1.56(3.62)	2.10(5.38)	1.84(5.44)	2.06(5.71)
Anxiety (0-21) *Mean (SD)*	1.52(3.36)	2.42(5.18)	1.77(4.96)	1.82(4.76)
	n (%)	*n (%)*	*n (%)*	*n (%)*
Depressive Symptoms[b]	13(2.7)	40(4.1)	27(3.8)	29(4.8)
Male	3(1.4)	20(5.0)	16(5.0)	11(4.0)
Female	10(3.8)	20(3.5)	11(2.9)	18(5.4)
Anxious Symptoms[b]	16(3.3)	61(6.3)	33(4.7)	27(4.5)
Male	6(2.8)	32(8.0)	19(5.9)	11(4.0)
Female	10(3.8)	29(5.1)	14(3.7)	16(4.8)

[a]Includes students who are victims and bully-victims
[b] Percentage of students classified as having moderate or more severe depression or anxiety scores.

Causal pathways

Cross-lagged models, that assess causal direction across time, were used to examine causal pathways between victimisation and depression scores from Grade 7, the last year of primary school (11 years of age), to the end of Grade 9 (14 years of age) and victimisation and anxiety scores across the same period. The fit indices indicated good model fit for the model of victimisation and depression as well as that for victimisation and anxiety (both CFI>=0.9; both RMSEA<0.08 {Hu, 1999 #498}). Models were tested for gender and study group invariance using the Satorra Bentler Scaled Chi-square, with results indicating that significant parameter differences existed in the causal pathways between males and females for depression scores but not anxiety scores. Hence victimisation and depression were modelled separately for males and females. Figures 13 and 14 show the relevant path coefficients for the causal pathways between victimisation and depression, and victimisation and anxiety. Significant paths are indicated by solid lines.

Over the transition period (end of Grade 7 to start of Grade 8), a reciprocal relationship exists for males with increased depression associated with increased victimisation (β=.10) and increased victimisation associated with increased depression (β=.09). For females, over the transition period, increased victimisation is associated with increased depression (β=.14) but the association in the opposite direction is not significant. Over the first year of secondary school (beginning to end of Grade 8), increased victimisation is associated with increased depression for males whereas a reciprocal relationship exists for females, although the path is stronger from victimisation to depression. A reciprocal relationship exists for males and females over the second year of secondary school (Grade 8 to 9), with stronger paths existing between increased depression leading to increased victimisation than for increased victimisation leading to increased depression.

Male
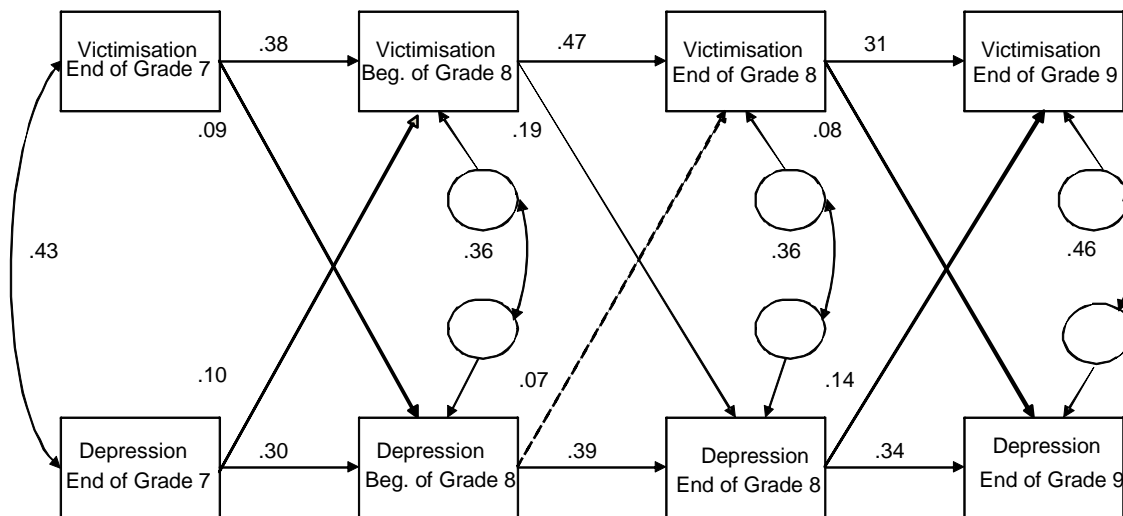
Female
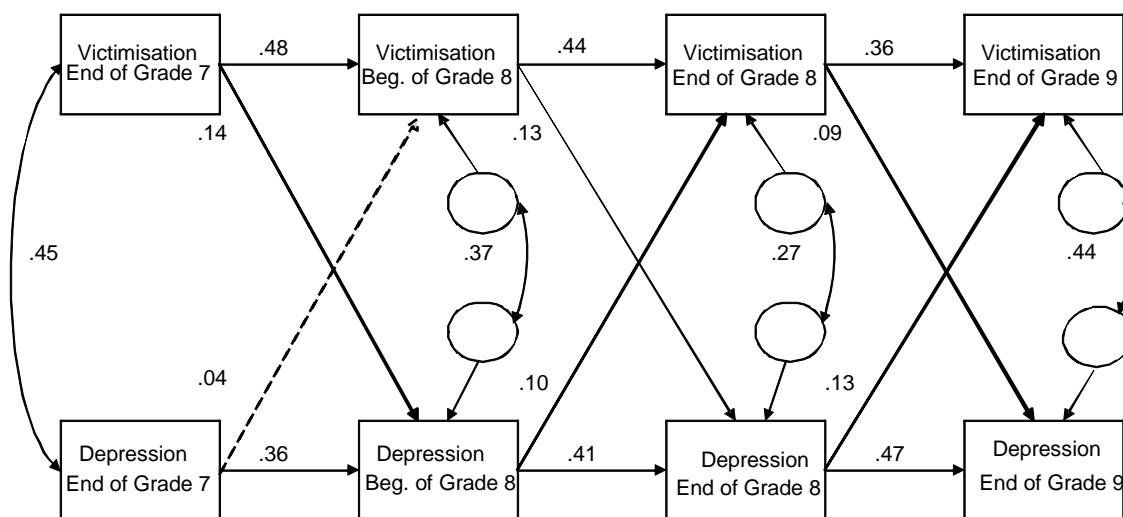
Y-B χ^2 (df=24) = 302.524   CFI=0.889   RMSEA=0.082

Figure 13 Cross-Lagged model for victimisation and depression

Straight single arrows represent causal paths modelled. The corresponding numbers are standardised regression coefficients. Broken lines are used for paths with a corresponding p>=.05. The curved line between variables represents a correlation; the number is the corresponding correlation coefficient. Small circles represent residual paths; the number is the corresponding correlation coefficient.
Y-B χ^2 is the Yuan-Bentler-scaled chi-square which adjusts for non-normal data
CFI Comparative Fit Index, values >0.90 indicates good model fit
RMSEA Root Mean Square Error of Approximation, values <0.08 indicating acceptable, and <0.05 good fit of the residuals.
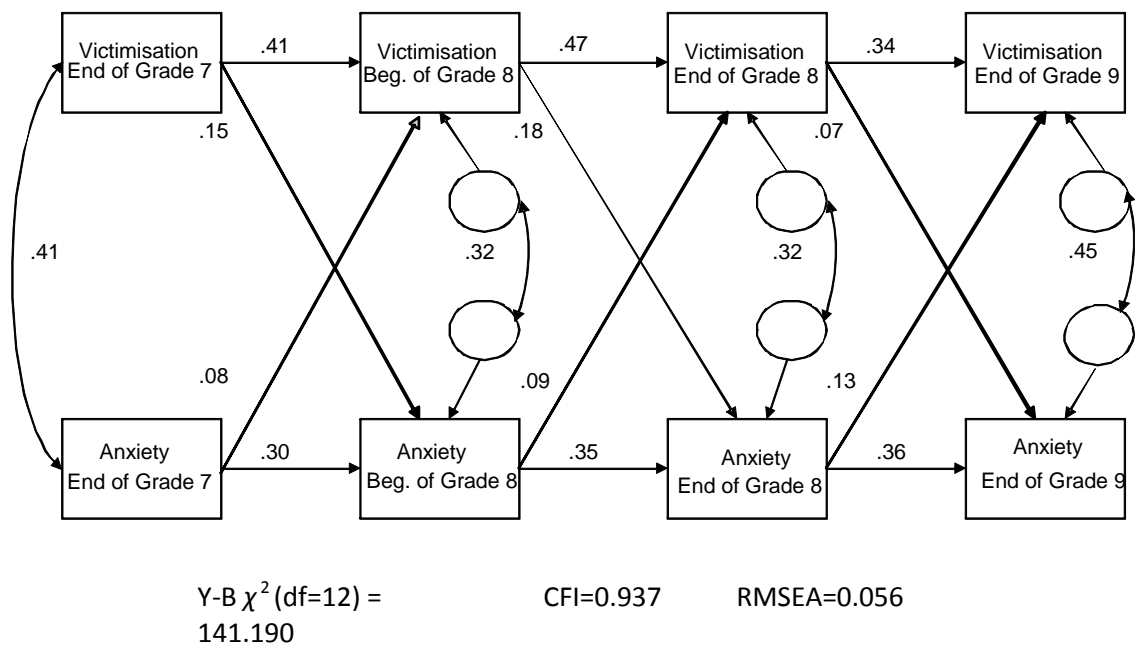
Figure 14 Cross-Lagged model for victimisation and anxiety

There were no significant differences in the causal pathways between victimisation and anxiety for males and females. Reciprocal relationships between victimisation and anxiety existed at all time points. Over the transition period (β=.15) and first year of secondary school (β=.18) the path was strongest from victimisation to anxiety whereas over the second year of secondary school the path was strongest from anxiety to victimisation (β=.13).

Discussion

Bullying is a risk factor associated with the high prevalence of mental health problems within the adolescent community. Given that for many adolescents (average age 13 years) the onset of adolescent depression and anxiety disorders coincides with the transition from primary into secondary school, this study investigated the relationship between depression, anxiety and victimisation during this period to inform the development of effective interventions, especially those targeting higher risk students who experience harm from peer victimisation. Evidence of a causal relationship between victimisation and

depression among adolescents is scarce and contradictory leaving the direction of causality open (Riittakerttu, et al., 2010). This study identified among adolescents, causal relationships over four time points between depression, anxiety and victimisation using cross-lagged models.

The prevalence of depressive (3-5%) and anxious symptoms (3-6%) among those not exposed to victimisation found here was similar to previous Australian research where 4% of youth 13-17 years were found to have depressive or anxious symptoms (Sawyer, et al., 2000). However, the prevalence of depressive symptoms among those students who were victimised (12%-21%) was lower than in previous research (16%-38%) (Kaltiala-Heino, et al., 2000; Pranjic & Bajraktarevic, 2010; Riittakerttu, et al., 2010) while the prevalence of anxiety symptoms in victimised students (16-22%) was higher than found previously (6-11%)(Kaltiala-Heino, et al., 2000). The differences may be due to participants in this study being younger (11-14 years compared to 14-17 years) or that victimisation was measured differently in each of the studies. In this study, victimisation was measured on a nine item scale rather than using a single global bullying question, with analysis reflecting those who had been victimised regardless of frequency. This set of victimisation responses may have resulted in higher prevalence rates than what is usually reported in Australian literature.

Increased victimisation at the end of primary school led to increased depression at the beginning of secondary school for both males and females, while increased depression at the end of primary school led to increased victimisation at the beginning of secondary school for males. Although a reciprocal relationship existed between victimisation and anxiety over the transition period, the strongest path existed between increased victimisation at the end of primary school leading to increased anxiety at the beginning of secondary school. These results suggest that while bullying is a risk factor for mental health problems, mental health problems may also be a risk factor for bullying.

Prior studies of primary school children revealed that those with internalising problems and depressive symptoms are at increased risk of being victimised, as their behaviour may indicate a vulnerability rewarding their attackers with a sense of power (Fekkes, et al., 2006). Also these students may be unable or less able to defend themselves or ward off aggressors or report the incident to others (Hodges & Perry, 1999) making them an easier target. In a longitudinal study of over 1000 children, Fekkes and colleagues (2006) investigated whether victimisation precedes psychosomatic and psychosocial symptoms or whether these symptoms precede victimisation. The authors reported that victims of bullying had significantly higher chances of developing new psychosomatic and psychosocial problems, while children with depressive symptoms and anxiety had a higher chance of being newly victimised. Physical health symptoms did not elevate the risk for bullying victimisation with the authors suggesting children may consider it more permissible to bully those who are psychologically fragile (e.g., depressed) and non-assertive than those with physical ailments. An alternative explanation offered by the authors was that children with depressive or anxiety symptoms may have the tendency to experience things more negatively and be more inclined to perceive experiences as victimisation.

Over the first year of secondary school (12-13 years of age), victimisation was a precedent of depression for males while a reciprocal relationship between victimisation and depression existed for females (i.e., depression was an antecedent and a precedent of victimisation). Consistently, Sweeting and colleagues (2006) reported a reciprocal relationship between victimisation and depression in 13-year-old males and females. Depression could be an antecedent of victimisation caused by the traumatisation of victimisation and lowering of self-esteem (Riittakerttu, et al., 2010; Sourander, et al., 2000) and loneliness (Sourander, et al., 2000), or a precedent due to the impairment of social skills and self-assurance, and inability to defend themselves (Riittakerttu, et al., 2010). This

was supported by the crosslag models which are largely showing this reciprocal cyclical pattern. Additionally, this study found a cycle between victimisation and anxiety over the first two years of secondary school, where during the first year of secondary school, victimisation led to anxiety and over the second year, anxiety led to victimisation.

The increase in the prevalence of depressive and anxious symptoms over the transition period for students who were victimised indicates the additional impact of being bullied. Adolescents who experience both direct (overt) and indirect (covert, relational) forms of bullying experience higher levels of depression, loneliness, externalising problems, and lower self esteem (Prinstein, et al., 2001) along with social avoidance and fear of negative social evaluation (Storch, et al., 2003). Males are more likely to experience direct victimisation and females indirect victimisation (Pepler, et al., 2008) with a higher prevalence of victimisation reported by males over females during the transition from primary to secondary school (Cross, et al., 2009). Social relationships dominate the school transition experience (Pereira & Pooley, 2007) with adolescents often needing to develop new friendships when great importance is placed on peer relationships (Pellegrini & Bartini, 2000). Social withdrawal, as a result of depression (Riittakerttu, et al., 2010), appears to increase the risk of victimisation (Egan & Perry, 1998). Social pressure combined with the onset of puberty over the transition period, may contribute to an increase in depression and anxiety, highlighting this as a critical time to intervene.

Understanding the temporal relationship between victimisation and internalising symptoms enables the appropriately timed delivery of interventions to those involved in victimisation to reduce the risk of the development of psychological problems (Hampela, et al., 2009). This study showed depression and anxiety to be both an antecedent and precedent for victimisation during the transition to and first two years in secondary school. This reciprocal cyclical pattern between internalising symptoms and victimisation support

the transactional model of developmental psychopathology which emphasises the reciprocal influences between an individual and their environments rather than individuals being passive recipients of experiences (Rudolph, et al., 2000). Successful transition programs recognise the challenges and anxieties that accompany transition, and see this phase as an ongoing process (Mizelle, 2005). Programs that effectively transition students from primary to secondary school with minimal negative impacts on mental health address curriculum, facilities, safety and discipline (Mac Iver, 1990) and information about the academic, social, and organisational similarities and differences between primary and secondary school (Mizelle & Irvin, 2000). Prior to and during the primary to secondary school transition period is a critical and opportune time to intervene with targeted social competency and whole school bullying prevention programs that comprise social skills development. To address these challenges experienced by adolescents during transition, Riittakerttu et al (2010) and Sourander (2000) recommended that bullying prevention be the focus of interventions, social skills training should be encouraged, and trauma should be taken into account in any form of treatment. In contrast, Klomek et al (2008) suggest intervention and prevention strategies focusing on building self-concept may reduce peer victimisation and depression in adolescents. Early preventative development of social problem solving skills are more likely to provide young people with opportunities to learn and enhance positive coping strategies, giving a variety of skills to deal with bullying if experienced.

This study found similar prevalence rates for depressive and anxious symptoms for males and females whereas other research found females in early adolescence generally report increased depression and anxiety compared to males (Perry & Pauletti, 2011). However, a stronger path between victimisation and depression over the transition period was found for females compared to males, and the reciprocal path of depression leading to victimisation significant for males and not females. Gender specific interventions may be

required to address possible differences in the types of bullying experienced by males and females. For adolescent males and females positive social network skills training has been shown to decrease internalising symptoms (Mason, et al., 2009). Interventions to build resilience, coping mechanisms and which target self-esteem in adolescent boys have been shown to reduce the incidence and impact of victimisation and help them to remain calm during peer conflict (Berry & Hunt, 2009) whereas interventions which target indirect bullying (Eslea & Smith, 1998), build social skills and peer support (Salmivalli, 2001), focus on conflict resolution (Letendre, 2007) and group acceptance (Adler & Adler, 1995) have been found to prevent or reduce the harm from victimisation for females. Environmental changes are needed to support interventions along with training for counsellors, providing links to external service providers, and considering families as partners to address the needs in students.

Strengths and limitations

There are several strengths of this study. Most importantly, the longitudinal nature of the research design over the transition from primary to secondary school enabled the investigation of predictors as well as the consequences and impact of victimisation on mental health at a time that can be socially challenging for most students. Moreover these findings are robust due to the large sample of students (90%) who completed questionnaires in at least three data collection points. Despite the strengths, there are limitations of this study. First, the use of self-report of victimisation (as opposed to peer, teacher or parent report) may result in underreporting. In addition, the method of data collection varied between Grade 7 students (completed at home) was inconsistent with Grades 8 and 9 (classroom-based). To reduce the impact of these differences an explicit and standard protocol (as used in the classroom) was provided to parents for all Grade 7 assessments, however parents still may have indirectly or directly influenced their children's responses to the questionnaire. While absentee students and those lost to

follow-up, approximately 11%, may have impacted on the results, this potential bias is unlikely to influence the results substantially given the large number of respondents at each data collection. Results may not be generalisable to the other similar aged student populations as the sample included only Catholic secondary schools within the Perth metropolitan area. The prevalence of cyberbullying was reported at low levels with the use of technology increasing during the last two data collections this study. As the use of technology continues to increase it is recommended that further research be conducted to examine the causal pathways between cyber bullying, depression and anxiety. Finally, the causal links were studied over a relatively short, but critical, social time period consisting of immense social growth and development of social skills and relationships. In some students, the associations studied may have been well established before the commencement of the study.

Conclusion

The high prevalence of mental health problems in adolescents makes understanding the causal pathways between victimisation and internalising symptoms an important priority, especially during transition from primary to secondary school. Internalising symptoms may identify those at risk for victimisation, and victimisation may identify those at risk for internalising symptoms. The results of this study suggest symptoms of depression and anxiety are a precedent and antecedent for victimisation in adolescent males and females. Consequently, if school bullying prevalence or the harm from exposure was reduced the mental health of adolescents could be substantially enhanced. Schools therefore need a systematic whole-school approach including universal and targeted interventions that straddles primary and secondary school and particularly addresses social skill development and the building of resilience, self-esteem and positive coping mechanisms among adolescents, especially those experiencing depression. Further research is needed, however, to determine the causal relationships between more vulnerable adolescents who

are both victimised and perpetrators (i.e., bully/victim) and depression and anxiety and the

causal relationships between cyberbullying and mental health problems.

Chapter 7: Developmental trajectories of adolescent victimisation: Predictors and outcomes

Citation

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Contribution of authors

The candidate was responsible for the preparation of data, data analyses and interpretation of the analyses in this paper as well as writing the literature review and general discussion. Professor Cross and Dr Dooley assisted with the structure and clarity of the literature review and general discussion. Ms Shaw assisted with the data analysis, results and interpretation of the analysis.

Relevance to thesis

This chapter presents analyses central to Research Questions 5 and 6 of this thesis. The purpose of this chapter is to investigate the developmental trajectories of victimisation for adolescents over the transition period. Each student is allocated to a victimisation trajectory group. This chapter explains how social health (loneliness at school, peer support, connectedness at school, feeling safe at school) impacts on chronic victimisation and how chronic victimisation impacts on mental health.

Abstract

Chronic victimization negatively affects mental health making it crucial to understand the key predictive social health (e.g., loneliness, isolation) factors. Evidence suggests that the effects of victimization are worse over the transition from primary to secondary school. Longitudinal data from 1,810 students transitioning were used to identify victimization trajectory groups; classified as low increasing, low stable, medium stable and not bullied. Adolescents with poorer social health were more likely to be in the increasing and stable victimized group than in the not bullied group. Students in the low increasing victimized group had poorer mental health outcomes than those in the stable and not bullied groups. The results of this study have important implications for the type and timing of school-based interventions aimed at reducing victimization and the harms caused by long-term exposure.

Keywords: anxiety, connectedness, depression, loneliness, peer support, safety, victimization

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School bullying, defined as a type of repeated aggressive behaviour involving the systematic abuse of power through unjustified acts intended to inflict harm (Smith, 2004), has a traumatic impact on all involved regardless of role (perpetrators, victims, bully-victims, or bystanders), with the level of trauma related to frequency of exposure (Carney, 2008). Exposure to chronic victimization can lead to traumatic reactions which may result in greater expressed physical, psychological and emotional symptoms (Garbarino, 2001), which in turn, may contribute to lasting long-term effects (Carney, 2008). Stress from physical and verbal bullying has been found to elevate the levels of cortisol and may impact adolescent long-term mental health and memory functioning, affecting school achievement (Vaillancourt et al., 2011). Many students who are chronically victimized throughout school are maladjusted (Rosen, et al., 2009), suffer stress later in life (Newman, et al., 2005), and are bullied as adults (Smith, et al., 2003). Genetic differences may result in some frequently bullied children more vulnerable to the emotional effects of bullying victimization than others (Sugden et al., 2010). Bond and colleagues (2001) reported that victimization rates were generally high (approximately 50%) and stable with two-thirds of adolescents who were frequently victimized one year later. A more recent Australian study found approximately one-quarter of adolescents are victimized every few weeks or more often (Cross, et al., 2009).

Given the high prevalence of chronic adolescent victimization and the associated consequences, it is important to understand the developmental pathways of victimization. In adolescence, victimization decreases from a high following the transition from primary to secondary school to lower levels at the end of secondary school with the development of social understanding, shifting norms against specific types of victimization (Nansel, Overpeck, Pilla, Ruan, et al., 2001), and the priority of popularity (LaFontana & Cillessen, 2010) in the peer group. The use of victimization trajectories allows the longitudinal examination of victimization, revealing those who are chronically victimized as well as

associated predictors and outcomes of victimization trajectories. Previous longitudinal

studies, focused on primary school (children Grade 3 through to Grade 7) victimization

trajectory analyses (Boivin, et al., 2010; Goldbaum, et al., 2003), found approximately 80%

of students followed a low or non-victim trajectory, with the remainder of victims following

stable, increasing or decreasing victimization trajectories over time. Data in these studies

were collected over a four-year and three-year time period respectively. Gender

differences in the number and shape of victimization trajectories are expected due to the

type of victimization experienced by males and females (males are more likely to

experience physical victimization; females covert relational victimization (Pepler, et al.,

2008)) and the higher prevalence of victimization reported by males over females during

the transition from primary to secondary school (Cross, et al., 2009).

This study examined developmental victimization trajectories of students from the end of

primary school (Grade 7 – age 12) to the end of the second year of secondary school (Grade

9 – age 14). Among Australian students, an increase in bullying behaviour appears to occur

around age 11 and immediately following the transition from primary school to secondary

school (Cross, et al., 2009). This increase in bullying behaviours may be due to a

combination of factors including greater academic competition, teachers' poorer attitudes

towards bullying, a reduced sense of a positive school ethos in secondary schools relative

to primary schools, and a peak in social aggression(Pellegrini, 2002; Pellegrini & Bartini,

2000; Underwood, et al., 2009). Adolescence coincides with the transition from primary to

secondary school contributing to a major change in social structure, with students often

needing to develop new friendships and define their place in a new social hierarchy

(Pellegrini & Bartini, 2000).

It has been demonstrated that victimized students possess ineffective coping skills in both

information processing and social behaviour domains (Smith, Talamelli, Cowie, Naylor, &

Chauhan, 2004). Poor coping skills have been found to lead to increased stress levels, which have an impact on mental health (Aldwin, 2011). Consistently, the stress-coping model, which proposes that victimized students are more likely to exhibit psychological distress if they feel unsupported, can illuminate the mental health impact of victimization (Cassidy & Taylor, 2005). Social health (i.e., the ability to get along with others, dealing with social institutions and societal mores) is associated with a greater capacity to cope with social problems (e.g., bullying). Importantly, being socially healthy can be protective against victimization over the transition period. Consistently, Lester, Cross, Dooley and Shaw (2012a) found significant reciprocal causal pathways between social health factors and victimization over the transition period, with students feeling a greater connectedness to school, feeling more safe at school and having greater peer support reporting less victimization. Alternatively, students feeling less connectedness to school, feeling less safe at school, feeling more lonely and having less peer support reported greater victimization. This study focused on the Grade 7 social health factors (i.e. feeling less lonely at school, connectedness to school, peer support and feeling safe at school) that predict membership to victimisation trajectory groups. This study focused on the Grade 7 social health factors (i.e. loneliness at school, connectedness to school, peer support and feeling safe at school) that predict membership to victimization trajectory groups. Importantly, the social health factors investigated in this study are all amenable to school intervention (Libbey, 2004; Menesini, Codecasa, et al., 2003; Naylor & Cowie, 1999).

Researchers have found bullying victimization to be longitudinally associated with depression (Bond, et al., 2001; Hawker & Boulton, 2000; Kaltiala-Heino, et al., 2000; Lester, Cross, Dooley, & Shaw, 2012; O'Brennan, et al., 2009; Roland, 2002; Sweeting, et al., 2006; Ybarra, 2004), anxiety (Kaltiala-Heino, et al., 2000; Lester, et al., 2012; Salmon, et al., 1998), psychosomatic complaints (Fekkes, et al., 2004; Kaltiala-Heino, et al., 2000) and suicidal ideation (Kaltiala-Heino, et al., 1999; Rigby & Slee, 1999; Salmon, et al., 2000). Persistent

victimization is a strong predictor of the onset of depression and anxiety (Bond, et al., 2001) with those chronically victimized showing more negative effects (Menesini, 2009) than those only recently victimized. In this study, the mental health outcomes of adolescents in the different victimization trajectory groups will be compared.

Hence, this paper aims to use longitudinal data to model the developmental trajectories of victimization during and following the transition from primary to secondary school and to determine the existence of gender differences in the shape and number of trajectory paths. The social health predictors of trajectory group membership will also be explored with poorer social health at the end of primary school (Grade 7) expected to be associated with chronic victimization group membership. Those in chronic victimization trajectories are also expected to have poorer mental health outcomes in secondary school (Grade 9) than those in low or non-victim trajectories.

Methods

The data in this study were taken from a larger longitudinal study, the Supportive Schools Project (SSP) conducted in Perth, Western Australia, which aimed to enhance the capacity of secondary schools to implement a whole-of-school bullying reduction intervention. Data from only the study comparison schools have been used as the intervention is not a focus of this paper. The study was approved by the Edith Cowan University Human Research Ethics Committee and the relevant school authorities.

Sampling and data collection

To reduce the rate of transition attrition as students move from primary to secondary schools, secondary schools affiliated with the Catholic Education Office (CEO) of Western Australia were recruited to participate in the study. Students within Australian Catholic schools are more likely than students attending schools in other sectors (e.g., government schools) to move from primary to secondary schools in intact groups. Cohort data were

collected during the Supportive Schools Project (SSP) from 3,462 students from 21 of the 28 Catholic secondary schools in Western Australia. The seven schools that declined to participate cited other priorities within their school and demanding staff workloads. All CEO schools were stratified according to the total number of students enrolled at the school and each school's Socio-Economic Status (SES) and were randomly selected and randomly assigned to an intervention or comparison group (Cross, Hall, Waters, & Hamilton, 2008).

Data used in this paper were collected from students assigned to comparison schools in four waves from 2005 to 2007. To collect data relating to pre-transition experience, all Grade 7 students enrolled to commence in Grade 8 at each of the 21 participating secondary schools received a baseline survey while in Grade 7 at their respective primary schools. Parents of Grade 8 students at the 21 secondary schools, who had not been recruited in Grade 7 as they were not on the school enrolment lists, were approached for consent for their child's participation at the first follow-up.

The student cohort was surveyed at the end of Grade 7 (mean age 12 years), the beginning and end of Grade 8 (mean age 13 years old) and the end of Grade 9 (mean age 14 years old). In total, 3,462 (92% of the total recruited) students completed questionnaires at least at one time point with 3,123 (90%) responding to at least three of the four data collection points. One half of the students surveyed were male and 70% attended a co-educational secondary school versus a single sex secondary school. Responses from only the students from the SSP study comparison schools were used in the analysis detailed below.

All schools involved in the study had specific written bullying policies. School administrators, pastoral care staff and some teachers typically contributed to the development and writing of their school's bullying prevention and management component of the school's behaviour management plan. The bullying prevention and

management policies typically covered a definition of bullying, the school's position and response in relation to bullying, the management of bullying incidents, and rights and responsibilities of the whole school community.

Active consent (where parents gave written permission for their child to participate) was requested from all parents, if any parents did not respond to this active consent approach up to two follow-up letters were sent to parents requesting their passive consent where they were required to opt-out if they did not wish their child to participate (Ellickson & Hawes, 1989). This two layered consent process resulted in ninety-three percent of parents whose children were enrolled in the 21 recruited secondary schools consenting to their child participating in the study.

Measures

Victimization: To assess physical, relational and verbal victimization, a seven item categorical index adapted from items/scales developed by Rigby and Slee (Rigby & Slee, 1998) and Olweus (Olweus, 1996) was used. The items assessed physical (hit, kicked and pushed around; had money or other things broken or taken away from them; made to feel afraid they would get hurt), verbal (made fun of and teased in a hurtful way; called mean and hurtful names), and relational (students ignored them, didn't let them join in, or left them out on purpose; students told lies about them and tried to make other students not like them) bullying during the current term (10 weeks) at school. Students were asked how often they were bullied and rated each item on a 5-point scale (1=ever, 2=once or twice, 3=every few weeks, 4=about once a week, 5=most days). A definition of bullying, supported by illustrations of the behaviors, was provided in the questionnaire. Confirmatory factor analysis performed on the victimization scale confirmed its unidimensionality (CFI >0.9, SMR<0.10 at all time points). A victimization score was

calculated at each time point for each student by averaging the seven items with a higher

score reflecting more experiences of victimization (average alpha = 0.86).

Peer Support: The peer support at school scale (adapted from the 24-item Perceptions of

Peer Social Support Scale (Ladd, Kochenderfer, & Coleman, 1996b); comprised eleven items

(How often would students: choose you on their team; tell you you're good at things;

explain something if you didn't understand; invite you to do things with them; help you if

you are hurt; miss you if you weren't at school; help you if something is bothering you; ask

to work with you; help you if other students treat you badly; ask you to join in when alone;

and share things with you?) measured on a three-point scale (1=never, 2=sometimes,

3=lots of times). A factor analysis performed on the adapted peer support scale confirmed

its unidimensionality (CFI >0.9, SMR<0.10 at all time points). A peer support score at each

time point was calculated for each student by averaging all items, higher scores reflecting

greater feelings of peer support (average alpha=0.88).

Loneliness: Loneliness was measured using seven items adapted from Cassidy and Asher's

15 item loneliness at school scale (Cassidy & Asher, 1992). The seven items (I feel alone at

school; I have lots of friends to talk to at school; It's hard for me to make friends at school; I

have nobody to talk to in my classes; I don't have anyone to spend time with at school; I'm

lonely at school; I feel left out of things at school) were measured on a five-point scale

ranging from strongly disagree to strongly agree. Confirmatory factor analysis confirmed

the unidimensionality of the scale (CFI >0.9, SMR<0.10 at all time points). A mean

loneliness score was calculated at each time point for each student, with higher scores

reflected greater feelings of loneliness (average alpha=0.72).

Connectedness: The connectedness to school scale comprised four items adapted from the

Resnick and McNeely (1997) six item School Connectedness Scale (I feel close to people at

school; I feel like I am part of this school; I am happy to be at school; the teachers treat students fairly) measured on a five-point scale (1=unsure, 2=never, 3=sometimes, 4=usually, 5=always). Unidimensionality was confirmed through factor analysis (CFI >0.9, SMR<0.10 at all time points). For each student at each time point an average school connectedness score was calculated, with a higher score reflecting greater feelings of connectedness (average alpha=0.80).

Safety: Safety at school was a single item adapted from the Rigby and Slee's Peer Relations Questionnaire (1998) and measured on a three-point scale (1=No, I never feel safe at school, 2=Yes, some of the time, 3=Yes, all or most of the time) for each time point, with a higher value reflecting greater feelings of safety at school.

Mental health: Self-reported depression and anxiety were assessed using the Depression Anxiety Stress Scale (Lovibond & Lovibond, 1995) which comprised seven items relating to depression and seven items related to anxiety measured on a four point scale (ranging from 0=not at all to 3=applied to me very much, or most of the time). A depression score and an anxiety score were calculated at each time point for each student by adding the items, with higher scores reflecting greater feelings of depression (average alpha=0.89) and anxiety (average alpha=0.82).

Data Collection

Students completed the baseline questionnaires in Term 4 of the final year of primary school (Grade 7, average age 11 years) and then follow-up questionnaires again at the beginning and then the end of the first year after transition to secondary school (Grade 8, average age 12 years) and about 12 months later (i.e., at the end of Grade 9).

Due to the movement of students between schools, baseline student data were collected differently to follow-up student data. At baseline parents were sent a copy of the student questionnaire with the consent form, and a reply paid envelope to return the consent form and if they agreed, their child's completed questionnaire. Parents who did not respond were sent up to two follow-up letters. Follow-up data collections in Grades 8 and 9 were conducted by trained research staff who administered questionnaires to students during class time using a standardized protocol. Students who did not have consent to participate in the study completed alternate learning activities.

Statistical Analysis

Analyses were conducted using MPlus v6 and STATA v12. Victimization trajectories were modelled on the comparison group within MPlus with the censored normal distribution used to account for the censoring at the lower bounds of the victimization scale. A polynomial relationship was used to link victimization with time. All four time-points from longitudinal data collected at the end of Grade 7 to the end of Grade 9 were used in the calculation of trajectories. Missing data at each time point were handled through Full Information Maximum Likelihood (FIML) estimation in Mplus v6 enabling the use of all students with at least one valid score in the analyses. FIML assumes missing at random and produces unbiased parameter estimates and standard errors of the data (Wothke, 1998). Separate multinomial logistic regression models (using robust standard error estimation to account for school level clustering in the data) were fitted in Stata v12 for males and females and were used to determine whether the social health predictors of loneliness, connectedness to school, safety at school and peer support at the end of primary school (Grade 7) could individually be used to predict the identified victimization trajectory groups. Models were run using different trajectory groups as the reference group to explore differences in the likelihood of group memberships. Separate random effect Tobit

regression models, taking into account the highly skewed and clustered nature of the data were fitted in Stata v12 to determine differences in students' mental health outcomes (Grade 9) for the different victimization trajectory groups. Mental health measured at the end of primary school (Grade 7) was controlled for in the Tobit regression analyses.

Results

Trajectories of victimization

Developmental trajectories of victimization were identified using the semi-parametric group-based trajectory approach (Nagin, 2005). The dependent variable was victimization measured at the four time points for comparison group students only. This paper uses a continuous victimization measure for each student with a higher score reflecting greater victimization.

To determine the best fitting models, models were compared through an examination of fit statistics as well as theoretical justification and interpretability. Fit statistics examined included the Bayesian Information Criterion (BIC; a smaller BIC value represents a better fit), the Lo-Mendell-Rubin Likelihood Ratio Test (LMR; comparing the current model against the model with one less group should give a LMR and BLRT *p*-value less than 0.05; (Jung & Wickrama, 2008; Nylund, Asparouhov, & Muthén, 2007). To ensure optimal solutions were obtained from the analysis rather than local maxima, 500 random sets of starting values were used in the model. Application of the minimum BIC for model selection did not result in the determination of a clear best model with BIC improving with the addition of groups. The LMR-BLRT test of model fit indicated that increasing the model from four classes to five classes was not significant (p=0.14). Given this non-significant result and the small proportion of students in the fifth high stable class, the four-class model was chosen as optimal.

Figure 15 shows the distinct trajectories of the four-group model for victimization. The largest group (52% of the sample) was the *low stable* group. This group comprised students who reported low levels of victimization across the four time points. The *not bullied* group (40%) comprised students who did not report victimization over the time period. The *low increasing* victimization group (4%) comprised students who reported low levels of victimization at the end of primary school and the beginning of secondary school, with victimization increasing to high levels by the end of the second year of secondary school. The *medium stable* group (4%) was made up of students who reported medium levels of victimization at the end of primary school and during the first two years of secondary school. An examination of the different types of victimization (physical, verbal and relational) showed higher levels of verbal and relational victimization than physical victimization in all trajectory groups at all time points for both males and females (Table 15). No significant differences between the levels of each type of victimization between each victimization trajectory was found for females, however males in the lower increasing trajectory group had significantly lower physical victimization than other trajectory groups at the end of Grade 8 .

Students were assigned to a trajectory group based on their individual probability scores. The distributions indicated that trajectory groups differed significantly on the proportion of male and female students (X^2=48.9, *p*<0.001) with distributions within the *not bullied* group higher for females (45%) than males (36%), whereas the distributions within the *low increasing* and *medium stable* groups was higher for males (6.2% and 5.0% respectively) than females (1.4% and 1.9%). Due to the significant differences in distributions, trajectory analyses were conducted separately on the male and female samples. Application of the minimum BIC for model selection did not result in the determination of a clear best model with BIC improving with the addition of groups for both male and female models. The BIC values for two-, three-, four-, and five-group models were compared with the LMR-LRT test

of model fit indicating the four-group solution was a better fit than the five-group solution for males (p=0.111) and a three-group solution was the best fit for females (p=0.132).

The male victimization trajectories (see Figure 16) followed the original model with the four groups: *not bullied* (32%), *low stable* (56%), *low increasing* (7%) and *stable medium* (5%). For females (see Figure 17) the three victimization trajectory groups consisted of: *not bullied* (37%); *low stable* (57%); and *low increasing* (6%). No high decreasing or high stable trajectory groups were found for males or females. The low stable trajectory corresponds to victimization once or twice in the previous term over the study period; the stable medium trajectory corresponds to victimization every few weeks in the previous term. The low increasing trajectory corresponds to victimization at the end of primary school increasing from once or twice in the previous term to once a week for males at the end of Grade 9 and from once or twice in the previous term to every few weeks for females at the end of Grade 9.

Table 15 Types of victimization by gender within victimization trajectories

		End of Grade 7 mean(sd)	Beginning of Grade 8 mean(sd)	End of Grade 8 mean(sd)	End of Grade 9 mean(sd)
Males					
Low stable					
	Physical	1.18(.40)	1.17(.42)	1.23(.45)	1.27(.63)
	Verbal	1.65(.82)	1.50(.82)	1.71(.96)	1.79(1.03)
	Relational	1.43(.69)	1.31(.60)	1.46(.76)	1.50(.84)
Low increasing					
	Physical	1.15(.32)	1.15(.35)	1.16(.51)*	1.48(.94)
	Verbal	1.61(.97)	1.59(.94)	1.79(1.05)	1.90(1.26)
	Relational	1.34(.69)	1.39(.88)	1.52(.85)	1.65(1.07)
Medium stable					
	Physical	1.06(.15)	1.15(.25)	1.26(.59)	1.19(.69)
	Verbal	1.41(.56)	1.45(.79)	1.38(.58)	1.62(1.08)
	Relational	1.24(.38)	1.27(.47)	1.42(.74)	1.41(.94)
Not bullied					
	Physical	1.23(.53)	1.25(.61)	1.26(.60)	1.41(.88)
	Verbal	1.70(.92)	1.61(.95)	1.76(1.03)	1.86(1.16)
	Relational	1.49(.79)	1.43(.74)	1.47(.80)	1.53(.93)
Females					
Low stable					
	Physical	1.20(.47)	1.15(.38)	1.24(.57)	1.31(.69)
	Verbal	1.71(.97)	1.46(.72)	1.75(.98)	1.84(1.08)
	Relational	1.51(.81)	1.31(.60)	1.47(.77)	1.59(.89)
Low increasing					
	Physical	1.08(.21)	1.08(.15)	1.22(.57)	1.50(.72)
	Verbal	1.63(.31)	1.38(.38)	1.96(.86)	2.50(1.30)
	Relational	1.38(.43)	1.17(.33)	1.33(.69)	1.63(.53)
Medium stable					
	Physical	1.15(.30)	1.17(.24)	1.21(.44)	1.64(1.41)
	Verbal	1.63(.47)	1.63(.92)	1.72(.98)	2.03(1.54)
	Relational	1.44(.57)	1.25(.55)	1.25(.55)	2.07(1.61)
Not bullied					
	Physical	1.19(.45)	1.19(.46)	1.25(.58)	1.31(.79)
	Verbal	1.67(.93)	1.52(.80)	1.74(.99)	1.76(1.04)
	Relational	1.45(.74)	1.35(.61)	1.49(.79)	1.55(.92)

*$p<0.05$, **$p<0.001$
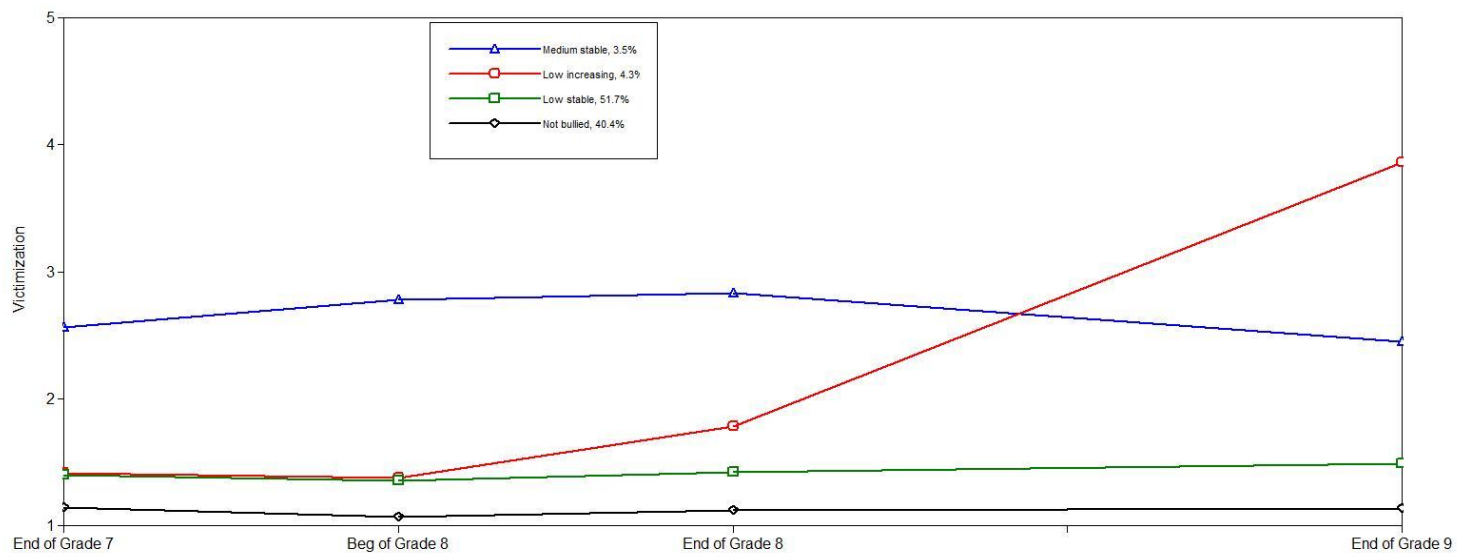
Figure 15 Trajectories of victimisation in adolescence (n=1,810)
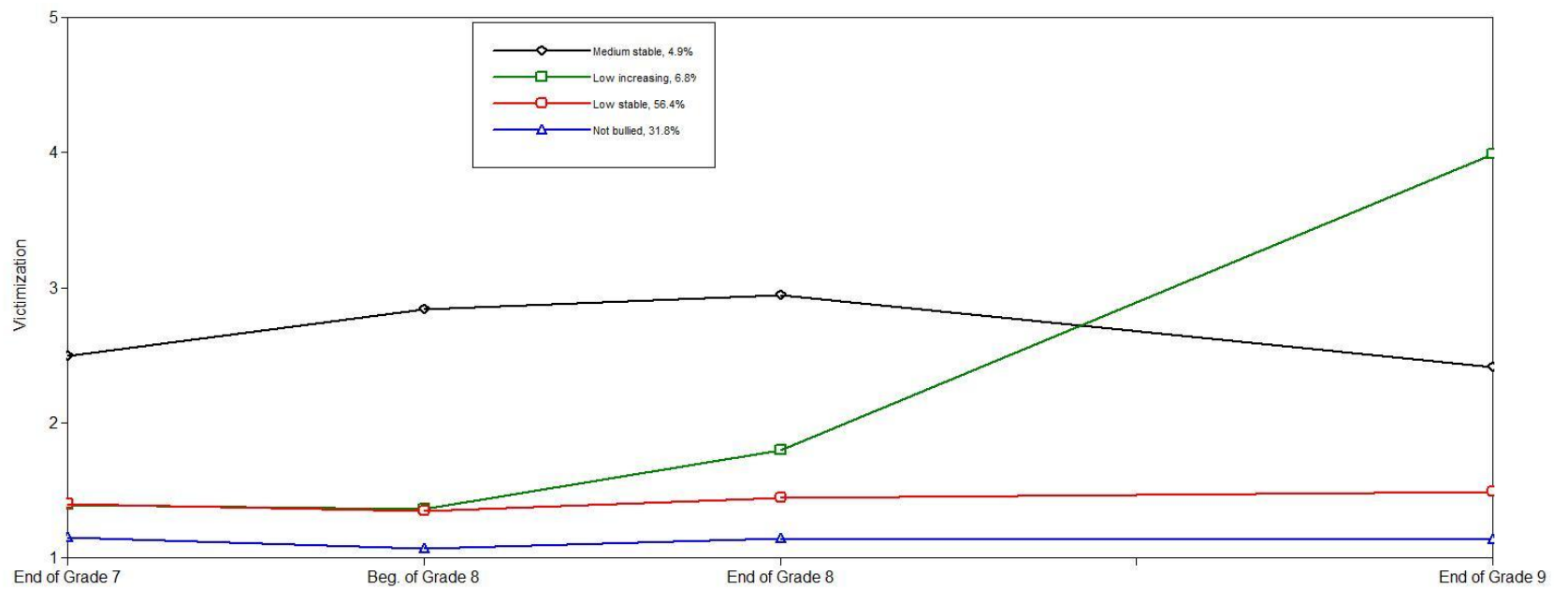
Figure 16 Male trajectories of victimisation in adolescence (n=881)
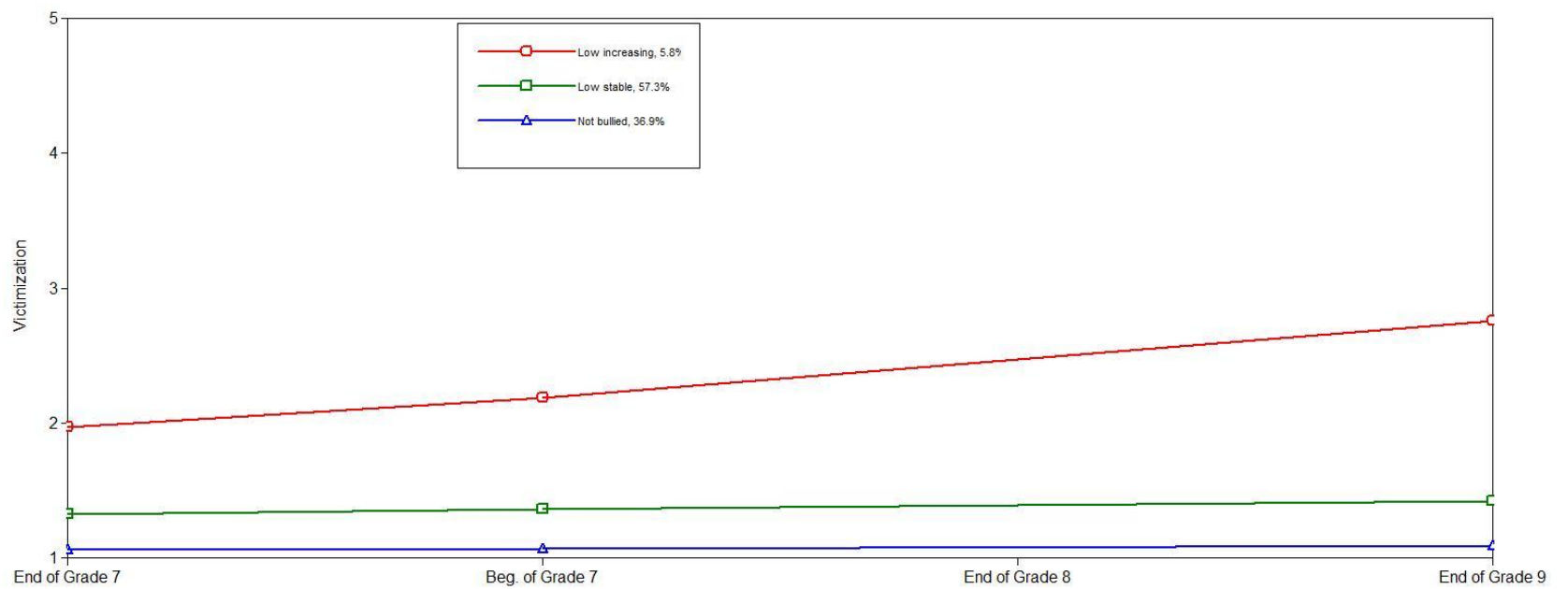
Figure 17 Female trajectories of victimisation in adolescence (n=927)

Social health predictors of trajectories of victimization

Loneliness, connectedness to school, peer support and feeling safe at school were explored as social health predictors of victimization trajectory group membership. The extent to which these social health variables predicted membership to all comparisons of the trajectory groups was assessed.

Loneliness: Males who reported more feelings of loneliness at the end of primary school (Grade 7) had increased odds of being in the low stable, low increasing and medium stable than the not bullied victimization groups, however loneliness did not differentially predict membership of the three victimization groups. Females who reported more feelings of loneliness were more likely to be in the low stable group than the not bullied group (Table 16), no other differences were found in the likelihood of membership to the groups based on loneliness scores for girls.

Connectedness: Males who felt more connected to school at the end of primary school had reduced odds of being in the medium stable group, whereas females who felt more connected had reduced odds of being in the low stable or low increasing group compared to the not bullied group. Males who reported less connectedness to school were significantly more likely to be in the medium stable group than in the low increasing and low stable groups, whereas females who reported less connectedness to school were significantly more likely to be in the low increasing than in the low stable group.

Peer support: Peer support was not a predictor of victimization group membership for males. Females who had greater peer support at the end of primary school had reduced odds of being in the low stable group compared to the not bullied group (i.e., were more

likely not to be bullied). No other differences were found in the likelihood of membership to the groups based on peer support scores for girls.

Safety at school: Males who felt safe at school at the end of primary school had reduced odds of being in the medium or low stable groups compared to the not bullied group, no other differences were found in the likelihood of membership to the groups based on feelings of safety at school. No significant relationship was found between feeling safe at school and trajectory groups for females.

Victimization trajectories and mental health outcomes

All victimized trajectory groups had significantly higher reported levels of depression and anxiety at the end of Grade 9 compared to the not victimized group. At the end of Grade 7 only males in the stable medium trajectory group had significantly higher levels of depression and anxiety than the not victimized group. At the end of Grade 7, females in the low increasing trajectory group had significantly higher levels of depression and females in the low stable trajectory group had significantly higher levels of anxiety than the not victimized group. Furthermore, males and females in the low increasing victimization groups had higher depression and anxiety scores at the end of Grade 9 than those in the low stable groups (Table 17).

Table 16 Multinomial regressions of victimization trajectories on social health measures

OR(95% CI)	Loneliness	Connectedness	Peer Support	Safety at school
Not bullied reference class				
Males (n=468)				
Medium stable	3.95 (1.71,9.13)**	0.34 (0.19,0.61)**	0.70 (0.20,2.46)	0.24 (0.07,0.81)*
Low increasing	5.48 (2.64,11.39)**	1.26 (0.74,2.13)	1.07 (0.25,4.63)	0.40 (0.15,1.07)
Low stable	3.37 (1.55,7.33) **	0.72 (0.44,1.17)	0.99 (0.36,2.74)	0.44 (0.22,0.88)*
Females (n=543)				
Low increasing	1.70 (0.76,3.80)	0.29 (0.14,0.61)**	0.29 (0.04,1.89)	0.88 (0.24,3.23)
Low stable	1.76 (1.09,2.87)*	0.70 (0.52,0.95)*	0.27 (0.16,0.44)**	0.70 (0.33,1.50)
Low stable reference class				
Males (n=468)				
Medium stable	1.17 (0.68,2.01)	0.48 (0.36,0.65)**	0.70 (0.43,1.16)	0.56 (0.22,1.40)
Low increasing	1.62 (0.70,3.77)	1.76 (1.14,2.70)*	1.08 (0.40,2.92)	0.90 (0.34,2.39)
Females (n=543)				
Low increasing	1.04 (0.38,2.81)	2.43 (1.11,5.31)**	0.94 (0.17,5.34)	0.79 (0.21,3.00)
Low increasing reference class				
Males (n=468)				
Medium stable	0.72 (0.47,1.11)	0.27 (0.16,0.46)**	0.65 (0.31,1.40)	0.62 (0.12,3.07)

Reference trajectory group 'Not bullied', *$p<0.05$, **$p<0.001$. Odds ratio is a measure of the likelihood of class membership; social health measured at beginning of Grade 7; results come from separate models.

Table 17 Tobit regressions of victimization trajectories on mental health outcomes

Coefficient (95%CI)	Trajectory Group			
	Male		Female	
	Depression score	Anxiety score	Depression score	Anxiety scores
Not bullied reference group				
Low stable	0.96 (0.60,1.31)**	0.67 (0.35,0.97)**	0.73 (0.52,0.94)**	0.38 (0.18,0.57)**
Low increasing	2.42 (1.78,3.06)**	2.15 (1.60,2.69)**	1.37 (0.87,1.86)**	1.42(0.69,1.58)**
Medium stable	1.69 (0.97,2.40)**	1.29 (0.66,1.92)**	-	-
Low increasing reference group				
Low stable	-1.46 (-2.05,-0.86)**	-1.48 (-2.00,-0.97)**	-0.63 (-1.11,-0.16)**	-0.76 (-1.19,-0.33)**
Medium stable	-0.73 (-1.54,0.80)	-0.86 (-1.59,-0.12)*		
Low stable reference group				
Medium stable	0.73 (-0.08,1.54)	0.86 (0.12,1.59)*		

*p<0.05, **p<0.001, Regression coefficient is estimated difference in depression/anxiety scores between the two trajectory groups being compared; mental health outcomes measured at end of Grade 9; mental health outcomes measured at the end of Grade 9 controlled for in the analyses.

Discussion

This longitudinal study focused on victimization over the transition from primary to the end of the second year of secondary school, a challenging period for adolescents as they experience environmental, physiological, cognitive and social changes (Barton & Rapkin, 1987). Primary school (Grade 7) social health (loneliness at school, connected to school, peer support and feeling safe at school) was used to predict victimization trajectory group membership, and victimization trajectory group membership was used to predict mental health outcomes at the end of Grade 9.

Approximately 40% of adolescents in this study experienced no or little victimization at the end of primary school and throughout secondary school with approximately half the students experiencing low stable victimization. A small group of students (4%) reported medium stable levels of victimization from primary through secondary school while a similar proportion were victimized infrequently at the start of secondary school with victimization increasing over the second year of secondary school. Consistent with previous research, the peak for the medium stable group occurred at the beginning of secondary school during the transition from primary to secondary school. In contrast to others who have studied bullying victimization in a younger age group (Boivin, et al., 2010; Goldbaum, et al., 2003), we did not find high and medium desisting groups or high and medium increasing victimization groups. These differences may be developmental with relational victimization more likely to be experienced during adolescence than physical victimization, as manipulation and aggression are often used as deliberate strategies to acquire power and influence, gain dominance and

to increase and maintain popularity with peers during this period (LaFontana & Cillessen, 2010; Salmivalli, 2010).

Gender differences were found in both the shape of the trajectories and the number of trajectory groups. As expected, the not bullied and low stable trajectory groups were similar in shape for both males and females. However, females did not report medium stable levels of victimization and the curve for males in the low increasing group was steeper than for females in the same group with the males reporting higher levels of victimization by the end of Grade 9. The severity of victimization in males may indicate higher levels of physical than relational victimization being reported with adolescent males generally experiencing more direct physical, direct verbal and indirect types of victimization than females (Craig, et al., 2009) whereas relational bullying is more common among girls (Nansel, Overpeck, Pilla, Ruan, et al., 2001). The marked increase in victimization in males implies focussed bullying interventions may be needed at the beginning of secondary school.

The social health variables examined in this study as predictors of victimization trajectory groups include loneliness at school, connected to school, peer support and feeling safe at school. Students who felt lonely at school or less connected to school were more likely to be in stable or increasing victimization groups, whereas feeling safe at school was protective for males while peer support was protective for females. Males who were lonely were most likely to be in the increasing victimization group while males who felt less connected to school were most likely to be in the medium stable group. Females were who were lonely were most likely to be in the stable group while females who felt less connected to school were most likely to be in the increasing victimization group. During

transition, the ability to make new friends (Akos & Galassi, 2004), the number of friends and quality of friendships (Pellegrini & Bartini, 2000), having friends who are able to help and protect, and being accepted by the peer group are the main social factors identified as protective against victimization (Hodges & Perry, 1996). Victimization has a reciprocal effect on loneliness with lonely students more likely to be victimized by peers (Berguno, et al., 2004) whereas those victimized are more likely to be lonely, as other peers avoid them for fear of being bullied themselves or losing social status among their peers (Nansel, Overpeck, Pilla, Ruan, et al., 2001). Confirming prior cross-sectional research where males reported greater perceptions of school safety than females (Brown, Birch, & Vijala, 2005; Varjas, Henrich, & Meyers, 2009), this study found feeling safe at school was a protective factor against victimization for males but not females. Peer support is a factor that can influence feelings of safety at school (Cowie & Oztug, 2008). This is especially the case among female friendships which are generally fewer in size but stronger than male friendships. In these relationships females generally display greater pro-social and empathetic skills (Bosacki & Wilde Astington, 1999) and place greater importance on social relationships and peer support than males (Smith & Watson, 2004). Findings from this study add to the body of evidence that lonely students are more likely to be victimized.

This longitudinal research supports prior cross-sectional research which found existing relationships between chronic victimization and mental health (Hawker & Boulton, 2000). Importantly, contrary to what was expected, the results of this study show the impact of victimization onset at the start of secondary school has a greater impact on mental health than prolonged victimization. While many students during school transition have to deal with the onset of puberty and the changes in peer relations (and the consequential rise in social stress), in this study

the additional effect of onset of victimization is greater than prolonged victimization.

The resulting mental health outcomes of students in the stable and increasing victimization groups highlight the importance of school transition programs which focus on increasing social health and the awareness and prevention of bullying in minimising harm to students. Prior to and during the primary to secondary school transition period is a critical and opportune time to address student social health. Transition programs can foster school connectedness and feelings of safety at school through a strong school ethos of care, clear social support systems where relationships promote health and well-being and positive classroom management (Cowie, et al., 2002). Effectively communicating to the school community the school's bullying prevention policy and actions will help to reduce victimization and also increase the students' perceived sense of safety at school: as will increasing adult supervision and enhancing their ability to prevent, detect and intervene in bullying incidents; and enabling students to support victimized students and easily report bullying (Bradshaw, et al., 2008). Peers can reduce bullying by intervening and helping the person being victimized (Salmivalli, 1999) while student, parent and teacher support can buffer victimized students from internalising distress (Rigby, 2000). A students' social health can be opportunistically developed in adolescence by modification of the social environment, spending time with pro-social peers and adults, and through targeted skills training.

The prolonged victimization measured in this study is at relatively low levels, measured over a relatively short period of time. Whilst the relationships between social health factors and victimization, and victimization and mental health, can

be bi-directional and may already be well established for some students by the time they complete primary school, it is important to examine the predictors of increasing or stable victimization prior to the transition period. Research into victimization measured over a longer period of time would further inform the relationships between social health, victimization and mental health, and highlight critical times at which to intervene.

Strengths and limitations

There are several strengths of this study. Most importantly, the two-year (four time-points) longitudinal nature of the research design over the transition from primary to secondary school enabled the determination of trajectory groups, social health predictors and the mental health outcomes at a time that can be socially challenging for most students. Moreover, these findings are robust due to the large sample of students (90%) who completed questionnaires in at least three of the four data collection points. Despite these strengths, there are several limitations to this study. First, the use of self-report of social health, victimization and mental health could result in some of the associations being due to shared method variance. The use of peer, teacher or parent reports would be useful in examining the relationships further. In addition, the collection of data at home among Grade 7 students was inconsistent with classroom-based data collection procedures used in Grades 8 and 9. To reduce the impact of these differences an explicit and standard protocol (as used in the classroom) was provided to parents for all Grade 7 assessments, however parents still may have indirectly or directly influenced their children's responses to the questionnaire. While absentee students and those lost to follow-up (approximately 11%) may be more involved in bullying perpetration or victimization behaviours, this potential bias is unlikely

to influence the results substantially given the large number of respondents at each data collection. Further, the results may not generalise to the other similar aged student populations as the sample included only Catholic primary and secondary schools within the Perth metropolitan area. Finally, the trajectory groups were calculated over a relatively short time period (3 grade levels) and as such the associations between victimization behaviours, social health and mental health may have been established prior to the commencement of the study.

Conclusion

The impact of chronic victimization on mental health problems in adolescents makes understanding the social health predictors of those within victimization trajectory groups an important priority, especially during transition from primary to secondary school. Adolescents with poorer social health were more likely to be in the increasing and stable trajectory groups than in the not bullied group. Additionally, onset of victimization during transition was associated with poorer mental health outcomes than low stable or no victimization. To enhance the mental health of adolescents, a social health school intervention approach involving primary and secondary schools would help to limit victimization and the harms caused by long-term exposure.

Chapter 8: General discussion

8.1 Introduction

The overall purpose of this study was to examine the relationships between bullying experiences and other problem behaviours, and social and mental health during the transition period from primary to secondary school. This chapter will present an overall discussion of the findings from the six key research questions guiding this thesis, organised according to stages of this study. The first stage of the study explored the relationship between bullying experiences (both traditional and cyber) at the start of secondary school and future involvement in bullying and other problem behaviours. Due to the strong relationships found in Stage 1, Stage 2 investigated the relationship between bullying experiences and social health (e.g., loneliness at school, connectedness to school, peer support, safety at school, pro-victim attitudes, and negative outcome expectancies) prior to and during the transition period. Stage 3 examined the relationship between bullying experiences and mental health. Stage 4 built on the findings of both Stage 2 and 3 by exploring the social health predictors and mental health outcomes of victimisation trajectory group membership. The contributions of this thesis to the literature, practical implications of the findings, and strengths and limitations of the research are explored. Finally, recommendations of content and timing for whole-school interventions and for future research are also presented.

The ecological theory of human development proposed by Bronfenbrenner (1995) has been modified in this research to describe the relationship between adolescent health and development and their influencing environments. A safe and caring climate across all environments, such as family, peers, school, community and government (Wise, 2003), is important for adolescents' overall wellbeing, with environments influencing both directly

and indirectly adolescent social, mental, emotional, physical and spiritual health. During adolescence there is a shift from a reliance on parents to peers (Collins & Steinberg, 2006) with peer support needed for the development of social, emotional and mental health (King, et al., 2002; McGraw, et al., 2007). Peer relationships within the school environment are one of the most important determinants of social and mental wellbeing for adolescents (Weare & Gray, 2003) and as such the school environment is an important context for intervention programs which promote adolescent wellbeing.

Schools have become increasingly aware of the prevalence, seriousness and negative impacts of bullying behaviour on student health and wellbeing. The prevalence of bullying appears to be higher at specific times during adolescence, peaking during the transition from primary to secondary school – a time which can be challenging socially, emotionally and mentally for some students (Cross, et al., 2009). The period prior to and during transition from primary to secondary school represents an opportunity in which to focus social health and bullying prevention interventions.

The social health factors amenable to school intervention which are investigated in this study (loneliness at school, connectedness to school, peer support, feeling safe at school, pro-victim attitude and negative outcome expectancies to bullying) can be mapped to Maslow's Hierarchy of Needs within Maslow's Theory of Human Development (Maslow, 1943). Maslow proposes fundamental needs required to reach one's full potential with a deficiency in fundamental needs, or needs not being met, affecting the ability to form and maintain emotionally significant relationships.

The theoretical framework employed in this research examined the relationship between the level of involvement in bullying behaviours and the subsequent involvement in anti-social problem behaviours.   This framework also proposes a reciprocal relationship between social and mental health and victimisation, where poor social and mental health is

a predictor and outcome of victimisation prior to and following the transition from primary to secondary school. This chapter provides a synthesis of the results and discussion of each manuscript that forms part of this thesis in the context of previous research.

8.2 Research aims

The overall purpose of this study was to use longitudinal data to examine bullying experiences and their temporal association with other problem behaviours, social and mental health during the transition period from primary to secondary school. The findings from this research facilitate the development of empirically grounded recommendations for effective school policy and practice to help reduce the bullying experiences and enhance the social and mental health of adolescents who are transitioning from primary school to high school.

Data used in each of the research questions were drawn from the Supportive Schools Project (SSP). This project recruited 21 Catholic Education Sector schools to examine adolescents' knowledge, attitudes, and experiences of bullying victimisation and perpetration during the transition from primary to secondary school. Data were collected in four waves from 2005 to 2007 from a total of 3,462 students. The student cohort completed a baseline self-completed questionnaire in Year 7, the last year of primary school (12 years old). After the transition to secondary school, the cohort completed questionnaires at the beginning (Term 1) of Year 8 , the end (Term 3) of Year 8 (13 years old) and Term 3 of Year 9 (14 years of age).

This thesis sought to answer six research questions investigated in four stages. Stage 1 determined whether the level of adolescent involvement in bullying behaviours at the start of secondary school was related to their future level of involvement in bullying and other problem behaviours and explored whether the level of involvement in cyberbullying

behaviours represented an independent risk factor for engaging in other problem behaviours over and above involvement in traditional bullying behaviours. Given the relationships found between bullying experiences and other problem behaviours in Stage 1, it was important to also understand the links between bullying experiences and social and mental health during transition to determine an appropriate time to intervene to reduce their bullying experiences and hence, to reduce the likelihood of involvement in future bullying and other problem behaviours. Thus, the temporal relationships between victimisation and social health (Stage 2) and the relationship between victimisation and mental health (Stage 3) were examined.

The results in Stages 2 and 3 led to the exploration of social health predictors and mental health outcomes of those chronically victimised over the transition period, through the investigation of developmental trajectories of victimisation in Stage 4. Understanding predictive social health factors is important as poor social health in primary school can lead to chronic victimisation (Goldbaum, et al., 2003), and chronic victimisation can negatively impact on mental health (Garbarino, 2001).

A description of the four stages which make up this research and a summary of the results of each stage can be found in Table 18.

Table 18 Summary of study results by stage

Stage	Description	Results summary
1	Bullying involvement and future engagement in bullying and other problem behaviours	- Higher levels of traditional victimisation and perpetration at the beginning of secondary school (Year 8) predict higher levels of engagement in bullying and other problem behaviours at the end of Year 9 - Traditional direct victimisation and perpetration are significant predictors of levels of engagement in bullying and other problem behaviours - Cyberbullying represents an independent risk factor over and above levels of traditional bullying for higher levels of engagement in bullying and other problem behaviours
2	Relationship between social health and bullying experiences	- Significant paths between factors and perpetration-victimisation and victimisation were found to exist at the end of primary school - Reciprocal relationships between social health and bullying experiences were found over th etransition period indicating social health factors may be determinants as well as consequences of bullying behaviours. - Negative outcome expectancies for those who victimise others and feelings of safety at school and peer support for those who are victimised, had a significant impact on reducing bullying experiences over the first year of secondary school
3	Relationship between mental health and bullying experiences	- There was an increase in the prevalence of depressive and anxious symptoms over the transition period for students who were victimised - Reciprocal relationships between mental health and bullying were found over the transition period suggesting internalising symptoms may identify those at risk for victimisation, and victimisation may identify those at risk for internalising symptoms. - Relationships were different for males and females with respect to depression
4	Predictors and outcomes of victimisation trajectory class membership	- Peak victimisation for the medium stable group occurred at the beginning of secondary school - Frequency of victimisation for males was higher and at an earlier time point than for females - Adolescents with poorer social health were more likely to be in the increasing and stable victimised groups than in the not bullied group - The impact of victimisation onset at the start of secondary school has a greater impact on mental health than prolonged victimisation

8.3 Stage 1   The relationship between bullying experiences and involvement in other problem behaviours

Stage 1 examined the relationship between the level of involvement in bullying behaviours (both traditional and cyber victimisation and perpetration) at the start of secondary school and the level of involvement in future bullying and anti-social problem behaviours (Research Question 1). Investigation of bullying as a predictor to future involvement in bullying and other problem behaviours was important to inform whether the transition period represented a critical time in which to implement bullying prevention programs. Relative to other age groups, adolescents have a disproportionately higher risk of engaging in delinquency related problem behaviours that can have serious consequences for the individual, their family, friends and the community (Bartlett, et al., 2007). Problem Behaviour Theory (Jessor & Jessor, 1977) is a psychosocial model used to explain dysfunction and maladaptation in adolescence. This theory suggests that proneness to specific problem behaviours entails involvement in other anti-social problem behaviours and less participation in conventional behaviours. This theory suggests that young people's problem behaviours tend to cluster. Thus, this theory was used to determine if bullying perpetration behaviours cluster with other problem behaviours.

Cross-sectional research suggests that the perpetration of both traditional bullying and cyberbullying are associated with other problem behaviours (Dukes, et al., 2010; Hay, et al., 2010; Mitchell, et al., 2007; Niemelä, et al., 2011). The results from this longitudinal study for frequent perpetrators of traditional bullying provided further evidence of the clustering of some problem behaviours, as suggested by Problem Behaviour Theory (Jessor & Jessor, 1977). The data in this study suggests that engagement in problem behaviours over time was higher for students who also perpetrated bullying frequently, however engagement in problem behaviours decreased as their level of victimisation increased.

Adolescents' involvement in problem behaviours seems more likely if he/she is supported by others. This is likely because peer influence and association with deviant peers were previously found to be the most proximal social influence on engagement in problem behaviours (Ary, et al., 1999). Students who use proactive bullying are more likely to be part of a highly structured social group and are more adept at negotiating allegiances, jostling for power positions, or coercing gang members to take orders (Sutton & Smith, 1999). In contrast, adolescents who are victimised are more likely to be lonely (Nansel, Overpeck, Pilla, Ruan, et al., 2001) and perhaps less likely to be involved in problem behaviours.

Further analysis of the relationship between traditional bullying and problem behaviours found that while direct forms of traditional bullying (both verbal and physical) were significantly associated with the level of engagement in problem behaviours, indirect bullying (relational) was not. Direct bullying by its nature, involving direct physical harm, or associated threats or challenges towards the target (Archer & Coyne, 2005), may be more likely to be associated with other problem behaviours intended to cause direct physical harm such as fighting. Further, Nansel et al. (2003) suggested bullying others is consistently associated with violence-related behaviours (weapon carrying, weapon carrying in school, and physical fighting for boys and girls).

Given that bullying at school has been found to be a gateway behaviour to other problem behaviours such as anti-social problems, delinquency, violence and aggression (Bender & Lösel, 2011), cyberbullying was examined to determine whether it also had a significant influence on levels of engagement in problem behaviours. The Problem Behaviour Theory (Jessor & Jessor, 1977) model however, was not supported in this study for cyber perpetration. Recent studies have shown direct bullying to be a stronger predictor than indirect bullying of problem behaviours in adolescence (Bender & Lösel, 2011; Hampela, et

al., 2009). Problem Behaviour Theory suggests motives for involvement in problem behaviours include overt repudiation of conventional norms which result in a form of social control response (Jessor & Jessor, 1977). The motives for perpetrating cyber and traditional bullying may differ, but both result in harm or a reaction from the target person (Dooley, et al., 2009).

Thus, it appears essential for schools to implement actions to stop or reduce the frequency of all forms of traditional bullying but especially direct bullying (e.g., physical and verbal teasing) prior to transition and during the first few years of secondary school to reduce the likelihood of perpetrators engaging in other problem behaviours. These actions by schools may similarly help to reduce the number of victimised students who will potentially engage in other problem behaviours. Encouragement of pro-social behaviour (Jessor & Jessor, 1977), high academic self-efficacy and involvement in extra-curricular activities are also protective against involvement in problem behaviours (Chung & Elias, 1996).

Adolescent involvement in both bullying and other problem behaviours has been shown to be a predictor of involvement in problem behaviours in adulthood (Bender & Lösel, 2011). As relationships exist between problem behaviours and social and mental health (Brendgen, et al., 2000; Chung & Elias, 1996; Sawyer, Miller-Lewis, & Clark, 2007; Simons-Morton, et al., 1999), knowledge and understanding of the temporal relationships between victimisation and social and mental health earlier in adolescence may allow for early intervention to prevent bullying and lessen the likelihood of involvement in other problem behaviours. Hence, it was necessary to investigate these temporal relationships between social health and victimisation prior to and during the transition period from primary to secondary school to determine whether a focus on social health could reduce bullying experiences (Stage 2).

8.4 Stage 2 The impact of social health on bullying behaviour

The results from Stage 1 showed a relationship between bullying experiences at the beginning of secondary school and problem behaviours at the end of the second year of secondary school. These results led to Stage 2 (Research Questions 2 and 3) which investigated the relationship between social health and victimisation over the transition period to determine whether a focus on social health could reduce bullying (Figure 19). Students who bully others and who are also bullied ("bully-victims") are a distinct group at greater risk of negative mental, emotional, physical and social outcomes with those involved in bullying behaviours (Demaray & Malecki, 2003; Gini & Pozzoli, 2009; Stein, et al., 2007). Hence, the relationship between social health variables particularly related to this group (peer support, pro-victim attitudes, feeling connected to school and negative expectancies of bullying behaviour) and victimisation-perpetration prior to and over the transition period from primary to secondary school was explored. Further, to determine if there were differences in the relationships between social health and victimisation for those who were victimised only, the relationship between social health variables particularly related to this group (peer support, loneliness, feeling connected to school and feeling safe at school) prior to and over the transition period from primary to secondary school was also investigated.

The increase in frequency of victimisation-perpetration and victimisation over the first year of secondary school suggests that this first year represents a critical time to focus on strategies to prevent bullying and support students who are victimised. The final years of primary school need to focus on building students' skills to prevent, discourage and manage bullying behaviour. The development of appropriate coping skills will promote positive and healthy reactions in victimised students with intervention approaches that

provide opportunities for students to practise and develop coping behaviours to assist students to deal with bullying victimisation.

During the transition period reciprocal relationships between bullying victimisation-perpetration and victimisation and the development of many social health factors commence. The reciprocal relationships indicate that social health factors may be determinants as well as consequences of bullying behaviours and, consistent with previous research (e.g. (Demaray & Malecki, 2003; Rigby, 1997)), suggests by secondary school the behaviours and outcomes for students are fairly well established likely having commenced in primary school. The findings suggest a critical time to intensify whole-school bullying intervention programs, and provide targeted bullying and social health intervention programs for those who are victimised and who may also victimise others is during the transition to and particularly within the first year of secondary school for higher risk students.

Due to the increased importance placed on peer relationships during early adolescence and the risk of sustained victimisation (Rueger, et al., 2011), provision of social support to reduce the negative impact of transition effects and minimise harm to higher risk students is essential at this time (Espelage, et al., 2000). The transition from primary to secondary school presents an opportune time to intervene as students are presented with a new school ecology. Elements of successful intervention programs are discussed in more detail in Recommendation 3.

Intervention during the transition period to improve students' social health outcomes appears to reduce their victimisation experiences and limit any associated effects on their social health outcomes.

Based on the magnitude of the coefficients, the strongest associations in the direction from victimisation to the social health variables (e.g., loneliness at school, connectedness to school, peer support, safety at school, pro-victim attitudes and negative outcome expectancies) occurred from the beginning to the end of Year 8 suggesting the beginning of Year 8 may be an opportune time in which to intervene with bullying prevention programs. These results supported the Social Ecological Theory proposed by Bronfenbrenner (1995) where environments impact on the individual. School-level social health variables correlated with individual-level social health variables, both of which are related to experiences with bullying behaviour.

Reducing students' victimisation in Year 8 may, therefore, protect against poorer outcomes on social health variables, such as feeling safe at school and connectedness to school, for students in the first year of secondary school. These results support Maslow's Hierarchy of Needs (Maslow, 1943), which states after the fundamental physiological needs are satisfied, safety and security need to be addressed before adolescents can develop feelings of belonging, self-esteem and self-actualisation.

Over the transition period connectedness to school was a significant protective factor for victimisation-perpetration but not victimisation only. In a cross-sectional study of secondary school students, Bradshaw and colleagues (2008) reported that victimised students were more likely to report feeling disconnected and unsafe at school and that victimisation at primary school was associated with lower feelings of school connectedness and safety across the transition period to secondary school. During transition students typically experience a new social environment moving from small, personal primary school environments to secondary schools which are generally larger (Pereira & Pooley, 2007) and more impersonal (Mizelle, 2005), with teachers, classrooms and often classmates constantly changing (Simmons, et al., 1987). Consistent with this study, during this time

students report a reduced sense of school belonging (Pereira & Pooley, 2007) and connectedness (O'Brennan & Furlong, 2010).

School connectedness and feeling safe at school, needs to be actively fostered in primary school and during the first few years of secondary school through a strong school ethos of care (Cowie, et al., 2002), clear social support systems where relationships promote health and well-being (Cowie, et al., 2002) and positive classroom management. Increasing adult supervision, enhancing and encouraging the ability of adults to prevent, detecting and intervening in bullying incidents, enabling students to support victimised students, reporting bullying easily, and effectively communicating the school's bullying prevention policy and actions to students and the other members of the school community will also help to reduce victimisation and increase the students' perceived sense of safety at school (Beran & Tutty, 2002; Bradshaw, et al., 2008). The perception that school staff are pro-active in their efforts to intervene and reduce bullying (Beran & Tutty, 2002) can influence the students' perceived sense of safety at school. In this study, school connectedness and feeling safe at school declined steadily after the transition to secondary school, highlighting the need for further longitudinal research to better understand the relationship between connectedness to school and feeling safe at school, and bullying experiences over time. Further, this study determined how actions taken by the school increases feelings of connectedness and safety and their influences on victimisation.

Negative outcome expectancies for perpetrators had a significant impact on reducing victimisation-perpetration over the first year of secondary school. Negative outcomes declined with age perhaps reflecting school policies, where outcomes for bullying were unclear, inconsistently implemented or minimal, or social norms where it is more accepted to be pro-bully (decreasing with age). Bullying is more likely to occur if students think they will be rewarded socially in terms of respect and status by those who equate bullying with

power and dominance (Andreou & Metallidou, 2004). Both students who victimise others and who are victimised, and those who are victimised only are less likely to take responsibility and make amends when involved in aggressive behaviour to others (Morrison, 2006). Negative outcome expectancies, including parents finding out and parental and peer disapproval, are strong motivational forces to prevent involvement in bullying behaviours (Rigby, 1997). Students are also less likely to engage in aggressive behaviours if they expect there will be consequences (Hall, et al., 1998).

On average, pro-victim attitudes of adolescents who were both victimised and victimised others in this study declined with age, supporting previous research which indicates that adolescents tend to despise and blame the target and be more approving of aggression (Gini, et al., 2008; Menesini, et al., 1997; Rigby, 1997; Rigby & Slee, 1991). These results emphasise the importance of promoting pro-victim attitudes in primary and early in secondary school.

Similar pathway results were found over the transition from primary to secondary school and the first year of secondary school for victimisation-perpetration and peer support, as was found for victimisation and peer support. Results for victimisation and loneliness support previous cross-sectional studies that show students who are bullied report greater loneliness and those who are socially isolated and lonely are more likely to be victimised (Nansel, Overpeck, Pilla, Ruan, et al., 2001). Importantly, it has been found that the number and quality of friends and being liked by peers may protect against victimisation (Pellegrini & Bartini, 2000). This suggests that the development of healthy and multiple friendships would reduce the negative impact of victimisation and reduce the probability of further victimisation and loneliness. Victimised students report lower peer acceptance, family support (Perren & Hornung, 2005) and teacher support (Rigby, 2000). Peers can reduce bullying by intervening and helping the person being victimised (Salmivalli, 1999), while

student, parent and teacher support can buffer victimised students from internalising distress (Rigby, 2000).

Different significant pathways, suggest targeted intervention programs during this transition period need to be developed for both students who are victimised and who victimise others (i.e., bully-victims) and those who are victimised only, with programs for the former more focused on increasing peer support, connectedness to school, pro-victim attitudes and perceptions of greater negative consequences of bullying, and programs for the latter more focused on increasing peer support. A strong school ethos against bullying behaviour, and consistent staff implementation of the school policy if students bully others appears to be critical during the first year of secondary school.

The relationship between victimisation, victimisation-perpetration and social health was explored in Stage 2. As bullying is also a risk factor associated with the high prevalence of mental health problems in adolescents, understanding the causal pathways between victimisation and mental health is also an important priority. Untangling the temporal relationship between victimisation and mental health will enable the appropriately timed delivery of interventions to those involved in victimisation to reduce the risk of the development of psychological problems (Hampela, et al., 2009). Hence, the relationship between mental health and victimisation was explored in Stage 3.

8.5 Stage 3 The impact of bullying on mental health

Stage 2 showed the importance of social health as a protective factor against victimisation. Given that for many adolescents the onset of adolescent depression and anxiety disorders coincides with the transition from primary into secondary school (average age 13 years), Stage 3 investigated the relationship between depression, anxiety and victimisation during this period (Research Question 4) to inform the development of effective interventions,

especially those targeting higher risk students who experience harm from peer victimisation.

Similar to Stage 2, the results of Stage 3 suggest symptoms of depression and anxiety are a precedent and consequence for victimisation in adolescent males and females: internalising symptoms may identify those at risk for victimisation, and victimisation may identify those at risk for internalising symptoms. Prior studies of primary school children revealed that those with internalising problems and depressive symptoms are at increased risk of being victimised, as their behaviour may indicate a vulnerability rewarding their attackers with a sense of power (Fekkes, et al., 2006). Also these students may be unable or less able to defend themselves, ward off aggressors or report the incident to others (Hodges & Perry, 1999) making them an easier target. In a longitudinal study of over 1000 children, Fekkes and colleagues (2006) investigated whether victimisation precedes psychosomatic and psychosocial symptoms or whether these symptoms precede victimisation. The authors reported that victims of bullying had significantly higher chances of developing new psychosomatic and psychosocial problems, while children with depressive symptoms and anxiety had a higher chance of being newly victimised. Physical health symptoms did not elevate the risk for bullying victimisation with the authors suggesting children may consider it more permissible to bully those who are psychologically fragile (e.g., depressed) and non-assertive than those with physical ailments. An alternative explanation offered by the authors was that children with depressive or anxiety symptoms may have the tendency to experience situations more negatively and be more inclined to perceive experiences as victimisation.

The crosslag models largely showed a reciprocal cyclical pattern in secondary school. This finding was similar to Sweeting and colleagues (2006) who reported a reciprocal relationship between victimisation and depression in 13-year-old males and females.

Depression could be a consequence of victimisation caused by the traumatisation of victimisation and lowering of self-esteem (Riittakerttu, et al., 2010; Sourander, et al., 2000) and loneliness (Sourander, et al., 2000), or a precedent due to the impairment of social skills and self-assurance, and inability to defend themselves (Riittakerttu, et al., 2010). The increase in the prevalence of depressive and anxious symptoms over the transition period for students who were victimised indicates the additional impact of being bullied. Adolescents who experience both direct and indirect forms of bullying experience higher levels of depression, loneliness, externalising problems, and lower self esteem (Prinstein, et al., 2001) along with social avoidance and fear of negative social evaluation (Storch, et al., 2003).

Males are more likely to experience direct victimisation and females indirect victimisation (Pepler, et al., 2008) with a higher prevalence of victimisation self reported by males over females during the transition from primary to secondary school (Cross, et al., 2009). Social relationships dominate the school transition experience (Pereira & Pooley, 2007) with adolescents often needing to develop new friendships when great importance is placed on peer relationships (Pellegrini & Bartini, 2000). Social withdrawal, as a result of depression (Riittakerttu, et al., 2010), appears to increase the risk of victimisation (Egan & Perry, 1998). This social pressure combined with the onset of puberty over the transition period, may contribute to an increase in depression and anxiety, highlighting this as a critical time to intervene. Schools therefore need a systematic whole-school approach including universal and targeted interventions. Interventions among adolescents, especially those experiencing depression, need to straddle primary and secondary school and particularly address social skill development and the building of resilience, self-esteem and positive coping mechanisms. A meta-analysis of the research on the prevention of depressive symptoms in children and adolescents, concluded treatment programs that focus on high-risk child and adolescent populations were more effective and practicable than universal

preventative programs (Horowitz & Garber, 2006). The authors state most programs reduce rather than prevent increases in levels of depressive symptoms and recommend that prevention programs be adapted to be developmentally appropriate and gender and culturally sensitive.

The results from Stages Two and Three of this study showed cyclical relationships between social and mental health and victimisation, where social and mental health are both causes and consequences of victimisation, prior to and over the transition period from primary to secondary school. What was clear from this investigation was that relationships between the variables may already be well established for some students by the time they complete primary school. As victimisation was measured at four time points, developmental trajectories of victimisation could be used to follow the transition from primary to secondary school, with every student allocated to a victimisation group. Analyses of these time points will allow the predictors and outcomes of chronic victimisation group membership to be examined in Stage 4.

8.6 Stage 4 Understanding predictors and outcomes of chronic victimisation

Primary school interventions have had success in improving the social health of students (Smith & Shu, 2000). Poor social health in primary school can lead to chronic victimisation (Goldbaum, et al., 2003), which in turn, negatively effects mental health (Garbarino, 2001) making it crucial to understand the key predictive social health factors of chronic victimisation. Results from Stage 2 and Stage 3 suggest the effects of victimisation are worse over the transition from primary to secondary school. Hence, the examination of social health predictors and mental health outcomes of chronic victimisation over transition (Research Questions 5 and 6) will inform both the type and timing of school based interventions (Figure 21). Developmental trajectories of victimisation, using the four time points prior to and during school transition, were calculated with every student

allocated to a victimisation group: low increasing; low stable; medium stable and not bullied. Social health predictors of victimisation group membership were explored with poorer social health at the end of primary school expected to be associated with chronic victimisation group membership. Those in chronic victimisation trajectories were also expected to have poorer mental health outcomes in secondary school than those in other victimisation trajectory groups.

The peak for the medium stable chronic group occurred at the beginning of secondary school during the transition from primary to secondary school, highlighting the importance of intervention prior to and during transition. Gender differences indicated the frequency of victimisation for males was higher and occurred at a high level at an earlier time point than for females. The severity of victimisation in males may indicate higher levels of physical than relational victimisation being reported with adolescent males generally experiencing more direct physical, direct verbal and indirect types of victimisation than females (Craig, et al., 2009) whereas relational bullying is more common among girls (Nansel, Overpeck, Pilla, Ruan, et al., 2001). The marked increase in victimisation in males implies focused bullying interventions may be needed at the beginning of secondary school.

Adolescents with poorer social health were more likely to be in the increasing and stable victimised groups than in the not bullied group. Confirming prior cross-sectional research where males reported greater perceptions of school safety than females (Brown, et al., 2005; Varjas, et al., 2009), it was found that feeling safe at school was a protective factor against victimisation for males but not females. Peer support can also influence feelings of safety at school (Cowie & Oztug, 2008). This is especially the case among female friendships which are generally fewer in size but stronger than male friendships (Daniels-Beirness, 1988). In these relationships females generally display greater pro-social and

empathetic skills (Bosacki & Wilde Astington, 1999) and place greater importance on social relationships and peer support than males (Smith & Watson, 2004). Findings from this stage add to the body of evidence that lonely students are more likely to be victimised and support the findings found in Stage 2. Victimisation has a reciprocal effect on loneliness with lonely students more likely to be victimised by peers (Berguno, et al., 2004) whereas those victimised are more likely to be lonely, as other peers avoid them for fear of being bullied themselves or losing social status among their peers (Nansel, Overpeck, Pilla, Ruan, et al., 2001).

This longitudinal research strengthens prior cross-sectional research which found existing relationships between chronic victimisation and mental health (Hawker & Boulton, 2000). Students in the low increasing victimised group had poorer mental health outcomes than those in the stable and not bullied groups. Importantly, contrary to what was expected, the results of this study show the impact of victimisation onset at the start of secondary school has a greater impact on mental health than prolonged victimisation. While many students during school transition have to deal with the onset of puberty and the changes in peer relations (and the consequential rise in social stress), in this study the additional effect of onset of victimisation is greater than prolonged victimisation.

The results of this study have important implications for the type and timing of school-based interventions aimed at reducing victimisation and the harms caused by long-term exposure. To enhance the mental health of adolescents, a school-based social development intervention approach involving primary and secondary schools would help to limit victimisation and the harms caused by exposure to chronic victimisation. These interventions are discussed in further below (Recommendation 4).

In summary, the results of Stage 1 showed a relationship between bullying experiences at the beginning of secondary school and problem behaviours at the end of the second year

of secondary school highlighting the importance of reducing the frequency of bullying prior to and during transition. To lessen the likelihood of future involvement in bullying and other problem behaviours, knowledge of the relationships between social and mental health and bullying experiences over the transition period may allow for early intervention to address bullying. This led to investigations of the temporal relationships between social and mental health and victimisation in Stages 2 and 3. The results of Stage 2, which investigated the temporal relationship between social health and victimisation over the transition period, showed a focus on social health could reduce bullying experiences. As victimisation is not only a risk factor for poor social health but also for poor mental health, Stage 3 explored the relationship between mental health and victimisation finding that mental health can be both a precedent and consequence of victimisation. The cyclical relationships between social and mental health and victimisation found in Stages 2 and 3 of this study led to the exploration of social health predictors and mental health outcomes of chronic victimisation group membership in Stage 4. Stage 4 highlighted the impact of poor social health on victimisation and the impact of victimisation onset at the start of secondary school on mental health.

8.7 Key issues

Overall, the key findings of the stages of research reported in this thesis relate to the type and timing of social and mental health interventions and bullying prevention intervention programs. This research found a relationship between engagement in bullying behaviours at the start of secondary school and engagement in future bullying and other problem behaviours. Engagement in anti-social problem behaviours over time was higher for students who also perpetrated frequent bullying, specifically direct bullying. To reduce the likelihood of perpetrators engaging in other problem behaviours and continuing their victimisation of others, it appears essential for schools to implement actions to stop or

reduce the frequency of all forms of traditional bullying but especially direct bullying (e.g., physical and verbal teasing) prior to transition and during the first few years of secondary school. Cyberbullying did not represent an independent risk factor over traditional bullying for involvement in problem behaviours. As bullying was found to be a predictor of future involvement in bullying and other problem behaviours, early interventions to reduce the likelihood of clustering of these behaviours needs to be considered.

The reciprocal relationships between social and mental health and bullying experiences suggest poor social and mental health are both causes and consequences of bullying experiences. Effective social and mental health interventions may result in less bullying experiences while effective bullying prevention intervention programs may result in better social and mental health. Adolescents with poorer social health at the end of primary school were more likely to be chronically victimised over the transition period than those with better social health, while victimisation that began at the start of secondary school appeared to harm mental health more so than prolonged victimisation. As associations between social and mental health and victimisation appear to be well established by the end of primary school, as stated above, an opportune time to intervene appears to be prior to the end of primary school and during the transition to secondary school. A peak in bullying behaviour in primary school tends to occur around Year 5 (Cross, et al., 2009), which may suggest intervention before this time is warranted, if not essential.

8.8 Contribution to literature

This thesis makes several important contributions to the study of bullying and cyber-bullying. Most importantly, the longitudinal nature of the research design over the transition from primary into secondary school enabled causal relationships to be examined . The findings in this research are robust due to the large sample of students (n=3,462),

and to the large proportion of students (90%) who completed questionnaires on at least three occasions.

Research involving problem behaviours has primarily been cross-sectional in design, whereas this research has used longitudinal data. This research has examined problem behaviours taking into account victimisation, perpetration and victimisation-perpetration, whereas previous problem behaviour research measured either victimisation only or victimisation and perpetration separately, but did not take consider those who are both victimised and perpetrators of bullying behaviours.

As most bullying studies are cross-sectional in design, the relationships between bullying victimisation, perpetration-victimisation, and social health factors over and following the transition to secondary school have not been well established. Longitudinal research on adolescents who are victimised and who victimise others has primarily focused on psychological health factors such as self-esteem (Pollastri, et al., 2010), aggression (Kim, et al., 2006), externalising behavioural problems (Kim, et al., 2006) and social immaturity (Kim, et al., 2006), while this study has measured both social and mental health over a significant period in adolescent development.

With respect to mental health and victimisation, evidence of causal relationships in primary school children is supported by several longitudinal studies. However, the limited longitudinal research to date (Riittakerttu, et al., 2010; Sweeting, et al., 2006) conducted with secondary students is contradictory leaving the direction of causality unclear (Riittakerttu, et al., 2010). Previous longitudinal studies using victimisation trajectory analyses have focused on primary school children (Boivin, et al., 2010; Goldbaum, et al., 2003). The longitudinal nature of the data, collected by following the adolescent cohort from over 400 primary schools, and the focus on adolescents through transition results in important and novel contributions to bullying research.

8.9 Strengths of the thesis

There are several strengths of this thesis. The longitudinal nature of the research design over the transition from primary to secondary school enabled the investigation of bullying victimisation, social health, mental health and problem behaviours at a time that can be challenging for many students. Findings from this thesis will enable school practitioners to have a clearer understanding of: the impact of bullying on involvement in other problem behaviours; the temporal associations between social health, mental health and bullying over the transition period; and the social health predictors and mental health outcomes of chronic victimisation which is currently lacking in the literature. The social health variables studied appear to be amenable to school intervention (Burns, et al., 2008; Gini, et al., 2007; Hodges & Perry, 1996; Malecki & Demaray, 2004; O'Brennan & Furlong, 2010; Rigby, 1997). Moreover, as mentioned previously, these findings are robust due to the large cohort followed over the study period.

Advanced statistical modelling techniques were employed with cross-lagged models used to model causal pathways between the social and mental health factors and bullying. Due to the skewed nature of the data, special consideration was given to estimators to implement non-normality robust standard error calculations. Developmental trajectories of victimisation were identified using the semi-parametric group-based trajectory approach. Multi-level logistic, multinomial and Tobit regression models (using robust standard error estimation to account for school level clustering in the data) were used to determine predictors of the level of involvement in problem behaviours and to determine whether the social health predictors of loneliness, connectedness to school, safety at school and peer support at the end of primary school (Year 7) could be individually used to predict the identified victimisation trajectory classes respectively. Missing data were handled using the Expectation-Maximisation (EM) procedure in SPSS and Full Information Maximum

Likelihood (FIML) estimation in MPlus, enabling the use of all students with at least one valid score in the analyses and the production of unbiased parameter estimates and standard errors of the data.

The consequence of poor social and mental health for adolescents is well established. The results of this study have timing and content implications for school transition programs with practical recommendations for the focus of bullying prevention interventions (Recommendation 1), and social health interventions (Recommendation 2). This allows school practitioners with limited resources to determine elements needed for targeted intervention programs to minimise student harm from bullying while enhancing the social and mental health of its students.

8.10   Limitations of the thesis

There are limitations which may affect the validity and generalisability of these research findings. Threats to the internal validity of this study include data collection methods, self-report data, measurement limitations, and attrition.   The method of data collection between Year 7 students (completed at home) was inconsistent with the class-room based data collection methods used in Years 8 and 9. To reduce the impact of these differences an explicit and standard protocol (as used in the classroom) was provided to parents for all Year 7 assessments, however parents still may have indirectly or directly influenced their children's responses to the questionnaire.

In addition, this study relies on student self-report of bullying perpetration and victimisation, social and mental health and problem behaviours over the adolescent years. The use of self-report of perpetration, victimisation and problem behaviours (as opposed to peer, teacher or parent report) may result in underreporting of involvement in bullying (particularly perpetration) and involvement in problem behaviours.   As social and mental

health were also measured using self-report, shared method variance is a limitation of the study as estimates of the correlation between bullying behaviours and social and mental health and involvement in problem behaviours may be inflated. The use of peer, teacher or parent reports is recommended to overcome this potential issue and to examine the relationships further. There may also be differences in the prevalence of bullying incidents when using teacher or parent report as compared to student report. In their qualitative study of responses to bullying, Mishna and colleagues (2006) reported discrepancies between students, parents and teachers in bullying definitions, and with parents and teachers being less aware of student involvement in bullying incidents.

The use of mean scores for the traditional and cyberbullying scales provides the students' frequency of involvement in different forms of bullying behaviours not the severity of the different acts in terms of impact on the targeted student. Impact as experienced by the victimised student, for example, could be assessed using separate questions asking students about the extent to which they were upset by the bullying.

Similar limitations apply to the calculation of mean scores for involvement in problem behaviours. The equal weighting assigned to each of the different forms of bullying and problem behaviours may have impacted on the observed associations between these outcomes. The victimisation and perpetration scores did not contribute evenly to the mean score for bully-victims due to the higher number of victimisation incidents reported, thus the study results reflect victimisation experiences to a greater degree than perpetration. The measurement of cyberbullying was also limited to only the number of nasty text messages or emails sent / received which may also have resulted in the under-reporting of involvement in these bullying behaviours.

The causal links and trajectory groups were studied over a relatively short, but critical, social time period consisting of immense social growth and development of social skills and

relationships. For some students, the associations studied may have been well established prior to their involvement in the study. Longer longitudinal studies are needed to better understand these temporal relationships. The prolonged victimisation measured in this study was relatively low, and measured over a relatively short period of time.   Research investigating victimisation over a longer period of time would highlight critical times to intervene.

In some students, the associations studied may have been well established prior to the commencement of the study. More evidence is required to better understand temporal relationships. There is a need for greater funding to perform longer longitudinal studies. The prolonged victimisation measured in this study is at relatively low levels, measured over a relatively short period of time.   Research into victimisation measured over a longer period of time would further inform the relationships between social health, victimisation and mental health, and highlight critical times at which to intervene.

Missing data due to absent students and students lost to attrition may mean that students with greater levels of involvement in bullying perpetration, victimisation or problem behaviours were not included in the analyses. While absent students and those lost to follow-up, approximately 11%, may have impacted on the results, this potential bias is unlikely to influence the results substantially given the large number of respondents at each data collection. All efforts were taken in this study to obtain responses from absent students with questionnaires left with teachers to distribute to the students who were missing on the day. Attempts were also made to contact study students who had moved to new non-study schools.

Secondary schools affiliated with the Catholic Education Office (CEO) of Western Australia were approached to participate in the study because students within Australian Catholic schools are more likely than students attending schools in other sectors (e.g. government

schools) to move in intact groups. Use of these schools reduced the rate of transition attrition as students moved from primary to secondary schools. However use of this sample affects the generalisability of results given they represent 11% of all secondary schools (n=186) in Perth Western Australia.

The student cohort followed in this study involved students from over 400 primary schools transitioning to 21 secondary schools. This research involved Catholic metropolitan schools which may support the transition process for students differently compared to other schools. Further the students who remained in Catholic schools during the transition to secondary school may have different characteristics from those students who left. Approximately 4% of students were enrolled in Kindergarten to Year 12 schools and therefore may not have as disruptive a transition experience from primary to secondary school as students who change schools. Comparison of students who have not changed schools between primary and secondary school with students who have changed schools is needed to determine the generalisability of the results. Schools from all education sectors (i.e., government, non-government and independent), across metropolitan, rural and remote Australia are required to validate the findings of this research.

This research focused on the relationship between victimisation, social and mental health and presents recommendations for students who are victimised. Further research is required to determine temporal relationships between perpetrators and their social and mental health. Research into the temporal relationships between cyberbullying and mental health is also required, as cyber-victimisation has emerged as an additional risk factor for depressive symptoms in adolescents involved in bullying (Perren, et al., 2010). Ongoing longitudinal investigation of the relationship between traditional bullying, cyberbullying and involvement with problem behaviours is required as relationships may change as accessibility to technology increases. Research also needs to involve students

from an earlier age, especially as age of access to technology decreases, to identify developmental opportunities for intervention.   This study did not measure resilience and coping skills which are important factors which help to determine adolescent social and mental health.

8.11   Recommendations and implications

The results from this thesis substantiate the relationship between bullying experiences and problem behaviours, the temporal relationships between social and mental health and victimisation and the predictors and outcomes of chronic victimisation over the transition period.   Recommendations for future government and non-government policies, school based policy and practice, and students with respect to social and mental health interventions and bullying prevention programs are detailed below.

Recommendation 1: School bullying interventions need to focus on reducing direct bullying

A focus on reducing the frequency of direct bullying (e.g., physical and verbal teasing) prior to transition and during the first few years of secondary school appear to reduce the likelihood of these students engaging in other problem behaviours.   In his review of intervention programs, Smith (2004) suggests the success and sustainability of intervention programs is based on the extent to which schools take ownership of the program, and effectively and persistently promote it over time, ideally commencing in primary school.

Recommendation 2: Whole-school interventions need to reduce victimisation and perpetration and enhance social health

Social health encompasses a range of skills and attributes which contribute to healthy developmental outcomes among adolescents such as maintaining and developing new

social relationships and social support networks, social skill development, social competency, resiliency and coping skills. Social health elements which are amenable to whole-school intervention and can protect against victimization include reducing students' loneliness; and increasing peer support; connectedness to school; feelings of safety at school; pro-victim tendencies and negative outcome expectancies towards bullying. Social health variables were found to be highly correlated so the effects of interventions in one area of social health are likely to flow on to other areas of social health. The following describes how selected components of social health, amenable to intervention, could be addressed to reduce victimisation and perpetration.

Peer support and loneliness

Intervention programs based on increasing peer support have been shown to be successful in reducing the incidence of bullying at school and reducing the negative effects of bullying for students who are victimised (Gini, et al., 2008; Menesini, Codecasa, et al., 2003). Adolescence is the time in which the foci of relationships shift from family to friends with both types of relationships impacting on psychological wellbeing (Buchanan & Bowen, 2008). Peer support has been linked to improving school safety, school engagement, academic motivation, reducing the likelihood of participation in anti-social behaviours and reducing bullying and violence (Bartlett, et al., 2007; Cowie & Smith, 2010; Shin & Daly, 2007; Wentzel, et al., 2010).

Successful whole-school interventions to increase peer support include encouraging student interaction between families, teachers and students; students engaging in extracurricular activities; and meetings of students who share similar goals (Buchanan & Bowen, 2008). While the design of curriculum content to encourage co-operative and helpful behaviour and peer support and student counselling services can be used to counter bullying behaviours (Rigby, 2000), it is recommended that schools are proactive in

promoting peer support schemes to the school population as students in schools who are aware of the existence of peer support systems were found to worry significantly less about being bullied (Cowie, et al., 2008).

Many bullying intervention programs encourage victims to seek help to resolve the problem and/or to improve a student's situation (Glover, Gough, Johnson, & Cartwright, 2000).   Students are encouraged to speak with their parents (Hunter, Boyle, & Warden, 2004), other students (Naylor & Cowie, 1999) and teachers, with teachers reporting this as the number one coping strategy they would recommend to victimised students (Nicolaides, Toda, & Smith, 2002). Peers can help to reduce bullying by intervening and helping the person being victimised (Salmivalli, 1999), while student, parent and teacher support can buffer victimised students from internalising distress (Rigby, 2000). Supporters who comfort, support or stand up for those being victimised are positive models for the peer group.

The development of healthy and multiple friendship groups reduces the negative impact of victimisation and reduces the probability of further victimisation and loneliness, largely because the number and quality of friends and being liked by peers appears to be protective against victimisation (Pellegrini & Bartini, 2000). Encouraging and enabling students to participate in meetings of students who share similar goals or in extracurricular activities can increase social networks and feelings of connectedness (Buchanan & Bowen, 2008). Importantly, the development of social problem solving skills are likely to provide students with an opportunity to learn positive coping strategies, giving a variety of skills to deal with negative interpersonal interaction if and when they encounter them.

In a study of bystander behaviour, Monks (2010) highlights the important roles bystanders to bullying play, and recommends that bystanders can be encouraged to act in pro-social ways and help the student being victimised rather than watch or walk away from the bullying. This can be achieved through increasing students' self-efficacy and providing low-risk strategies to help bystanders support the target (Monks, 2010). As well as providing support to the student being victimised, this will help to create an anti-bullying culture within the school environment

School connectedness and feeling safe at school

School connectedness and feeling safe at school, needs to be actively fostered in primary school and during the first year of secondary school through a strong school ethos of care, clear social support systems where relationships promote health and wellbeing and positive classroom management (Cowie, et al., 2002). Increasing adult supervision, and encouraging and enhancing the ability of adults to prevent, detect and intervene in bullying incidents will also help to reduce victimisation and increase the students' perceived sense of safety at school (Beran & Tutty, 2002; Bradshaw, et al., 2008). Other methods to reduce victimisation at school include enabling students to support victimised students and easily report bullying, and effectively communicating the school's bullying prevention policy and actions to students and the other members of the school community (Beran & Tutty, 2002; Bradshaw, et al., 2008). Waters, Cross and Shaw (2010) suggest that interventions to improve students' school connectedness at the beginning of secondary school should focus on the school culture and ways to improve the school's physical environment. Recommended pastoral care strategies include the promotion of health and wellbeing, resilience, academic care, and social capital through implementation of school policies and programs at the school, teacher, student and school-community levels (Nadge, 2005a, 2005b; Quigley, 2004; WHO, 1998). Enabling students to achieve their highest academic

potential and to participate in extracurricular activities such as sport, recreation, music, arts and service can also contribute to an increase in students' school connectedness (Hamilton, et al., 2003; Waters, et al., 2010). The school's built environment and the care taken by the school community to maintain the school grounds can also impact on students' connectedness with the school (Waters, et al., 2010).

Negative outcome expectancies to bullying

Negative outcome expectancies of bullying, including parents finding out and parental and peer disapproval, are strong motivational forces to prevent involvement in bullying behaviours (Rigby, 1997). Within the school context, the use of clear sanctions and disciplinary methods through school rules which discourage bullying behaviours and identify negative consequences for active bullying, and positive consequences for active defending can be effective in reducing bullying. A zero tolerance approach to bullying which mandates the implementation of predetermined consequences, often punitive and applied regardless of the gravity of behaviour or circumstances have been found to be ineffective for improving school climate, school safety or student behaviour (Skiba, et al., 2008). Further this approach also may not be appropriate for early adolescents, where bullying incidents may arise due to poor judgment resulting from developmental immaturity (Skiba, et al., 2008).

In a review of school-based anti-bullying programs, Ttofi and Farrington (2009) found the use of clear sanctions and disciplinary methods were effective in reducing bullying. Results of the review however, may have been influenced by the number of studies utilising the Olweus Bullying Prevention Program (Olweus & Limber, 2010) which recommends a confronting approach to reduce the prevalence of bullying behaviour. This approach involves setting firm limits to unacceptable behaviour and the use of consistent consequences when rules are broken. Smith and colleagues (2006) found school rules,

when developed in conjunction with students were seen by the students as fair and meaningful.

In a recent study, a non-confrontational approach (which aims to arouse awareness of and empathy for victims' suffering) was more effective in primary school than secondary school, and a confrontational approach was more effective for bullying by a group (Garandeau, et al., 2011). Pikas (2002) suggests the Method of Shared Concern (a non-confronting method) may be more appropriate for adolescents when addressing bullying behaviours. This model lifts the burden of bullying off those who have been victimised, offers a model for conflict resolution and advocates a whole-school approach to resolving bullying issues.

Pro-victim tendencies

Bullies tend to choose victims who are vulnerable, for example, submissive, insecure, physically weak, in a rejected position in the group, having very few friends or displaying differences from others in some manner and are often seen as personally responsible for their failures (Hodges & Perry, 1999; Ladd & Troop-Gordon, 2003; Salmivalli & Isaacs, 2005; Schuster, 2001; Schwartz, et al., 1998; Teräsahjo & Salmivalli, 2003).

Programs which focus on empathy, positive bystander behaviour and responsiveness with victimised peers are critical in increasing pro-victim behaviour and reducing bullying prevalence rates (Almeida, et al., 2010; Gini, et al., 2007; Nickerson, et al., 2008) Students should be encouraged to perceive all cases of bullying as severe and unjust while reflecting on their own beliefs and beliefs of their peer group in relation to bullying episodes (Fox, et al., 2010).

Importantly, intervention programs need to encourage the high status imparted on those who support students who are being bullied (Caravita, et al., 2010). Supporters (those who

comfort, support or stand up for those being victimised) have greater empathetic skills, are perceived as and are positive models for the peer group (Caravita, et al., 2010; Poyhonen, et al., 2010; Sainio, et al., 2011; Schwartz, et al., 1998). Peer supporters of victims can benefit from receiving assertiveness training, cooperative activities, mediation skills, communication skills and social skills (Gini, Pozzoli, Borghi, & Franzoni, 2008). They are rewarded through feelings of empowerment and an increase in their social self-efficacy beliefs (Cowie, 2000; Naylor & Cowie, 1999).

Including the whole school community

Bullying impacts on the whole school community including families of those who have been victimised. Well-functioning families may provide a protective buffer against the risk of peer-victimisation (Stadler, Feifel, Rohrmann, Vermeiren, & Poustka, 2010) with victims of bullying reporting poorer family relations (Cassidy, 2009; Stadler, et al., 2010) and less encouragement from parents, highlighting a relationship between home context and victimisation (Cassidy, 2009). Parental support is an effective protective factor against peer-victimisation for adolescents, offsetting its negative effects (Stadler, et al., 2010). The home environment plays a significant role in shaping adolescent health, with parent-family connectedness, parental presence, shared activities with parents and parental expectation for school achievement having a positive impact on adolescent emotional health (Resnick, et al., 1997). Communication and the quality of the relationship with parents also has a positive effect in decreasing problem behaviours and substance use, delinquency and depression (Mason, et al., 2003).

Students who are victimised often see interventions by families as effective (Smith & Shu, 2000), with research showing that intervention program success was highly correlated with

parental involvement (Eslea & Smith, 2000). Parents face numerous challenges when responding to bullying including recognising the diverse forms of bullying, dealing with bullying among their children's friends, having empathy for those who are bullied, having attitudes and personal experiences which may influence their mind-sets, and not knowing how to respond in bullying incidents (Mishna, et al., 2006). Students are also less likely to engage in bullying behaviours if there is an expectation there will be consequences, with parental disapproval a strong motivator against involvement in bullying behaviours (Rigby, 1997).

A successful Australian whole-school bullying prevention intervention, Friendly Schools Friendly Families, recommends a family component which raises parents' awareness, knowledge, skills and self-efficacy to talk to their children about bullying and to help their children prevent and manage bullying incidents (Cross et al., 2010). The family component of this intervention encourages close cooperation between staff and parents, with parents involved with the development and dissemination of the school's bullying policy.

Recommendation 3: Bullying prevention programs need to be introduced prior to transition to improve the mental health of adolescents

To maintain emotional wellbeing and prevent peer victimisation, interventions prior to and during the transition from primary to secondary school are critical, especially among adolescents experiencing symptoms of depression and anxiety. Successful transition programs recognise the challenges and anxieties that accompany transition, and see this phase as an ongoing process (Mizelle, 2005).

Programs that effectively transition students from primary to secondary school with minimal negative impacts on mental health address curriculum, facilities, safety and

discipline (Mac Iver, 1990) and information about the academic, social, and organisational similarities and differences between primary and secondary school (Mizelle & Irvin, 2000). Prior to and during the primary to secondary school transition period is an important and opportune time to intervene with targeted social competency and whole school bullying prevention programs.

To address the challenges experienced by adolescents during transition, Riittakerttu et al (2010) and Sourander (2000) recommended that bullying prevention be the focus of interventions, social skills training should be encouraged, and trauma should be taken into account in any form of treatment. In contrast, Klomek et al (2008) suggested intervention and prevention strategies focusing on building self-concept may reduce peer victimisation and depression in adolescents.

The early development of social problem solving skills are more likely to provide young people with opportunities to learn and develop positive coping strategies, to help them deal with bullying if it is experienced. Given the impact of student victimisation over the transition period, the development of stress coping skills will also help to promote healthy coping in victimised students.

Recommendation 4: Gender specific bullying prevention interventions need to be introduced

Gender specific interventions may be required to address possible differences in the types of bullying experienced by males and females. For adolescent males and females positive social network skills training has been shown to decrease internalising symptoms (Mason, et al., 2009). Interventions to build resilience, coping mechanisms and which target self-esteem in adolescent boys have been shown to reduce the incidence and impact of victimisation and help them to remain calm during peer conflict (Berry & Hunt, 2009)

whereas interventions which target indirect bullying (Eslea & Smith, 1998), build social skills and peer support (Salmivalli, 2001), focus on conflict resolution (Letendre, 2007) and group acceptance (Adler & Adler, 1995) have been found to prevent or reduce the harm from victimisation for females.

Recommendation 5: Intervention programs need to be introduced before Year 5 and intensified in the 12-24 months prior to transitioning to secondary school

This study suggests that while transition is a socially challenging time for adolescents, the associations between social health variables and victimisation may already be well established from primary school. Hence, it is recommended that social and emotional skills learning begins in early child childhood and is intensified during middle childhood (ages 9-11) when more children bully and are bullied than any other time at school (Cross, et al., 2009), and then boosted as students transition from primary to secondary school (Cohen & Smerdon, 2009). This developmental approach to building social competency will give students more opportunity to learn and practise in different contexts and to develop positive relationships and coping skills.

Primary schools currently provide academic development information to secondary schools for their transitioning students. Providing information on social development may also help ease students through the transition period.

8.12   Conclusion

The strong link between bullying experiences and the involvement in problem behaviours in adolescence and adulthood, and the impact of chronic victimisation on mental health problems in adolescents, makes understanding the temporal associations between bullying, and social and mental health an important priority. To enhance the social and mental health of adolescents, a systematic whole-school intervention approach would help

to limit bullying experiences and the harms caused by long-term exposure. This approach would ideally include universal and targeted interventions that straddle primary and secondary school and particularly address bullying prevention, social skills development and conflict resolution, peer support, group acceptance, the building of resilience, self-esteem and positive coping mechanisms among adolescents, especially those experiencing depression and/or anxiety.

The findings presented in this thesis collectively suggest that by secondary school bullying behaviours and outcomes for students are fairly well established. Prior to transition and the beginning of secondary school appears to be a critical time to intensify whole-school bullying intervention programs which ideally should be introduced before Year 5. Whole school bullying intervention programs need to focus on decreasing bullying and loneliness, while increasing peer support, school connectedness, school safety, pro-victim attitudes, and negative outcome expectancies during the transition to, and particularly within, the first year of secondary school.

Appendix 1

School recruitment letter

«Principal__First» «Principal_Second_»

Principal

«School_Name»

«Postal_Address_1»

«Postal_Suburb» «Postal_State» «Postal_Postcode»

25 March 2013

Dear «Principal__First»

RE: Permission to conduct research at «School_Name»: Transition to Secondary School and Bullying – An Intervention Trial

The Child Health Promotion Research Unit (CHPRU) at Edith Cowan University has been investigating bullying and its relationship to health and academic outcomes in Western Australian schools for the past six years. The CHPRU has recently received funding from Healthway to investigate the effectiveness of a whole-of-school bullying reduction intervention for secondary schools (including strategies to enhance student transition from primary to secondary school). The study aims to provide evidence based training and support for primary and secondary school staff to help to prepare Year 7 students for the transition to secondary school. Throughout Years 8 and 9, peer support and other social competency building strategies will be implemented to ameliorate the effects of bullying and other aggressive behaviours. All intervention strategies will build on the CHPRU's success in reducing bulling in primary schools, and will be linked to the National Safe Schools Framework (NSSF). To determine the impact of this transition intervention across an education system the CHPRU are seeking to recruit all metropolitan Catholic Education primary and secondary schools. Information about this innovative study was presented to **«Attended_Conference»**, who represented your school at the Curriculum Leaders Meeting on the 25th February and during the Friendly Schools and Friendly Families presentations by Erin Erceg on the 8th and 10th of March.

About the Child Health Promotion Research Unit

Staff at the Child Health Promotion Research Unit have been major contributors to research and practice in school health promotion in WA since the early 1990s. They have been involved in

writing most Health Education curriculum documents that are currently used in schools, including the Health and Physical Education learning area Curriculum Framework and Student Outcome Statements. Our team has been working with schools on many research studies including the Friendly Schools Friendly Families (FSFF) bullying prevention project, the School Bicycle Safety Project, Child Pedestrian Injury Prevention Project (CPIPP), the Kidskin cancer prevention project, the Aussie Optimism depression prevention project, the Marijuana Education Project (MEP), the Smoking Cessation and Youth Project (SCYP), the Extra-Curricular Project and the Early Childhood Pedestrian Injury Prevention Project (ECPIPP).

We invite your school to participate in this transition to secondary school and bullying research project. All Catholic Education secondary schools will be invited to participate and randomly assigned to intervention and control conditions. All major feeder Catholic Education primary schools will be recruited in 2005 to provide a baseline measure of social, emotional, health and bullying behaviours of Year 7 students prior to transition. Your 2006 incoming Year 8 students (currently in Year 7) will be tracked for three years from their current Year 7 class (2005) to Year 9 (2007).

The Transition to Secondary School and Bullying Program

Although primary and secondary schools will be recruited into this study in 2005, the intervention will be delivered to 10 secondary schools randomly selected as 'intervention' schools. During 2005, these secondary schools will be provided with strategies, training and ongoing support to enhance communication with their feeder primary schools and parents of the incoming cohort and to encourage/support further collaboration in planning and implementing transition activities for Year 7 students during the last two terms of the 2005 school year.

For implementation in 2006, intervention schools will receive:

- Whole-school: resource manual comprising strategies to help review and implement a whole-school bullying policy, effective mechanisms for managing student behaviour (especially bullying), ideas to modify the physical environment to reduce bullying and to promote a positive whole-school ethos. All strategies will be linked to the Commonwealth Government's **National Safe Schools Framework**. These strategies will help your school to satisfy some of the requirements of this initiative.
- Classroom: Year 8 resources to assist with classroom management and establishing and maintaining a positive classroom climate, as well as learning activities linked to the curriculum framework to help students cope adaptively with bullying, establish empathy for others and improve social skills.
- Family: resources and strategies to involve parents of Year 8 students in their child's transition to secondary school and provide information about bullying and how to help their child cope adaptively and consistently with the school's response. This intervention will include a family booklet and newsletter items to increase parent knowledge and attitudes toward bullying.
- Staff training**:** To help maintain and enhance the school's transition activities ongoing training and support will be provided over the three years of the study to a project team established at

each school. Whole-school training will also be offered to all school staff to aid the implementation of bullying prevention classroom and whole-school strategies.

Control schools will receive a fully copy of all the intervention components, including the training, at the completion of the project in 2007.

All schools will receive a summary of their school's student and parent questionnaire results compared to all schools participating in this study.

Data Collection

As this project is being evaluated to determine its effectiveness, all schools involved in the study (intervention and control) will be involved in data collection. Data will be collected from **students** (with parental consent), consenting **parents** and **staff** at the start of the program (Year 7) and at three subsequent intervals (start and end of Year 8, end of Year 9) over the course of the three years of the study. Student data collection will involve the completion of a questionnaire during class time. Parents will be mailed a brief questionnaire and asked to return it via a reply paid envelope to the Child Health Promotion Research Unit. **Teachers** (Year 8 in 2006 and Year 9 in 2007) and **whole-school teams** (4-6 staff) will also be asked to complete a brief questionnaire at the start and then at the end of each year of the study. Each instrument will assess knowledge, attitudes and behaviours associated with bullying, mental health and interpersonal skills of students. Staff from the CHPRU, who will administer the questionnaires, have extensive experience collecting self-complete information from primary and secondary school students and every effort will be made to minimise disruption to your school during these data collection periods.

The Commitment for Your School

Should your school agree to participate in this important and innovative intervention research, your school's involvement would be as follows:

- Encourage parents and students to participate in the project;
- Encourage feeder primary schools to participate in 2005;
- Provide time for data collection at two intervals over the course of the two years of the study in your school.
- Support teacher training and teacher implementation of the program; and
- Encourage support for the program within the whole school.

If you wish to participate in this study, please complete the attached fax back form to register your interest. Upon receipt of this form the CHPRU will provide detailed information regarding your school's participation and seek final confirmation. We will also call your school in the next few weeks to answer questions and seek confirmation of your participation. Should you have any questions prior to our call, please do not hesitate to contact the project coordinator, Melanie Epstein on 9273 8496.

Thank you for your attention to this matter and we look forward to talking with you soon.

Yours sincerely

Professor Donna Cross

Principal Investigator

Stacey Waters

Project Director

Child Health Promotion Research Unit

Edith Cowan University

Ph: 9273 8207

c.c. «Attended_Conference»

Appendix 2

Parent consent letter - active

October, 2005

Dear Parent/Guardian

Re: Consent to participate in important social skill building research

The Child Health Promotion Research Unit at Edith Cowan University has been investigating social skill development and its relationship to health and academic outcomes, and especially bullying behaviour, in Western Australian schools for the past six years. **«School_Name»** has agreed to participate in the Supportive Schools Project being conducted by the Child Health Promotion Research Unit from 2005-2007. In Australia bullying tends to peak twice in a school student's life – firstly at age 10 to 12 and then during the two years following their transition to secondary school. This transition to secondary school is considered a critical period to intervene on bullying**.** This project will help your family and your son or daughter's secondary school to prepare your Year 7 son or daughter and other Year 7 students enrolled in this school, for the transition from primary to secondary school and to build their resiliency and social skills.

This project will provide evidence based program materials, training and support for secondary school staff and your family to help to prepare primary school students for a positive and smooth transition to secondary school. Throughout Years 8 and 9, peer support and other social skills building strategies will be provided to build student resiliency and reduce the likelihood or effects of bullying and other aggressive behaviours. All school strategies will build on the Child Health Promotion Research Unit's experience and success in building social skills and reducing bullying in Western Australian primary schools.

We are sending you this letter to tell you about the project and to seek your permission for your son or daughter to participate by completing a survey in class during Years 8 and 9. These surveys will help us to determine whether the activities conducted at school and the information sent home to parents, improve students' resiliency and reduce bullying.

What does the survey ask?

The student survey assesses students' understanding of bullying behaviour; involvement in bullying; if they feel safe and happy at school and how they feel about their move to secondary school. The survey also assesses students' social and emotional wellbeing, including feelings of depression, anxiety and stress.

What does participation involve?

Your Year 7 son or daughter will be asked to complete three brief surveys over two years during class time in Terms 1 and 3 in Year 8 (2006) and Term 3 in Year 9 (2007). These surveys will take approximately 15-20 minutes to complete. Your son or daughter's name is not written on his/her survey, and all are coded with confidential identification numbers. Importantly, all responses made by your son or daughter are treated as strictly confidential.

We are seeking your permission for your son or daughter to complete each of the three surveys over two years to determine whether the transition and bullying reduction program is effective. To do this we will require your son or daughter's secondary school to provide us with class lists in Years 8 and 9 to organise our data collection. If you do not agree to your son or daughter participating in this study, his/her name will be removed from these data collection class lists. All information collected from your son or daughter will remain strictly confidential and accessible only to the Supportive Schools Project's chief investigators. This information will be stored in locked cabinets and computerised data will be protected by password accessible to the chief investigators only.

This is a very important research project. If the Supportive Schools Project is found to be effective it will do much to reduce bullying in secondary schools and to help young people to build their social skills and to cope better with bullying, should it occur.

Withdrawing Consent

You or your son or daughter may withdraw consent to participate in the Supportive Schools Project at any time, without prejudice, by contacting the Project Coordinator, Melanie Epstein on 9273 8496 or by email: m.epstein@ecu.edu.au.

Next Steps

If you will allow your son or daughter to respond to these surveys in Years 8 and 9 you do **not need to take any action.** Your son/daughter will also be asked for his/her consent to participate in class in Years 8 and 9.

If you do not want your son or daughter to respond to these surveys in Years 8 and 9 please **complete the consent form enclosed** and return it in the reply paid envelope provided before 8th December 2005 (end of Term 4). When your son or daughter is in Years 8 and 9, he/she will be provided with an alternative activity to complete while the surveys are being administered to other students in the class.

Further Information

If you would like clarification or further information, please contact the Project Coordinator, Melanie Epstein on 9273 8496 or visit the Child Health Promotion Research Unit's website at http://chpru.ecu.edu.au.

Yours sincerely

Stacey Waters

Project Director

Child Health Promotion Research Unit

Edith Cowan University

Ph: 9273 8207

Email: s.waters@ecu.edu.au

Melanie Epstein

Project Coordinator

Child Health Promotion Research Unit

Edith Cowan University

Ph: 9273 8496

Email: m.epstein@ecu.edu.au

Appendix 3

Baseline questionnaire

Dear Year 7 Student

The Child Health Promotion Research Unit and Edith Cowan University is using this survey to find out how students treat each other at school.

We are asking you about bullying, what your school does about bullying and how you feel about moving to high school. We are also going to ask some questions about you, your friends and your family.

All information you provide will remain confidential. No-one at your school or your home will see your answers.

Please **read this cover page** carefully before you start so you know how to answer the questions. Once you have completed your survey **seal it** in the reply paid envelope provided, then **give it to someone** in your home to post to us.

This is not a test and there are no wrong or right answers. Please answer all the questions as honestly as you can. We are very interested in what you have to say. If you don't want to answer any questions, you don't have to.

If you <u>do not wish</u> to complete the survey, please <u>return it incomplete in the reply-paid envelope provided</u>. By doing this we will know you received the survey and have decided not to participate.

Please **RETURN** this survey in the reply-paid envelope provided by **28th October 2005**.

If you have any questions about the survey or would like to talk to someone about the Supportive Schools Project, please contact the Project Coordinator, Melanie Epstein (email m.epstein@ecu.edu.au or phone 9273 8496).

Yours sincerely

MEpstein

Melanie Epstein

Supportive Schools Project

The following questions ask you about friends you have in Year 7.

1. I find it easy to make friends. *(please circle one number)*

a	Most of the time	1
b	Sometimes	2
c	Rarely/Never	3

(Adapted from Spence, 1995)

2. Are there students in Year 7 who would:

(please circle one number for each statement)

		Lots of times	Sometimes	Never
a	Choose you on their team at school?	1	2	3
b	Tell you you're good at doing things?	1	2	3
c	Explain something if you didn't understand?	1	2	3
d	Invite you to do things with them?	1	2	3
e	Help you if you are hurt?	1	2	3
f	Miss you if you weren't at school?	1	2	3
g	Help you if something is bothering you?	1	2	3
h	Ask to work with you on group work?	1	2	3
i	Help you if other students are treating you badly?	1	2	3
j	Ask you to join in when you are alone?	1	2	3
k	Share his/her things with you?	1	2	3

(Adapted from Perceptions of Peer Support Scale, Ladd, Kochenderfer & Coleman 1996)

3. I hang around with students who get in trouble.

(please circle one number)

a	Often	1
b	Sometimes	2
c	Rarely/Never	3

4. How often do you watch or join in bullying to keep or make friends?

(*please circle one number)*

a	Often	1
b	Sometimes	2
c	Rarely/Never	3

5. For each sentence, circle the number that shows how much you agree or disagree.
(please circle one number for each statement)

		Strongly Agree	Agree	Neither agree or disagree	Disagree	Strongly Disagree
a	I feel alone at school	1	2	3	4	5
b	I have lots of friends to talk to at school	1	2	3	4	5
c	It's hard for me to make friends at school	1	2	3	4	5
d	I have nobody to talk to in class	1	2	3	4	5
e	I don't have anyone to spend time with at school	1	2	3	4	5
f	I'm lonely at school	1	2	3	4	5
g	I feel left out of things at school	1	2	3	4	5

(adapted from Cassidy & Asher, 1992)

6. For each sentence, circle the number that shows how much you agree or disagree. *(please circle one number for each statement)*

		Agree	Not sure	Disagree
a	Students who get picked on all the time usually deserve it	1	2	3
b	A person who bullies is really a coward	1	2	3
c	It makes me angry when someone is picked on	1	2	3
d	Students should tell someone if they are being bullied	1	2	3
e	It's funny to see students get upset when they are teased	1	2	3
f	Students who pick on someone weaker should be told off	1	2	3
g	I like it when students stand up for themselves	1	2	3
h	You should not pick on someone who is weaker than you	1	2	3
i	I like it when someone sticks up for students who are bullied	1	2	3
j	I feel uncomfortable when I watch someone being bullied	1	2	3

(adapted from Pro-victim Scale, Rigby & Slee, 1991)

7. Do you feel safe at school?
(please circle one number)

a	Yes, **ALL or MOST** of the time	1
b	Yes, **SOME** of the time	2
c	No, I **NEVER** feel safe at school	3

(adapted from Peer Relations Questionnaire, Rigby & Slee, 1998)

You may have noticed that children sometimes bully other children.

There are lots of different ways that children can be bullied.

> # Bullying is when these things happen <u>AGAIN AND AGAIN</u> to someone who finds it hard to stop it from happening:

Being ignored, left out on purpose, or not allowed to join in.

Being hit, kicked or pushed around.

Lies or nasty stories are told about them to make other kids not like them.

Being made afraid of getting hurt.

Being made fun of and teased in a mean and hurtful way.

But when teasing is done in a friendly and playful way we don't call it bullying.

While fighting is wrong, it is not bullying when two students who are AS STRONG AS each other get into a fight.

(adapted from Olweus, 1996)

8. This term (Term 3), how often were you bullied in the following ways?
(please circle one number for each statement)

		Most days	About once a week	Every few weeks	Only once or twice	Nev
a	I was made fun of and teased in a hurtful way	1	2	3	4	5
b	I was called mean and hurtful names	1	2	3	4	5
c	Students ignored me, didn't let me join in, or left me out on purpose	1	2	3	4	5
d	I was hit, kicked or pushed around	1	2	3	4	5
e	Students told lies about me and tried to make other students not like me	1	2	3	4	5
f	I had money or other things broken or taken away from me	1	2	3	4	5
g	I was made afraid that I would get hurt	1	2	3	4	5
h	I was sent a mean and hurtful text (SMS) message	1	2	3	4	5
i	I was sent a mean and hurtful message on the internet (e.g. email; web page or web site chat room; instant message; game room or other game site or message board)	1	2	3	4	5
j	I was bullied in another way (What way?)_____	1	2	3	4	5

(adapted from Peer Relations Questionnaire, Rigby & Slee, 1998; Olweus, 1996; (i) adapted from the Youth Internet Survey, 2004)

The next three questions ask you about all of the time you have been in Year 7.
Bullying is when something hurtful happens <u>AGAIN AND AGAIN</u> to someone who finds it hard to stop it from happening.

9a. THIS YEAR, in TERM 1, how often did another student or group of students bully you?
(please circle one number)

a	I was bullied **MOST DAYS** in Term 1	1
b	I was bullied **ABOUT ONCE A WEEK** in Term 1	2
c	I was bullied **EVERY FEW WEEKS** in Term 1	3
d	I was bullied **ONLY ONCE OR TWICE** in Term 1	4
e	I was not bullied in Term 1	5

(adapted from Peer Relations Questionnaire, Rigby & Slee, 1998; Olweus, 1996)

9b. THIS YEAR, in TERM 2, how often did another student or group of students bully you?
(please circle one number)

a	I was bullied **MOST DAYS** in Term 2	1
b	I was bullied **ABOUT ONCE A WEEK** in Term 2	2
c	I was bullied **EVERY FEW WEEKS** in Term 2	3
d	I was bullied **ONLY ONCE OR TWICE** in Term 2	4
e	I was not bullied in Term 2	5

(adapted from Peer Relations Questionnaire, Rigby & Slee, 1998; Olweus, 1996)

9c. THIS YEAR, in TERM 3, how often did another student or group of students bully you?
(please circle one number)

a	I was bullied **MOST DAYS** in Term 3	1
b	I was bullied **ABOUT ONCE A WEEK** in Term 3	2
c	I was bullied **EVERY FEW WEEKS** in Term 3	3
d	I was bullied ONLY **ONCE OR TWICE** in Term 3	4
e	I was not bullied in Term 3	5

(adapted from Peer Relations Questionnaire, Rigby & Slee, 1998; Olweus, 1996)

10. THIS YEAR, how often did another student or group of students from this year level bully you? *(please circle one number for each statement)*

		Lots of times	A few times	I was not bullied
a	Younger than Year 7	1	2	3
b	Year 7	1	2	3
c	Older than Year 7	1	2	3

11. Bullying is sometimes done by one student and sometimes by a group of students.   THIS YEAR, were you bullied by: *(please circle one number for each statement)*

		Lots of times	A few times	I was not bullied
a	Mainly one male?	1	2	3
b	A group of males?	1	2	3
c	Mainly one female?	1	2	3
d	A group of females?	1	2	3
e	Both males and females?	1	2	3

(adapted from Peer Relations Questionnaire, Rigby & Slee, 1998; Olweus, 1996)

12. THIS YEAR, were you bullied by students from your school?
(please circle one number for each statement)

		Lots of times	A few times	I was not bullied
a	In the classroom	1	2	3
b	At break times	1	2	3
c	On the way to school	1	2	3
d	On the way home from school	1	2	3

13. If you were bullied THIS YEAR, why do you think it happened?

(please circle one number)

a	I was not bullied	1
b	I don't know why I was bullied	2
c	I think I was bullied because… (Please explain why you think you were bullied) _____ _____ _____ _____	3

14. Have you stayed away from school THIS YEAR <u>because of bullying</u>?

(please circle one number)

a	No, I have never been bullied	1
b	No, I have never stayed away	2
c	No, but I've wanted to stay away	3
d	Yes, I have stayed away once or twice	4
e	Yes, I have stayed away more than twice	5

(adapted from Rigby & Slee, 1998)

15. The LAST TIME you were bullied at school THIS YEAR, did you ask for help?

(please circle one number)

a	I was not bullied this year	1	→ **Go to question 18**
b	I was bullied this year but **I DID NOT ASK FOR HELP because I did not need it**	2	→ **Go to question 18**
c	I was bullied this year but **I DID NOT ASK FOR HELP** (Please explain why did you not ask for help?) _____	3	→ **Go to question 18**
d	I was bullied this year and **I DID ASK FOR HELP**	4	→ **Go to question 1**

(adapted from Peer Relations Questionnaire, Rigby & Slee, 1998)

16. The LAST TIME you were bullied at school THIS YEAR, who did you ask for help?

(please circle as many as apply)

a	Parents	1
b	Friends	1
c	Teachers / School staff member	1
d	Other family members (Grandparents, Aunt, Uncle, Sister or Brother etc).	1
e	I did not ask for help from anyone	1
f	Other _____	1

17. The LAST TIME you were bullied at school THIS YEAR, did things get better after you asked for help? *(please circle one number)*

a	I was bullied but I didn't ask anyone for help	1
b	I asked for help – and the bullying **GOT WORSE**	2
c	I asked for help – and things **STAYED THE SAME**	3
d	I asked for help – and things **GOT BETTER STRAIGHT AWAY**	4
e	I asked for help – and things **GOT BETTER AFTER A WHILE**	5

(adapted from Peer Relations Questionnaire, Rigby & Slee, 1998)

18a. The LAST TIME you saw a student from YEAR 7 being bullied THIS YEAR, what did you do? *(please circle one number)*

a	I didn't see a student being bullied this year	1	→ **Go to question 19**
b	I joined in the bullying	2	→ **Go to question 18b**
c	I watched what was going on	3	→ **Go to question 18b**
d	I walked away	4	→ **Go to question 18b**
e	I tried to help	5	→ **Go to question 18b**

(adapted from Olweus, 1996)

18b. The LAST TIME you saw a student from YEAR 7 being bullied THIS YEAR, what did you think? *(please circle as many as apply)*

a	I thought the bullying was okay	1
b	I thought it was none of my business	1
c	I didn't know what to do	1
d	I thought I should help the student being bullied	1
e	Other _____	1

19. How seriously is bullying taken by most staff at your school THIS YEAR?

(please circle one number)

a	I don't know	1
b	Not at all seriously	2
c	Somewhat seriously	3
d	Very seriously	4
e	Extremely seriously	5

20. How many Year 7 students from your school do you think bully others?
(please circle one number)

a	I don't know	1
b	None or very few of them	2
c	A few of them	3
d	About half of them	4
e	Most of them	5

21. How many Year 7 students from your school do you think have been bullied?
(please circle one number)

a	I don't know	1
b	None or very few of them	2
c	A few of them	3
d	About half of them	4
e	Most of them	5

22. How many Year 7 students from your school do you think have helped someone who is being bullied? *(please circle one number)*

a	I don't know	1
b	None or very few of them	2
c	A few of them	3
d	About half of them	4
e	Most of them	5

23. This term (Term 3), how often have you on your own or in a group, done these things to another student or students?
(please circle one number for each statement)

		Most days	About once a week	Every few weeks	Only once or twice	Nev
a	I made fun of and teased another student or students in a hurtful way	1	2	3	4	5
b	I called another student or students mean and hurtful names	1	2	3	4	5
c	I ignored another student or students, didn't let them join in, or left them out of things on purpose	1	2	3	4	5
d	I hit, kicked or pushed another student or students around	1	2	3	4	5
e	I told lies or spread nasty stories about another student or students and tried to make other students not like them	1	2	3	4	5
f	I broke someone's things deliberately or took money or other things away from another student or students	1	2	3	4	5
g	I made another student or students afraid they would get hurt	1	2	3	4	5
h	I sent a mean or hurtful text (SMS) message	1	2	3	4	5
i	I sent a mean and hurtful message on the internet (e.g. email; web page or web site chat room; instant message; game room or other game site; message board or newsgroup)	1	2	3	4	5
j	I bullied another student or students at school in another way (What way?)_____	1	2	3	4	5

(adapted from Peer Relations Questionnaire, Rigby & Slee, 1998; Olweus, 1996; (i) adapted from the Youth Internet Survey, 2004)

24. This term (Term 3), how often did you, on your own or in a group, bully another student or students? *(please circle one number)*

a	I bullied someone **MOST DAYS** in Term 3	1
b	I bullied someone **ABOUT ONCE A WEEK** in Term 3	2
c	I bullied someone **EVERY FEW WEEKS** in Term 3	3
d	I bullied someone **ONLY ONCE OR TWICE** in Term 3	4
e	I did **NOT** bully anyone **AT ALL** in Term 3	5

(adapted from Peer Relations Questionnaire, Rigby & Slee, 1998; Olweus, 1996)

25. If you bullied another student or students NEXT TERM in Term 4, what do you think would happen? *(please circle one number for each statement)*

		Yes	Maybe	No
a	Other students would be scared of me	1	2	3
b	Other students would like me	1	2	3
c	My parents would find out and talk to me about it	1	2	3
d	I would feel bad about myself	1	2	3
e	Other students would think I was tough	1	2	3
f	I would get into trouble	1	2	3
g	I would feel bad for the student I bullied	1	2	3
h	Other students would not want to be my friend	1	2	3
i	My parents would be unhappy with me	1	2	3
j	I would feel good about myself	1	2	3
k	Other students wouldn't bully me	1	2	3

(adapted from Rigby, 1997)

26. How do you feel about your school?

(please circle one number for each statement)

		Always	Usually	Sometimes	Never
a	I feel close to people at this school	1	2	3	4
b	I feel like I am part of this school	1	2	3	4
c	I am happy to be at this school	1	2	3	4
d	The teachers at this school treat students fairly	1	2	3	4

(McNeely, 2002; Resnick, 1997)

27. At my school, there is a teacher or some other adult who:

(please circle one number for each statement)

		All of the time	Most of the time	Some of the time	Never	Unsu
a	Really cares about me	1	2	3	4	5
b	Tells me when I do a good job	1	2	3	4	5
c	Notices when I'm not there	1	2	3	4	5
d	Always wants me to do my best	1	2	3	4	5
e	Listens to me when I have something to say	1	2	3	4	5
f	Believes that I will be a success	1	2	3	4	5

28. For each of the following statements, decide how much you agree/disagree:
(please circle one number for each statement)

	I feel:	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
a	Very close to my family	1	2	3	4	5
b	I am an important member of my family	1	2	3	4	5
c	Someone in my family cares what happens to me	1	2	3	4	5
d	I am able to discuss my problems with a family member	1	2	3	4	5
e	I have a good relationship with all my family	1	2	3	4	5
f	No-one in my family understands my problems	1	2	3	4	5
g	Everyone in my family are valuable members	1	2	3	4	5
h	At least one person in my family listens to my opinions	1	2	3	4	5
i	At least one person in my family listens to my problems	1	2	3	4	5
j	At least one member in my family takes an interest in my school work	1	2	3	4	5
k	I do things with at least one other family member (e.g. shopping)	1	2	3	4	5
l	There is almost always a parent or other adult at home *before school*	1	2	3	4	5
m	There is almost always a parent or other adult at home *after school*	1	2	3	4	5
n	There is almost always a parent or other adult at home at *dinner time*	1	2	3	4	5

		Did not apply to me at all	Applied to me to some degree, or some of the time	Applied to me a considerable degree, or a good part of the time	Applied to me very much, or most of the time
o	There is almost always a parent or other adult at home *in the evening after dinner*	1	2	3	4	5

29. Please read each statement and circle the number which indicates how much the statement applied to you *over the past week*. There are no right or wrong answers. Do not spend too much time on each statement.

(please circle one number for each statement)

In the past week:		Did not apply to me at all	Applied to me to some degree, or some of the time	Applied to me a considerable degree, or a good part of the time	Applied to me very much, or most of the time
a	I found it hard to calm down	0	1	2	3
b	I was aware of dryness in my mouth	0	1	2	3
c	I couldn't seem to experience any positive feeling at all	0	1	2	3
d	I experienced breathing difficulty (e.g. excessively rapid breathing, breathlessness in the absence of physical exertion)	0	1	2	3
e	I found it difficult to work up the initiative to do things	0	1	2	3
f	I tended to over-react to situations	0	1	2	3
g	I experienced trembling (e.g. in the hands)	0	1	2	3
h	I felt that I was using a lot of nervous energy	0	1	2	3
i	I was worried about situations in which I might panic and make a fool of myself	0	1	2	3
j	I felt that I had nothing to look forward to	0	1	2	3
k	I found myself over reacting to things	0	1	2	3

		Did not apply to me at all	Applied to me to some degree, or some of the time	Applied to me a considerable degree, or a good part of the time	Applied to me very much, or most of the time
l	I found it difficult to relax	0	1	2	3

Question 29 (continued)

In the past week:		Did not apply to me at all	Applied to me to some degree, or some of the time	Applied to me a considerable degree, or a good part of the time	Applied to me very much, or most of the time
m	I felt down-hearted and blue	0	1	2	3
n	I hated it when I had to stop what I was doing	0	1	2	3
o	I felt I was close to panic	0	1	2	3
p	I was unable to become enthusiastic about anything	0	1	2	3
q	I felt I wasn't worth much as a person	0	1	2	3
r	I felt that I was rather touchy	0	1	2	3
s	I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)	0	1	2	3
t	I felt scared without any good reason	0	1	2	3
u	I felt that life was meaningless	0	1	2	3

Depression Anxiety Stress Scales (DASS 21)

30. Please read each statement and circle the number which indicates how much the statement applies to you. There are no right or wrong answers. Do not spend too much time on each statement.
(please circle one number for each statement)

		False	Mostly False	Sometimes False/ Sometimes True	Mostly True	True
a	I do lots of important things	1	2	3	4	5
b	In general, I like being the way I am	1	2	3	4	5
c	Overall I have a lot to be proud of	1	2	3	4	5
d	I can do things as well as most other people	1	2	3	4	5
e	Other people think I am a good person	1	2	3	4	5
f	A lot of things about me are good	1	2	3	4	5
g	I'm as good as most other people	1	2	3	4	5
h	When I do something I do it well	1	2	3	4	5

Self Description Questionnaire – I: General Self Scale (Marsh)

31. Please read each statement and circle the number which indicates how things have been for you *over the last six months*. There are no right or wrong answers. Do not spend too much time on each statement.
(please circle one number for each statement)

	Over the last six months:	Not True	Somewhat True	Certainly True
a	I try to be nice to other people. I care about their feelings	1	2	3
b	I am restless, I cannot stay still for long	1	2	3
c	I get a lot of headaches, stomach-aches or sickness	1	2	3
d	I usually share with others (food, games, pens etc)	1	2	3
e	I get very angry and often lose my temper	1	2	3
f	I am usually on my own. I generally play alone or keep to myself	1	2	3
g	I usually do as I am told	1	2	3
h	I worry a lot	1	2	3
i	I am helpful if someone is hurt, upset or feeling ill	1	2	3
j	I am constantly fidgeting or squirming	1	2	3
k	I have one good friend or more	1	2	3
l	I fight a lot. I can make other people do what I want	1	2	3
m	I am often unhappy, down-hearted or tearful	1	2	3
n	Other people my age generally like me	1	2	3
o	I am easily distracted, I find it difficult to concentrate	1	2	3
p	I am nervous in new situations. I easily lose confidence	1	2	3

Over the last six months:	Not True	Somewhat True	Certainly True
q I am kind to younger children	1	2	3
Question 31 (continued)			
r I am often accused of lying or cheating	1	2	3
s Other children or young people pick on me or bully me	1	2	3
t I often volunteer to help others (parents, teachers, children)	1	2	3
u I think before I do things	1	2	3
v I take things that are not mine from home, school or elsewhere	1	2	3
w I get on better with adults than with people my own age	1	2	3
x I have many fears, I am easily scared	1	2	3
y I finish the work I'm doing. My attention is good	1	2	3

(Strengths & Difficulties Questionnaire, Goodman 1997)

32. How many times in the past month:
(please circle one number for each statement)

	Times in the past month:	Never	Once	Twice	Three times	More than 3 times
a	Have you stolen something from a shop or person (even if it was only worth a little money)?	0	1	2	3	4
b	Were you in a physical fight?	0	1	2	3	4
c	Were you in an argument with friends?	0	1	2	3	4
d	Did you lose your temper or get really angry?	0	1	2	3	4
e	Did you get into trouble at home?	0	1	2	3	4
f	Did you break something of your own on purpose?	0	1	2	3	4
g	Did you damage or destroy things that did not belong to you (eg street signs, cars, neighbour's property)?	0	1	2	3	4
h	Did you have a disagreement or argument with your parents?	0	1	2	3	4
i	Have you not paid for something like sneaking onto a bus or train or into a movie?	0	1	2	3	4
j	Did you bring a weapon (like a knife, gun or chemical spray) to school?	0	1	2	3	4
k	Smoked cigarettes?	0	1	2	3	4
l	Drunk alcohol without your parents knowing?	0	1	2	3	4

33. What things about moving to high school are you looking forward to or are happy about? *(please circle as many as apply)*

a	Being in a larger school	1
b	More freedom	1
c	More students	1
d	Being able to choose some classes	1
e	Changing classes	1
f	Older students	1
g	Making new friends	1
h	Having new teachers	1
i	Participating in sports, clubs etc.	1
j	Having lockers	1
k	Getting good grades	1
l	More school activities	1
m	More choices at lunch	1
n	Attending more school events (eg. football games, social events)	1
o	Other _____	1

(Adapted from Akos, 2003)

34. What things are causing you to be concerned or worried about moving on to high school? *(please circle as many as apply)*

a	Finding my way around or getting lost	1
b	Getting along with other students	1
c	Pressure to do well	1
d	Safety or being hurt by other students	1
e	Being bullied	1
f	Fitting in or making friends	1
g	New and more students	1
h	Hard or unfriendly teachers	1
i	Hard classes	1
j	New rules and expectations	1
k	How much homework I would have	1
l	Feeling pressure to do things I don't want to do	1
m	Being made fun of	1
n	Using a locker	1
o	Riding the bus	1
p	Getting to class on time	1
q	Older students	1
r	Getting good grades	1
s	Other _____	1

(Adapted from Akos, 2003)

35. How do you think the move from primary to high school will be for you?

(please circle one number)

a	Difficult	1
b	Somewhat difficult	2
c	Somewhat easy	3
d	Easy	4
e	I don't know	5

(Adapted from Akos, 2003)

36a. So we can find out how things have been going for you lately, please indicate if you have experienced any MAJOR PROBLEMS (e.g. parents separating, someone dying) in your life in the last *6 months.* *(please circle one number)*

a	Yes	1	→ **Go to question 36b**
b	No	2	→ **Go to question 37**

36b. If you have, how bad did it make you feel?

(please circle one number)

a	Not bad	1
b	A little bad	2
c	Pretty bad	3
d	Really bad	4
e	Terrible	5

37. Compared to other students in year group, which of the following best describes MOST of the results on your last school report?

(please circle one number)

a	Better than most other students in my year group	1
b	About the same as most other students in my year group	2
c	Not as good as most other students in my year group	3
d	I don't know	4

38. Are you a male or a female?
(please circle one number)

Male	1
Female	2

39. What is the highest level of education completed by your parents?

(please circle one number for each statement)

	Primary school	Some high school	Finished Year 12	TAFE / trade cert	University	Unsure
a Mother / stepmother	1	2	3	4	5	6
b Father / stepfather	1	2	3	4	5	6

Thank you for completing the survey.

Please **SEAL IT** in the reply paid envelope provided, then
GIVE IT TO SOMEONE in your home to post to us.

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