

Violent and antisocial behaviours among young adolescents in Australian communities

An analysis of risk and protective factors



Australian Research Alliance
for Children & Youth



CONTENTS



Violent and antisocial behaviours among young adolescents in Australian communities

Contact us:

If you have any queries about this report please [contact ARACY](#)

Email: enquiries@aracy.org.au

ABN 68 100 902 921

© ARACY 2009

ISBN: 978-1-921352-54-6

Violent and antisocial behaviours among young adolescents in Australian communities

An analysis of risk and protective factors

Prepared by:

Joanne Williams	Centre for Adolescent Health, Murdoch Childrens Research Institute
John Toumbourou	School of Psychology, Faculty of Health, Medicine, Nursing and Behavioural Sciences, Deakin University, Geelong
Elizabeth Williamson	Clinical Epidemiology and Biostatistics Unit, Murdoch Childrens Research Institute
Sheryl Hemphill	Centre for Adolescent Health, Murdoch Childrens Research Institute
George Patton	Centre for Adolescent Health, Murdoch Childrens Research Institute

for the Australian Research Alliance for Children and Youth October 2009

The Australian Research Alliance for Children and Youth (ARACY)

ARACY is a national non-profit organisation working to create better futures for all Australia's children and young people.

Despite Australia being a wealthy, developed country, many aspects of the health and wellbeing of our young people have been declining. ARACY was formed to reverse these trends, by preventing and addressing the major problems affecting our children and young people.

ARACY tackles these complex issues through building collaborations with researchers, policy makers and practitioners from a broad range of disciplines. We share knowledge and foster evidence-based solutions.

The 'Preventing Youth Violence' project

ARACY's "Preventing Youth Violence" project is one of a number of collaborative projects aimed at responding more effectively to complex problems affecting the wellbeing of young Australians.

The project seeks to mobilise action across sectors and disciplines in developing collaborative strategies that are grounded in the best available evidence on "what works" to reduce violent and antisocial behavior in young people.

Unlike many other programs that attempt to control violent and antisocial behaviour in the later adolescent years, this project is directed at young people aged 10-14, when major changes in brain development provide a potent opportunity for effective early intervention.

The project recognises that the experiences and developmental challenges faced by young people as they move into adolescence are critical to their capacity to achieve their personal potential and to engage constructively with society.

This project was initially focused more broadly on the issue of youth disengagement for which a review of the evidence was prepared and published in August 2008. The paper Preventing Youth Disengagement and Promoting Engagement summarises and synthesises relevant research on "what works best" across five case studies:

- Community violence
- Substance abuse
- School disengagement
- Civic participation
- Youth mental health reform

The decision to refine the focus of the project to Preventing Youth Violence followed a review of relevant policy and program initiatives in the different jurisdictions to determine where an ARACY collaborative project would be likely to yield most benefit.

Further information on the Preventing Youth Violence Project is available on the [ARACY website](#)

or contact ARACY:

PO Box 1360, West Perth, WA 6872

Telephone: 08 9476 7800

Email: enquiries@aracy.org.au

Summary

This paper was commissioned by the Australian Research Alliance for Children and Youth (ARACY) to inform the development of strategies aimed at preventing violent and antisocial behaviours among young people.

The paper, which was prepared for ARACY by the Centre for Adolescent Health, presents an analysis of factors associated with violent and antisocial behaviours among young Australians aged 10–14 years. The focus is on identifying factors that either increase or reduce the likelihood of young people engaging in violent and antisocial behaviours.

The data for the analysis come from the 2006 Healthy Neighbourhoods Project. In this project more than 8000 Year 6 and Year 8 students in 30 communities across Victoria, Queensland and Western Australia were surveyed about attitudes, experiences and behaviours relevant to their health and wellbeing.

Communities were randomly selected to take part in the survey after having been stratified according to socioeconomic status and urban/rural location. Students from 15 urban areas and 15 rural areas took part. While the age of young people surveyed ranged from 10–14 years, 80% were aged 11 or 12 years.

As well as the prevalence of factors associated with violent and antisocial behaviour, the analysis also examines the relationship between these behaviours and alcohol consumption. Data are provided on the proportion of young people surveyed who have consumed alcohol, and the levels and frequency of alcohol consumption according to gender and the student's year level.

Key findings on the prevalence of reported behaviours are presented below.

Alcohol consumption

Between Year 6 and Year 8:

- the proportion of students who had ever consumed alcohol increased for both boys and girls—from 39.4% to 57.4% for boys and from 22.9% to 48.2% for girls
- the proportion of boys who had consumed alcohol in the previous month (ie recent alcohol) increased from 20.0% to 30.3%, while for girls the proportion increased from 10.0% to 23.6%
- the proportion of boys who had engaged in binge drinking (ie five or more drinks in a row in the previous fortnight) increased from 4.5% to 8.7%, while for girls the proportion increased from 2.0% to 6.9%.

Violence

- 14.5% of boys in Year 6 reported engaging in violent behaviour in the previous 12 months compared to 12.3% of Year 8 boys¹
- 3.1% of girls in Year 6 reported engaging in violent behaviour in the previous 12 months compared to 4.2% of Year 8 girls.

Antisocial behaviour

- 8.8% of boys in Year 6 reported engaging in antisocial behaviours in the previous 12 months compared to 11.3% of Year 8 boys²
- 3.6% of girls in Year 6 reported engaging in antisocial behaviours in the previous 12 months compared to 8.2% of year 8 girls.

Differences across communities

The findings highlight that there are considerable differences in the level of problem behaviours across the 30 communities surveyed.

For example, the range across communities for binge drinking varied from 0% to 10.9% for Year 6 boys and 0% to 27.0% for Year 8 boys, while for Year 6 girls the range was from 0% to 5.1% and for Year 8 girls the range was from 0% to 23.6%.

For violent and antisocial behaviour among boys:

- violence varied between communities from 1.8% to 28.1% for Year 6 boys, and 3.2% to 30.0% for Year 8 boys
- antisocial behaviour varied from a low of 1.6% for Year 8 boys to a high of 33.3%.

-
- 1 For the purposes of this study, violence was defined as more extreme forms of aggressive behaviour such that the young person reported they had attacked someone in the previous 12 months with the intention of seriously hurting them, or they beat someone so badly that they probably needed to see a doctor or nurse.
 - 2 The classification of antisocial behaviour encompassed a range of behaviours (from stealing, to selling drugs, to being drunk or high at school) considered to be indicative of the young person defying social norms or engaging in high risk behaviours.

Relationship between problem behaviours and risk factors

This analysis investigates the influence of factors that either increase the likelihood of young people engaging in violent and/or antisocial behaviour (risk factors) or decrease the likelihood of them engaging in such behaviours (protective factors). Risk or protective factors may:

- be specific to the individual (such as positive or negative attitudes and behaviours)
- occur in the young person's social environment (such as positive or negative qualities in the young person's family, peer group, school or community)
- result from the interaction between the young person and their social environment (such as whether the young person has positive or negative relationships with their family, peer group, school or community).³

The analysis confirms that the greater the number of risk factors in the young person's life, the more likely they are to engage in problem behaviours.⁴

Almost 80% of young people who had four or more risk factors reported having used alcohol in the past month and/or having been involved in violent or antisocial behaviour in the past year. This compares to just over 50% for those with two or three risk factors and just over 23% for those with no risk factors or only one risk factor.

Impact of protective factors on problem behaviours

Young people who had a lower number of protective factors were also more likely to have used alcohol recently and/or engaged in violent behaviour and/or antisocial behaviour in the previous 12 months.⁵

3 For definitions of risk and protective factors in different domains see Appendix 1, p 41.

4 Individual and social factors that increase the likelihood of individuals (or groups of individuals) subsequently developing health or social problems are considered to be 'risk factors' which can be defined as prospective (or long term) predictors increasing the probability that an individual or group will eventually engage in a particular behaviour.

5 Protective factors are defined as individual and social factors that decrease the likelihood of individuals (or groups of individuals) developing health or social problems. Protective factors may mediate or moderate the influence of risk factors and in some instances may operate independently to directly decrease the likelihood of a particular behaviour.

In contrast, almost 80% of young people with the maximum nine protective factors had not engaged in recent alcohol use or violent/antisocial behaviours.

Factors associated with violent and antisocial behaviour

To test the strength of the associations between different factors that may be associated with violent and antisocial behaviour, a univariate logistic regression analysis and a multivariate regression analysis were carried out.

A univariate logistic regression analysis examined the associations between single variables and single outcomes, eg the association between violent behaviour or antisocial behaviour as a function of factors such as gender, alcohol consumption, socioeconomic status and the number of risk or protective factors. The main findings are reported below.

- Boys were five times more likely to engage in violent behaviour than girls and twice as likely to engage in antisocial behaviour. The likelihood of engaging in violent or antisocial behaviour was much higher for those who had ever used alcohol and particularly high amongst those who had drunk five or more alcoholic drinks on one occasion in the previous two weeks (binge drinkers).
- Young people who had ever consumed alcohol, or consumed alcohol in the previous month, were approximately three-and-a-half times as likely to have been violent in the previous year, and six times as likely to have participated in antisocial behaviour.
- Among those who had engaged in binge drinking in the previous two weeks, the likelihood of having been violent was more than five times higher than for those who had not consumed alcohol at this level, while the likelihood of participating in antisocial behaviour was more than nine times as high.
- For each additional risk factor the likelihood of violent behaviour in the previous year increased by 80% and the likelihood of antisocial behaviour doubled.
- Violent behaviour decreased significantly with increases in socioeconomic status, ie there was a 10% decrease in the likelihood of violent behaviour for each increase in socioeconomic quartile.

A multivariate regression analysis was conducted to identify significant predictors of violent or antisocial behaviour.

Violent behaviour

The greater the number of protective factors, the less likely the young person engaged in violent behaviour. Other demographic and social factors that protected against violent behaviour were:

- being female
- being older (ie Year 8 students were less likely to be violent than Year 6 students)
- living in a higher socioeconomic neighbourhood.

Conversely young people who had higher numbers of risk factors and/or who had ever used alcohol were more likely to engage in violent behaviour.

There was significant variation in the prevalence of violent behaviour across communities even after controlling for socioeconomic status, age, sex, alcohol use and individual levels of risk and protection.

Therefore, it may be concluded there are inherent, as yet unidentified, factors within communities that influence the level of violence. Further research is needed to determine the community characteristics that discourage violent behaviour.

Antisocial behaviour

Being female and having more protective factors reduced the likelihood of participation in antisocial behaviours.

Older age, lifetime alcohol use and higher numbers of risk factors increased the likelihood of antisocial behaviour.

Effective interventions

Community strategies that focus on identifying and reducing locally-elevated risk factors are an important supplement to state and national efforts to reduce the current high rates of child and adolescent violence and antisocial behaviour.

The data in this paper demonstrate the need for policies and preventive programs that not only take account of how different risks and social influences emerge at different developmental stages but are also able to respond to conditions and influences that may be specific to different communities.

Localised survey data that measure a range of outcomes relevant to adolescent health and development provide a valuable resource for identifying possible ages and targets for preventive interventions, as well as identifying communities with the highest levels of need.



Contents

Summary	v
1 Introduction	1
2 Developmental pathways approach to prevention	2
2.1 Overview of developmental pathways approach	2
2.2 Pathways approach to youth problem behaviours	6
2.3 Programs applying a pathways approach	11
3 Data collection	15
3.1 The Healthy Neighbourhoods School Survey.	15
3.2 Definitions and classifications	18
4 Findings	21
4.1 Prevalence of alcohol use, violent and antisocial behaviour.	21
4.2 Relationship between problem behaviours and risk factors.	26
4.3 Impact of protective factors on problem behaviours.	27
4.4 Factors associated with violent and antisocial behaviour	28
5 Conclusion and implications	31
5.1 Points of intervention	32
5.2 Intervention in a community setting.	34
5.3 Intervention variables	34
References.	37
Appendix 1: Definitions of risk and protective factors	41
Appendix 2: Confidence level tables.	44
Appendix 3: Risk and protective factors associated with behaviours (diagrams)	45

1 Introduction

The Australian Research Alliance for Children and Youth commissioned the Centre for Adolescent Health to undertake this analysis to inform the development of strategies aimed at preventing violent and antisocial behaviours among young people.

The main focus of the analysis is on identifying factors that either increase or reduce the likelihood of young people engaging in violent and antisocial behaviours.

The data for the study come from the 2006 Healthy Neighbourhoods Project. In this project more than 8000 Year 6 and Year 8 students in 30 communities across Victoria, Queensland and Western Australia were surveyed about attitudes, experiences and behaviours relevant to their health and wellbeing.

ARACY's approach to preventing problems affecting the health and wellbeing of children and young people is based on a developmental pathways model. The model takes account of the experiences and influences occurring at different life stages in a young person's life which may have either a positive or negative effect on their healthy development.

In line with this approach, the data analysis in this paper is presented within a developmental pathways framework.

Section 2 provides an introduction to the developmental pathways approach to preventing child and youth problems. It includes an account of how this approach has been applied in programs aimed at preventing youth violence and/or engagement in unhealthy or antisocial behaviours.

Section 3 outlines the survey methods of the Healthy Neighbourhoods Project from which the data for this study have been drawn.

The findings of the data analysis of risk and protective factors associated with youth violence and antisocial behaviour are presented in Section 4.

The discussion in Section 5 explores the implications of the data analysis for the best timing and settings for effective early intervention to reduce violent and antisocial behaviours among young people.

More detailed data tables are provided in Appendix 4 to this report which can be downloaded separately from the [ARACY website](#).

2 Developmental pathways approach to prevention

This section of the paper provides an outline of the developmental pathways approach to preventing problems that affect the development of children and young people.

2.1 Overview of developmental pathways approach

The developmental pathways approach to preventing problems affecting young people aims to modify factors that:

- are appropriate to the young person's physical and psycho-social developmental stage
- reduce influences that may lead to the development of problem behaviours
- reduce the likelihood of the young person engaging in behaviours that may affect their future prospects in life.

The value of adopting a pathways approach to the prevention of developmental problems has been supported by research from across a range of disciplines and methodologies including life-course development research, community epidemiology and preventive intervention trials (eg Coie et al 1993; Mrazek & Haggerty 1994).

In common with the broader disciplinary framework of prevention science, the developmental pathways approach seeks to prevent health and social problems before they occur. From an evidence-base of what has been proven to work, both approaches seek to first identify and then reduce risk factors at specific points in the life-course. These are risk factors that are known to increase the likelihood of individuals and groups of individuals developing health or social problems in the longer term.

Different causal models have been proposed to describe influences on the development of youth violence and/or antisocial behaviour. However, the developmental pathways approach has been increasingly adopted by Australian crime prevention and mental health programs.

Developmental risk factors

Individual and social factors that increase the likelihood of individuals (or groups of individuals) subsequently developing health or social problems are considered to be 'risk factors' which can be defined as prospective (or long term) predictors identifying the probability that an individual or group of individuals will eventually engage in a particular behaviour (eg antisocial behaviour among young people, as documented by Hawkins et al 1992).

Risk factors that are associated with youth problem behaviours are classified according to the source, or domain, of the risk factor and the characteristics pertaining to that domain that may influence positive or negative outcomes.

For example, risk factors may derive from characteristics of:

- the individual (such as their engagement in other risk-taking behaviours, their attitudes to social norms and typical behaviour patterns etc)
- the young person's social environment (such as the influence and quality of relationships with their family, peer group, school or community environment).

Risk factors have been identified that predict the increased likelihood of problems such as harmful drug use, crime, violent behaviours, school dropout and mental health issues that impact on the healthy development of young people (Hawkins, Catalano & Miller 1992; Hawkins, Arthur & Catalano 1995; Bond et al 2000; Brewer et al 1995; Lipsey & Derzon 1998).

Developmental protective factors

In contrast, protective factors may work to mediate, or moderate, the influence of risk factors (Rutter 1985) and, in some instances, may operate independently to directly decrease the likelihood of antisocial behaviour (Jessor et al 1998).

Identified protective factors include:

- strong bonding to family, school, community and peers
- healthy beliefs (such as consideration for others and understanding the consequences of unacceptable behaviour and substance use)
- clear standards for behaviour (ie standards that are considered to be socially appropriate according to prevailing social norms).

For bonding to serve as a protective influence, it must occur through involvement with peers and adults who communicate healthy values or beliefs and set clear standards for socially acceptable behaviour.

Pathways to youth violence

Findings from developmental pathways research have established that risk factors for adolescent violent behaviour can emerge at different stages throughout the developmental process. Risk factors, for example, may occur prior to birth and/or throughout childhood (Bor, McGee & Fagan 2004; Smart et al 2005).

Some adolescents who engage in violent behaviour have manifested problem behaviours since early childhood (early onset), while for others the behaviours do not manifest until late childhood or during the adolescent years (late onset) (eg Moffitt et al 2002).

Using a developmental pathways approach, Catalano and Hawkins (1996) put forward a Social Development Model (SDM) that integrates the available knowledge of risk and protective factors for youth antisocial behaviour (including violence). This has subsequently been empirically verified (eg Hawkins, Herrenkohl et al 1998; Herrenkohl et al 2000).

The SDM incorporates the main features of various theories by which individuals learn to behave in socially acceptable or unacceptable ways, including theories of:

- *social control* (by which social norms are enforced, reinforced and internalised)
- *social learning* (involving the interaction between environmental and psychological influences by which individuals learn the personal and social consequences of their actions)
- *differential association* (focusing on the learning of criminal behaviour via social interactions with others).

Healthy behaviours

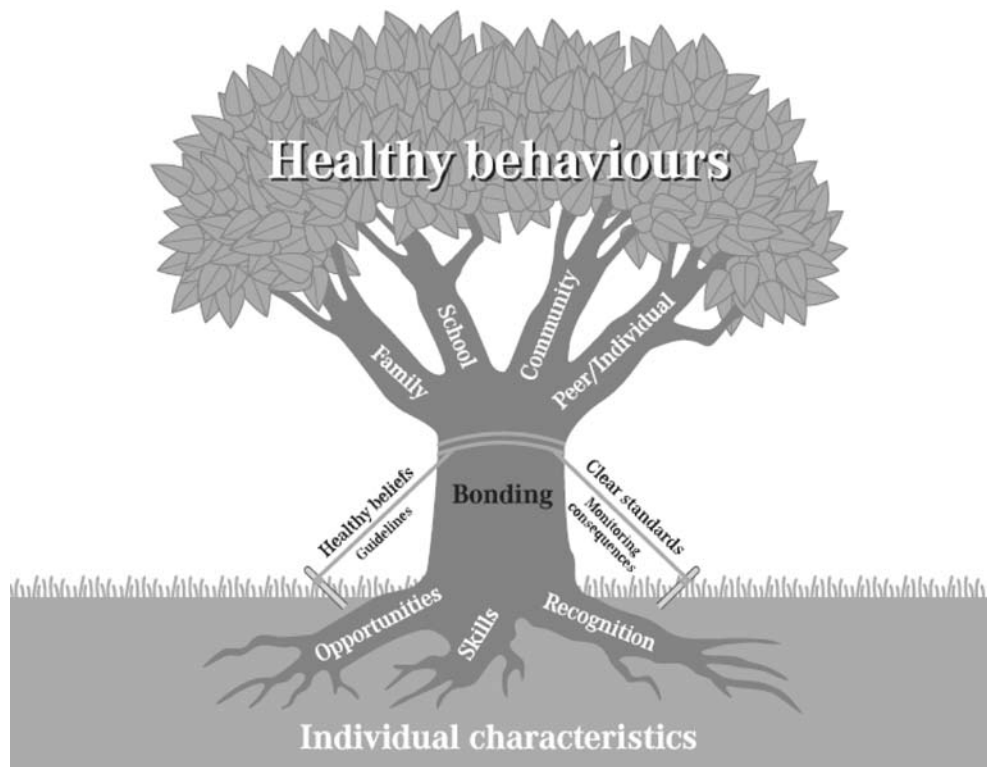
According to the Social Development Model, three conditions must be present in the domains of family, school, community and peer group for young people to develop strong bonds to these social units. The three conditions interact with the young person's individual characteristics to promote healthy development and behaviours.

Under this model, the three conditions are described as opportunities, skills and recognition.

- **Opportunities** for active involvement and contribution at home, at school, with friends and in the community (eg taking part in shared activities with other people through sport, youth groups, volunteering etc).
- **Skills** to be successful in meeting the opportunities provided.
- Consistent **recognition or reinforcement** of effort and for accomplishments.

The Social Development Model is presented graphically in Figure 1, illustrating how strong bonds to family, school, community and peer group supports healthy development.

Figure 1: The Social Development Model (graphic representation)



Adapted (2003) from *Communities That Care® (US) Social Development Strategy, 1998* with permission from Channing Bete Company, Inc.

2.2 Pathways approach to youth problem behaviours

Findings from various Australian and international studies show distinct risk and protective factors for youth engagement in community violence and hazardous drinking.

Much of this research has focused on individual, family and community level factors that may increase or decrease the likelihood of such behaviours.

Based on a developmental pathways approach, Toumbourou et al (2004) identified the specific trajectories associated with the development of alcohol misuse, while Smart et al (2005) identified the trajectories for violent and antisocial behaviour.

The findings of these studies indicate that:

- around 8–11% of hazardous or harmful alcohol use occurs in young adults with high levels of problem behaviours that begin at an early age and continue throughout their adolescence and young adulthood, ie early onset
- 15% of hazardous or harmful alcohol use occurs for the first time during adolescence or has a young adult onset, ie late onset (Toumbourou et al 2004)
- 10% of adolescent and young adult antisocial behaviours also have a late onset (Smart et al 2005).

Adolescent problems referred to as child or early onset tend to first emerge during the late primary school years (age 8 to 11), although they may be triggered and/or have antecedents prior to primary school. Adolescent onset refers to problems that first emerge in secondary school (ages 12 to 16). Young adulthood problems emerge in the post secondary school years from age 17 through the 20's.

If prevention investment is to effectively address the settings and risk processes that influence these different onset groups, a contextual analysis is required of community level risk and protective factors for early, versus late, engagement in antisocial behaviour and harmful alcohol use.

Early onset problem behaviours

Toumbourou and Catalano (2005) refer to 'snow ball' pathways of risk where pre-birth risk factors (eg maternal alcohol use, mental health problems or smoking during pregnancy) increase the likelihood of early childhood developmental deficits. These, in turn, increase the likelihood of other risk factors aggregating throughout childhood (eg poor primary school adjustment, peer conflict etc).

Risk factors for early onset behaviours

Research examining factors influencing early onset engagement in violent behaviour and alcohol misuse mostly identifies risk factors occurring in the individual, family and community level domains.

For example, in the early developmental period, maternal substance use, alcohol and tobacco use during pregnancy, or post-birth, has been linked to increased display of childhood behaviour problems (Bor et al 2004).

Other risk factors identified as being linked to the display of aggressive behaviours in early childhood include:

- the mother being a single parent at the time the child is born
- the family undergoing one or more marital changes
- an environment characterised by marital conflict
- physical punishment
- mother's level of education (Bor et al 2004; Green et al 2008).

Protective factors for early onset behaviours

Intervention research has suggested that community and educational investments during the preschool and early primary school periods can offer protection against adverse outcomes for communities with high levels of childhood risk factors (Toumbourou et al 2005).

Late onset problem behaviours

A distinct set of risk factors are observed to impact on the late onset of violent behaviour and hazardous alcohol use during the adolescent and young adult periods.

Toumbourou and Catalano (2005) refer to a 'snowstorm' effect to describe communities where exposure to high risk environments can lead healthy children to experience late adjustment problems (the risk being analogous to prolonged exposure to a snowstorm).

Risk factors for late onset behaviours

Risk factors for late onset problems can be more broadly categorised than childhood factors into individual, family, school, peer and community level factors.

These broader level factors result from increased engagement with school and peer groups and a lessening of parental control and oversight at this stage of development. As the young person moves into and through adolescence there is also an increasing community tolerance for, and engagement in, higher risk-taking behaviours.

Modifiable risk factors through late childhood and adolescence include:

- unhealthy individual attitudes (eg believing that it is acceptable to use drugs or to steal)
- low level emotional, social and educational competencies (eg poor social skills and coping behaviours)
- unhealthy parental, family and community attitudes (eg being surrounded by adults who believe that drug use and antisocial behaviours are acceptable)
- unhealthy parental and family behaviours (eg parents who use drugs or engage in criminal behaviours)
- low levels of family, school and community connectedness (eg where children do not have close bonds with their family, school or community)
- engagement with delinquent peers (eg associating with peers who use drugs or act in criminal ways)
- peer conflict (eg having frequent fights and arguments with other young people).

At a community level, recognised contextual risk factors for child and adolescent engagement in violent behaviour and substance use include:

- living in a low socioeconomic area
- low levels of neighbourhood attachment
- exposure to crime and drugs
- higher social disorganisation (eg areas where there are lots of neighbourhood arguments, little respect for other people's property, and where there is high mobility with people moving in and out of the neighbourhood on a regular basis, etc) (Green et al 2008; Hemphill et al 2006; Herrenkohl et al 2000).

During late adolescence and young adulthood, the aggregation of community violence and intoxicated behaviours can place young people at heightened risk of physical harm, and also increase the likelihood that they will continue to engage in these activities (Smart et al 2005).

The exposure to multiple risk factors over longer periods of development compounds the negative influences of these factors, increasing the potential for engagement in antisocial behaviour and harmful alcohol use.

Protective factors for late onset behaviours

Protective factors identified through research may offset the negative influences of risk factors (analogous to the protection of a coat in a snowstorm).

Family and school level protective factors appear to have significant impact on reducing adolescent engagement in violent behaviour. These factors include:

- parent–child relationships (characterised by higher levels of support and connectedness)
- parental involvement in the child's life (eg helping the child to make decisions, attending sports games, parent teacher interviews etc)
- supportive and consistent parenting strategies (Brookmeyer, Fanti & Henrich 2006).

Higher levels of connectedness to school have also been shown to buffer against adolescent involvement in violent behaviours (Brookmeyer et al 2006).

Life-stage and transition points

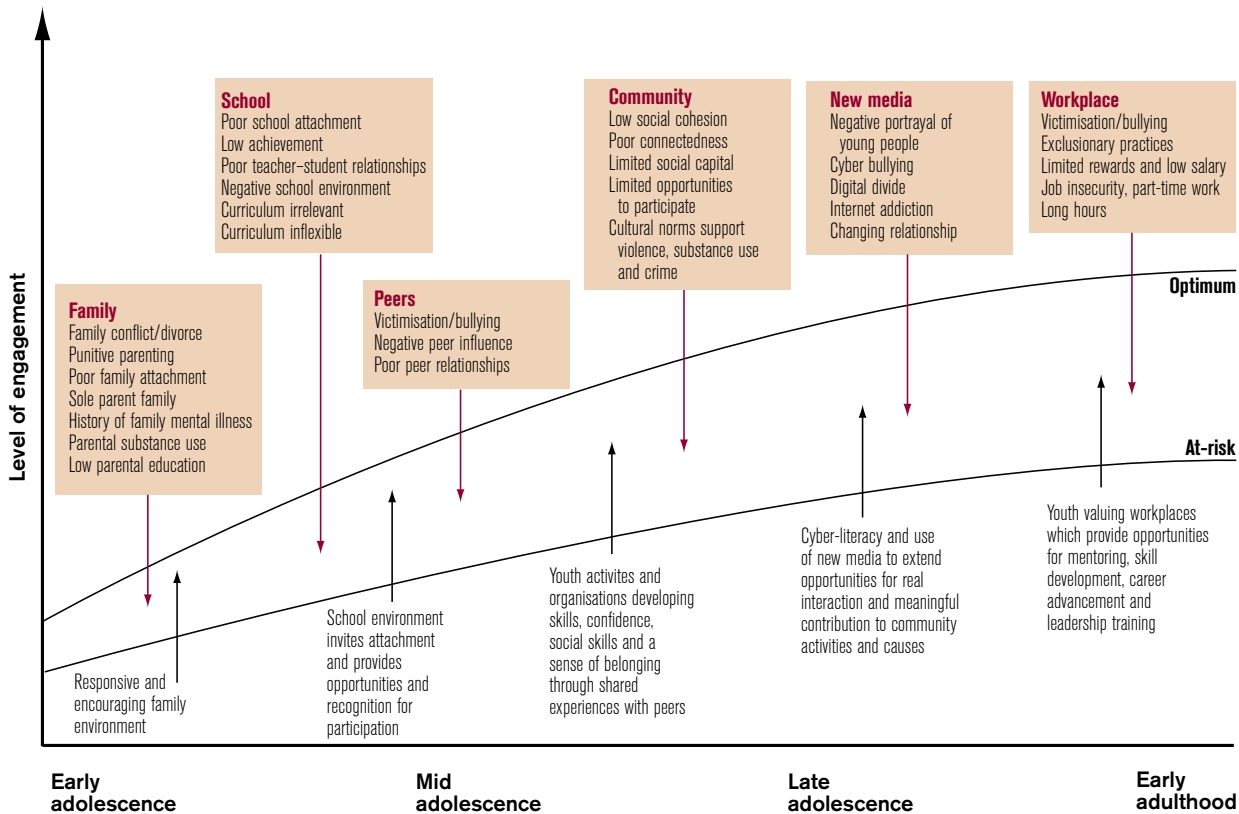
The number of risk factors to which young people are exposed increases as they transition from:

- early childhood (where family factors are of primary influence)
- to school (where school and peer influences are also introduced)
- through to adolescence (where peer influence increases and community factors become more relevant).

Risk and protective factors have different levels of influence depending on the young person's developmental stage at the time of exposure, and the total number of risk and protective factors they experience. It is the cumulative number of risk factors that increases the likelihood of a negative outcome.

Figure 2 shows the influence of factors in different domains as the young person moves from early adolescence through to early adulthood. The upper line represents steady, positive development through childhood and adolescence. Exposure to risk factors arising from the four domains of family, school, peers and community can reduce the slope of the trajectory, while protective factors in the same domains work to support healthy development. As the diagram shows, the influences of new media technologies and of workplace practices may also have a positive or negative impact as the young person moves through adolescence into early adulthood.

Figure 2: The influence of risk and protective factors in different domains across the developmental pathway



Source: Silburn (2008)

2.3 Programs applying a pathways approach

The life-course developmental approach is increasingly being adopted in Australian prevention programs.

This approach recognises that as each young person moves along their life-course their beliefs and behaviours are influenced by things that happen within and around them. There are key events along the developmental pathway that happen to all young people (such as school entry, puberty etc) and there are other events that happen only to some young people (such as illness and accidents). The behaviours of family, friends, neighbours and teachers all influence a young person's view of the world and where they fit into it.

The life-course developmental approach is recognised in Australian mental health (Keleher & Armstrong 2005), crime prevention (National Crime Prevention 1999) and substance abuse prevention (Loxley et al 2004) strategies.

Williams et al (2005) summarised the status of developmental prevention in Australia. In general, the potential benefits of applying a developmental approach to prevention are being acknowledged in many policies including in the implementation of specific strategies such as education to improve parenting skills. However, relatively few programs are implementing community prevention approaches in a format that will enable evaluation.

A selection of programs based on a developmental prevention approach for which evaluations have been conducted are presented in the following boxes.

Pathways to Prevention Project (Queensland)

Since 2001 in Queensland, Professor Ross Homel and colleagues have provided significant Australian leadership through the Pathways to Prevention Project. This project has implemented and evaluated place-based management strategies to reduce risk factors for early pathways to crime in disadvantaged geographic communities. A report on the first five years of the project (Homel et al 2006) describes how the early intervention program produced worthwhile reductions in problem behaviours in young children and strengthened family characteristics that facilitated positive child development.

Further information can be accessed from [the Griffith University website](#) (accessed 19 March 2009).

Community Mobilisation for the Prevention of Alcohol-Related Injury (Western Australia)

The National Drug Research Institute has developed and evaluated a number of community mobilisation programs focusing on alcohol harm minimisation.

The Community Mobilisation for the Prevention of Alcohol-Related Injury (COMPARI) program operated over a three-year period in Geraldton, Western Australia (WA) between 1992 and 1995. It was designed to show how environmental factors influence alcohol-related harm and how alcohol-related injury could be reduced when a community took an active role in changing drinking behaviour (Midford & Boots 1999).

The program began with networking and involvement with existing committees. A new coalition was also established. Although Midford and Boots (1999) experienced difficulties initiating the COMPARI program due to their 'community outsider' status, the project eventually received community acceptance and twenty-two major activities were initiated.

Activities included policy changes, social marketing, health education, alcohol-free events and drink driver programs.

The intervention was evaluated by contrasting trends in Geraldton with the WA regional city of Bunbury. While the intervention was adopted for regional funding support, the evaluation of the implementation was not of a sufficient scale to measure an overall impact on levels of harm.

Communities That Care Ltd (Victoria and Western Australia)

Communities That Care Ltd has been operating in Australia for ten years, adapting and implementing a community prevention planning process supported by evidence on its effectiveness in preventing child and adolescent antisocial and substance use behaviour (Greenberg et al 2005; Hawkins et al 2008).

Preliminary results from two of the Australian pilot communities have shown decreases in early initiation of alcohol use (unpublished data). An Australian community trial is currently being planned. Further information can be accessed at [the Centre for Adolescent Health website](#) (accessed 19 March 2009).

Gatehouse Project (Victoria)

Various preventive intervention projects have been conducted within Australia targeting a single setting such as the Victorian school-based Gatehouse Project.

The Gatehouse Project was conducted in Victorian secondary schools between 1996 and 2001. It aimed to promote health and emotional wellbeing of young people by increasing connectedness and life skills through a systematic change process of school policies, programs, practices and structures.

The project was evaluated through a randomised control trial which showed a reduction in health risk behaviours for young people, as well as system level changes within schools.

Two years after the intervention began, significantly fewer Year 8 students who attended intervention schools reported a history of smoking (21% versus 31%) and 5% fewer described themselves as a drinker. Details of the project and a list of publications can be accessed from [the Gatehouse Project website](#).

3 Data collection

This section summarises the methodology for the conduct of the Healthy Neighbourhoods School Survey. The data from this survey were used to analyse the risk and protective factors associated with violence and hazardous drinking. The findings are presented in Section 4.

3.1 The Healthy Neighbourhoods School Survey

The survey data used in this analysis came from the Healthy Neighbourhoods Project which was a large cross-sectional school-based study looking at the health and wellbeing of children and teenagers across Victoria, Queensland and Western Australia. Communities were stratified according to socioeconomic status and urban/rural location and randomly selected to take part in the project. During 2006 over 8000 young people in years 6 and 8 were surveyed from 15 urban and 15 rural areas.

The survey consisted of a computer-based questionnaire. The height, weight, blood pressure and pulse rate of participants was also measured. The questionnaire was designed to provide information on rates of health and social problems experienced by young people, together with information on the risk and protective factors that may predict these problems.

The Healthy Neighbourhoods School Survey is an Australian adaptation of the *Communities That Care*[®] Youth Survey. Adaptations were originally made to ensure the survey was culturally appropriate for young people in Australia and to broaden the scope of behaviours assessed by including measures of depressive symptoms, sexual activity, victimisation (Bond et al 2000), physical activity and healthy eating. Adaptations to the original survey were also made to ensure suitability for a wide age range, from Year 5 to Year 12 students.

In 2005 the survey was again adapted to cater for the changing needs of communities. The survey used for the collection of data analysed for this paper was designed to help achieve more integrated planning of prevention strategies for children and young people.

The survey inquires into nine areas of adolescent life:

- *About You* (including age, sex, birthplace)
- *School Experiences* (including opportunities to undertake activities and talk to teachers)
- *Your Friends and Experiences* (including drug use by friends and bullying behaviours)
- *Your Opinions* (including attitudes to drug use, fighting and honesty)
- *Your Feelings* (including feelings of self-blame, sadness and strategies for temper control)
- *Tobacco, Alcohol and Other Drugs* (including lifetime and recent use)
- *Health and Personal Experiences* (such as physical activity, sedentary behaviours and nutrition)
- *Your Family* (including time spent with family and the level of enjoyment)
- *Your Neighbourhood* (such as how safe and friendly is the neighbourhood).

The survey instrument measures a broad range of behavioural outcomes and risk and protective factors across four domains⁶:

- community
- school
- family
- peer–individual.

The questionnaire was administered via a web-based survey in normal class time, taking approximately 45 minutes to complete. (A paper-based version was used when access to computers was not possible).

Responses to items on the Healthy Neighbourhoods questionnaire addressing risk and protective factors were integrated into the scales previously developed by Bond et al (2000). Student responses were coded according to whether or not their answers indicated that the risk or protective factor applied in their life.

⁶ see Appendix 1: Definitions of risk and protective factors

The role these factors play in healthy youth development and examples of the types of questions in each of the scales presented in this paper are listed in Appendix 1: Definitions of risk and protective factors.

Survey sample

The basic demographic characteristics of the Healthy Neighbourhoods School Survey participants are shown in Table 1:

- **Age:** while the age of young people ranged from 10–14 years, 80% were aged 11 or 12 years
- **Sex:** slightly more females than males took part in the survey (52% versus 48%)
- **Year level:** 54.7% of the students surveyed were in Year 6, while 45.3% were in Year 8
- **State:** the highest proportion of students surveyed lived in Victoria (46.4%), followed by Queensland (30.3%) and Western Australia (23.2%)
- **Location:** an equal proportion of young people were living in urban and regional locations (50.1% versus 49.9%)
- **Socioeconomic status (SES) quartile:** the socioeconomic status ratings for participating students were 28.4% for those in the lowest quartile, 24.3% for those in the second lowest quartile, 23.2% for those in the second highest quartile, and 24.1% for those living in the highest quartile.

Screening of answers

The Healthy Neighbourhoods School Survey included questions on honesty and the use of fictitious drugs. Any students who reported that they had been dishonest when completing the survey or who reported using fictitious drugs were not included in the analyses (less than 2%).

Table 1: Demographic characteristics of survey participants

Characteristic		N	%
Age	10	611	7.6%
	11	3107	38.8%
	12	3275	40.9%
	13	988	12.4%
	14	21	0.3%
Sex	Male	3851	48.0%
	Female	4177	52.0%
Year level	6	4426	54.7%
	8	3668	45.3%
State	VIC	3834	46.4%
	QLD	2499	30.3%
	WA	1922	23.3%
Location	Urban	4140	50.1%
	Regional	4115	49.9%
SES quartile	Low	2342	28.4%
	2	2005	24.3%
	3	1914	23.2%
	High	1994	24.1%

3.2 Definitions and classifications

SES status

Census data from 2001 were used to assign participants to a socioeconomic quartile in line with the socioeconomic distribution in the participant's state of residence.

Definitions of alcohol consumption

Lifetime alcohol—a student was categorised as having drunk alcohol in their lifetime if they reported that they had ever consumed more than a few sips of alcohol.

Recent alcohol—a student was classified as having recently consumed alcohol if they reported having had an alcoholic drink within the past month.

Binge drinking—a student was categorised as engaging in binge drinking if they had consumed five or more drinks in a row within the previous fortnight.

Definition of violent behaviour

A student was categorised as engaging in violent behaviour if they reported that in the previous 12 months they had attacked someone with the idea of seriously hurting them or had beaten someone so badly that they probably needed to see a doctor or nurse.

Definition of antisocial behaviour

A student was categorised as engaging in antisocial behaviour if they reported that in the previous 12 months they had engaged in one or more of the following behaviours:

- stealing something worth more than \$10
- selling illegal drugs
- stealing or trying to steal a motor vehicle such as a car or motorcycle
- being drunk or high at school.

Risk and protective factors

As participants were still young adolescents at the time they were surveyed, many would not have yet been exposed to all of the risk factors that older adolescents encounter.

The total numbers of risk factors accumulated were therefore low for most children. Risk factors were grouped into the following categories: zero to one risk factor, two to three risk factors, and four or more risk factors. As younger children also report higher levels of protection, protective factors have been grouped as: zero to six protective factors, seven to eight protective factors, and nine protective factors.

Table 2 and Table 3 below identify the four key domains and the related characteristics relating to each that were used to identify risk and protective factors. A fuller description of risk and protective factors, including examples of questions used in the survey to elicit this information, is provided in Appendix 1: Definitions of risk and protective factors.

All analyses were completed in STATA 10 statistical software (Statcorp 2007).

Table 2: Risk factor domains and characteristics

Domain	Characteristic
Community	<p><i>Low community attachment</i></p> <p><i>Community disorganisation</i></p> <p><i>Personal transitions and mobility</i></p> <p><i>Community laws/norms favourable to substance use</i></p> <p><i>Perceived availability of drugs</i></p>
Family	<p><i>Poor family management</i></p> <p><i>Family conflict</i></p> <p><i>Family history of antisocial behaviour</i></p> <p><i>Parental attitudes favourable to drug use</i></p> <p><i>Parental attitudes favourable to antisocial behaviour</i></p>
School	<p><i>School failure</i></p> <p><i>Low commitment to school</i></p>
Peer-individual	<p><i>Rebelliousness</i></p> <p><i>Favourable attitudes to antisocial behaviour</i></p> <p><i>Favourable attitudes to drug use</i></p> <p><i>Perceived risks of drug use</i></p> <p><i>Interaction with antisocial peers</i></p> <p><i>Friends use of drugs</i></p> <p><i>Sensation seeking</i></p> <p><i>Rewards for antisocial involvement</i></p>

Table 3: Protective factor domains and characteristics

Domain	Characteristic
Community	<p><i>Community opportunities for prosocial involvement</i></p> <p><i>Community rewards for prosocial involvement</i></p>
Family	<p><i>Family attachment</i></p> <p><i>Family opportunities for prosocial involvement</i></p> <p><i>Family rewards for prosocial involvement</i></p>
School	<p><i>School opportunities for prosocial involvement</i></p> <p><i>School rewards for prosocial involvement</i></p>
Peer-individual	<p><i>Peer-individual social skills</i></p> <p><i>Peer-individual belief in the moral order</i></p>

4 Findings

This section of the paper presents the results of the data analysis, reporting on:

- the prevalence of hazardous drinking, violent behaviours and antisocial behaviours among Year 6 and Year 8 students
- the level of risk and protective factors among students engaging in these behaviours.

4.1 Prevalence of alcohol use, violent and antisocial behaviour

Alcohol consumption

The mean prevalence of alcohol use is presented in Table 4 below, together with the range recorded across communities.⁷

Table 4: Proportion reporting alcohol use by sex and year level (and range across communities)

Behaviour	Sex	Year 6		Year 8	
		Mean %	% range across communities	Mean %	% range across communities
Lifetime alcohol	Male	39.4	26.1–58.9	57.4	31.4–78.8
	Female	22.9	11.9–35.0	48.2	23.9–73.7
Recent alcohol	Male	20.0	7.7–35.7	30.3	9.8–50.8
	Female	10.0	3.5–18.6	23.6	6.5–46.1
Binge drinking	Male	4.5	0–10.9	8.7	0–27.0
	Female	2.0	0–5.1	6.9	0–23.6

Lifetime alcohol

A higher proportion of boys than girls reported having ever consumed alcohol in both Year 6 and Year 8.

The proportion of students who had ever consumed alcohol increased for both boys and girls between Year 6 and Year 8—from 39.4% to 57.4% for boys and from 22.9% to 48.2% for girls.

⁷ This table is reproduced in Appendix 2: Confidence level tables including the 95% confidence interval for each item.

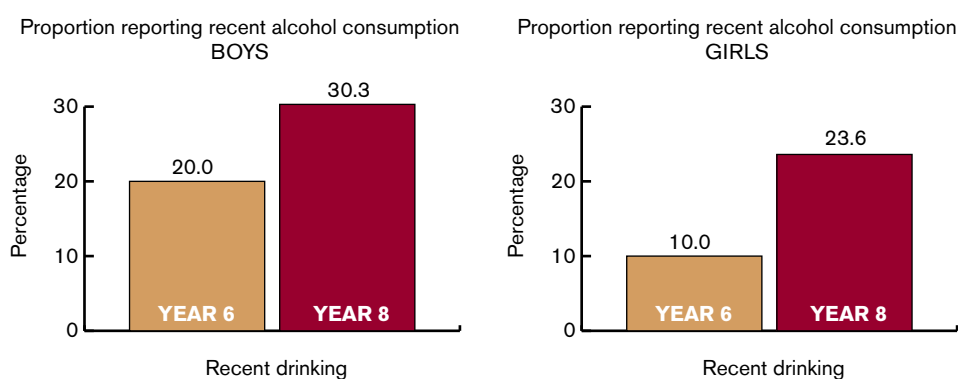
Recent alcohol

The proportion of students who had consumed alcohol in the previous month (ie recent alcohol) was higher for boys than for girls and this increased for both boys and girls across years 6 and 8. The increase in the proportion for girls across these years (from 10.0% to 23.6%) was more marked.

Figure 3 shows the proportion of boys and girls reporting recent consumption of alcohol (ie in the previous month) for years 6 and 8. Figure 4 shows the proportion of boys and girls reporting binge drinking for years 6 and 8.

In both year levels, all the reported behaviours were significantly more prevalent in boys than in girls.

Figure 3: Recent alcohol consumption by sex and year level

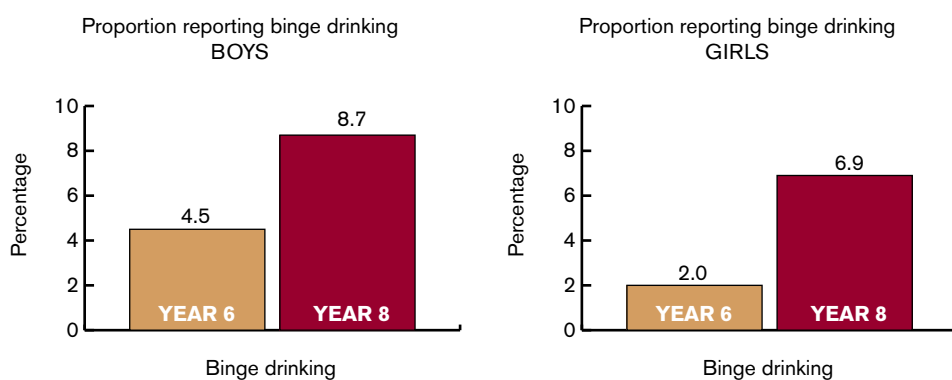


Binge drinking

Year 6 boys were three times more likely than Year 6 girls to report having consumed more than five alcoholic drinks in a row during the previous fortnight (classified as binge drinking). By Year 8, the difference between boys and girls engaging in binge drinking was less pronounced.

- 4.5% of Year 6 boys reported they had engaged in binge drinking and 8.7% of Year 8 boys reported they had engaged in binge drinking
- 2.0% of Year 6 girls reported they had engaged in binge drinking and 6.9% of Year 8 girls reported binge drinking.

Figure 4: Binge drinking by sex and year level



Violent and antisocial behaviour

Table 4 presents the mean prevalence of violent behaviour and antisocial behaviour, as well as where both violent and antisocial behaviour was reported. The range of reported behaviours across communities is also shown.

Table 4: Proportion reporting violent and antisocial behaviours by sex and year level (and range across communities)

Behaviour	Sex	Year 6		Year 8	
		Mean %	% range across communities	Mean %	% range across communities
Violent	Male	14.5	1.8–28.1	12.3	3.2–30.0
	Female	3.1	0–8.1	4.2	0–11.1
Antisocial behaviour	Male	8.8	1.4–16.1	11.3	1.6–33.3
	Female	3.6	0–9.5	8.2	0–22.2
Violent and antisocial	Male	5.2	0–12.8	4.6	0–22.2
	Female	1.0	0–4.0	1.9	0–11.1

Violent behaviour

For the purposes of this study, violence was defined as more extreme forms of aggressive behaviour such that the young person reported they had attacked someone in the previous 12 months with the intention of seriously hurting them, or they had beaten someone so badly that they probably needed to see a doctor or nurse.

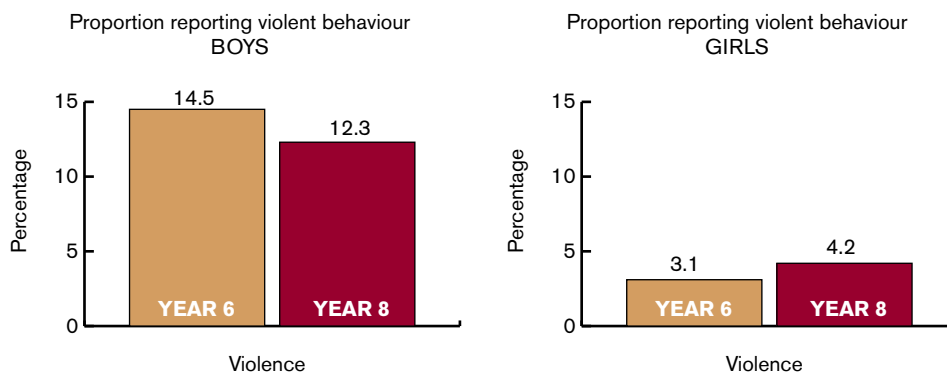
Boys were much more likely than girls to report having engaged in violent behaviour in both Year 6 and Year 8.

The reported level of violent behaviour for Year 8 boys was slightly less than for Year 6 boys while for girls in Year 8 there was a slight increase from the level in Year 6. As with other behaviours, the proportion of young people engaging in violent behaviour varied markedly between the surveyed communities—particularly for boys.

- 14.5% of boys in Year 6 reported engaging in violent behaviour in the previous 12 months compared to 12.3% of Year 8 boys. There was a marked variation in levels across the different communities ranging from 1.8% to 28.1% for Year 6 boys, and 3.2% to 30.0% for Year 8 boys.
- 3.1% of girls in Year 6 reported engaging in violent behaviour in the previous 12 months compared to 4.2% of Year 8 girls. The variation between communities was less marked than for boys.

Figure 5 below shows the proportion of young people reporting they had engaged in violence by year level and sex.

Figure 5: Violence by sex and year level



Antisocial behaviour

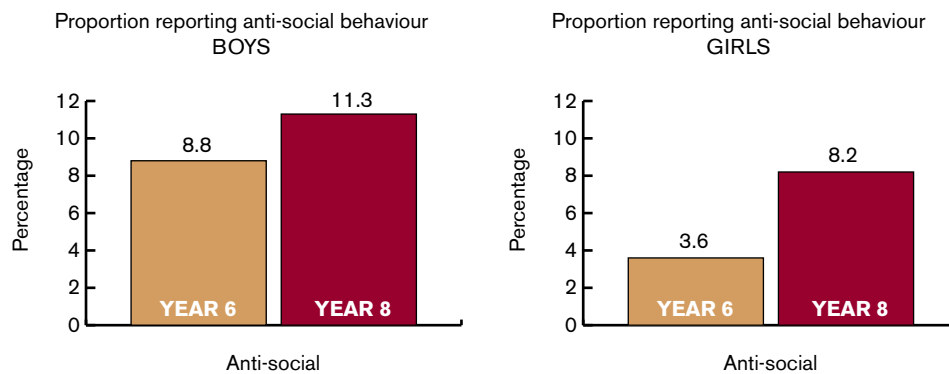
The classification of antisocial behaviour encompasses a range of behaviours (eg stealing, selling drugs, being drunk or high at school) considered to be indicative of the young person defying social norms or engaging in high risk behaviours.

Boys were more likely than girls to engage in antisocial behaviour in both Year 6 and Year 8. The level of antisocial behaviour for girls between the two year levels increased notably.

- 8.8% of boys in Year 6 reported engaging in antisocial behaviour in the previous 12 months compared to 11.3% of Year 8 boys. In Year 8 the variation across communities ranged from a low of 1.6% to a high of 33.3%.
- 3.6% of girls in Year 6 reported they had engaged in antisocial behaviour compared to 8.2% in Year 8. The range across communities was less extreme than for boys.

Figure 6 below shows the proportion reporting antisocial behaviour by year level and sex.

Figure 6: Antisocial behaviour by sex and year level



Details of violent and antisocial behaviours and alcohol consumption by state, socioeconomic quartile, year level and sex are provided as a separate appendix to this report downloadable from the [ARACY website](#).

4.2 Relationship between problem behaviours and risk factors

Almost 80% of young people who had four or more risk factors reported having used alcohol in the past month and/or being involved in violent or antisocial behaviour in the past year.

This percentage dropped to just over 50% for those with two or three risk factors and to 23% for those with no risk factors or one risk factor.

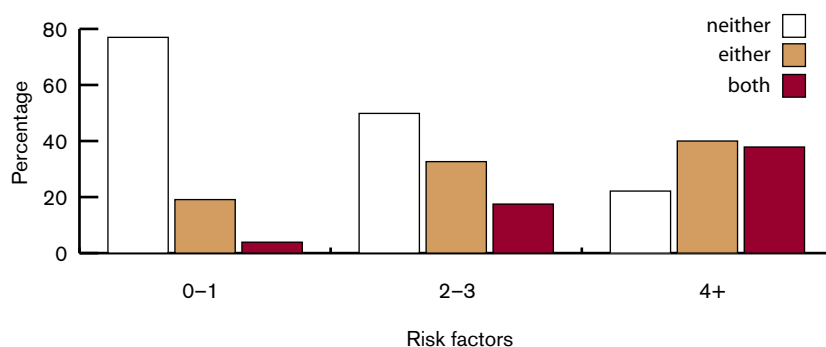
Alternatively, of all the young people who had recently used alcohol and engaged in violent behaviour in the previous year and/or recently used alcohol and engaged in antisocial behaviour in the previous year:

- 3.9% had either no risk factors or only one risk factor
- 17.5% had two or three risk factors
- 38.7% had four or more risk factors.

This analysis confirms that the greater the number of risk factors in the young person's life, the more likely they are to engage in problem behaviours.

Figure 7 shows the number of identified risk factors and associated proportions of young people reporting having recently consumed alcohol and/or engaging in violent/antisocial behaviour.

Figure 7: Relationship between risk factors, recent alcohol use and violent/antisocial behaviour



See Appendix 1 for a detailed description of risk factors.

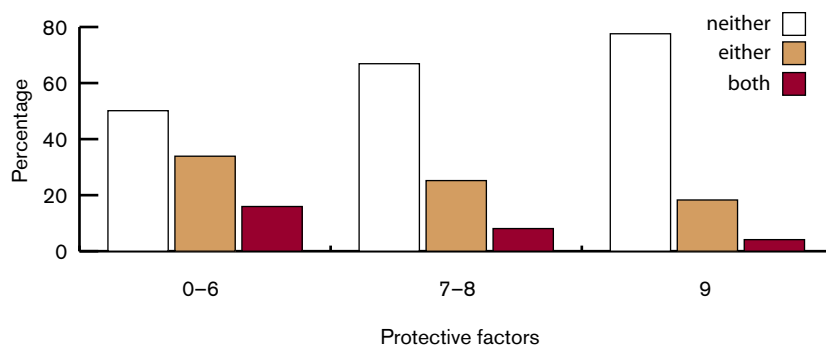
4.3 Impact of protective factors on problem behaviours

The presence of a higher number of protective factors is associated with a decreased likelihood that the young person will have recently used alcohol and/or engaged in violent/antisocial behaviours (see Figure 8).

Conversely, young people who had consumed alcohol in the previous month and/or participated in violent/antisocial behaviours in the previous 12 months had a lower number of protective factors.

Almost 80% of young people with the maximum nine protective factors had not recently consumed alcohol or engaged in violent/antisocial behaviours.

Figure 8: Relationship between protective factors, recent alcohol use and violent behaviour/antisocial behaviour



Detailed graphs showing the relationships between violent and antisocial behaviours and risk and protective factors by sex and year level are presented in Appendix 3: Risk and protective factors associated with behaviours (diagrams).

4.4 Factors associated with violent and antisocial behaviour

Results from univariate logistic regression models for both violent and antisocial behaviour are presented in Table 5. These analyses look at the associations between a single explanatory variable such as age and a single outcome such as violent behaviour.

When the results are statistically significant ($p\text{-value} < 0.05$) it indicates that the two variables are associated with one another. A $p\text{-value}$ of < 0.001 indicates that the association is even stronger.

The odds ratio indicates how much more or less likely a young person is to engage in that outcome for each unit of increase in the explanatory variable. For example, the odds ratio for age and violent behaviour is 1.2, which means that for each year older a young person is, the likelihood that they have participated in violent behaviour increases by 0.2 or 20%.

The analysis confirms that girls are significantly less likely than boys to participate in violent or antisocial behaviour.

Boys were five times more likely to engage in violent behaviour than girls and twice as likely to engage in antisocial behaviour.

Table 5: Univariate logistic regression analyses testing for association between behaviours and individual characteristics

Characteristic	Violent behaviour		Antisocial behaviour	
	Odds ratio	p-value	Odds ratio	p-value
Sex	0.2	0.00	0.5	0.00
Age	1.2	0.00	1.4	0.00
Year level	0.9	0.32	1.6	0.00
Community	-	0.00	-	0.3
State	-	0.12	-	0.3
SES quartile	0.9	0.00	1.0	0.2
Alcohol ever	3.4	0.00	6.2	0.00
Recent alcohol	3.6	0.00	6.0	0.00
Binge drinking	5.3	0.00	9.3	0.00
Total risk factors	1.8	0.00	2.0	0.00
Total protective factors	0.7	0.00	0.6	0.00

The likelihood of engaging in violent or antisocial behaviour is much higher in young people who have ever used alcohol and particularly high among those who have drunk five or more alcoholic drinks on one occasion in the previous two weeks.

Those who have ever consumed alcohol, or consumed alcohol in the previous month were approximately three-and-a-half times as likely to have been violent in the previous year and six times as likely to have participated in antisocial behaviour.

Among those who had engaged in binge drinking in the previous two weeks, the likelihood of having been violent was over five times higher than non-binge drinkers, while the likelihood of participating in antisocial behaviour was more than nine times as high.

For each additional risk factor, the likelihood of violent behaviour in the previous year increases by 80% and the likelihood of antisocial behaviour doubles.

Significant decreases in violent behaviour are seen with increases in socioeconomic status but there is no relationship between socioeconomic status and antisocial behaviour. In other words, there is a 10% decrease in the likelihood of violent behaviour for each increase in socioeconomic quartile, while antisocial behaviour does not change with socioeconomic status.

Violent behaviour—risk and protective factors

Based on the results of the univariate analysis, those factors with p-values <0.1 were included in multivariate analyses and excluded from the model if they were not significant predictors of violent or antisocial behaviour. The results from the multivariate analyses are shown in Table 6 and Table 7.

The greater the number of protective factors, the less likely the young person will have engaged in violent behaviour.

Other demographic and social factors that protected against violent behaviour were:

- being female
- being older (ie Year 8 students were less likely to be violent than Year 6 students)
- living in a higher socioeconomic neighbourhood.

Conversely young people who had higher numbers of risk factors and/or who had ever used alcohol were more likely to engage in violent behaviour.

There was significant variation in the prevalence of violent behaviour across communities even after controlling for socioeconomic status, age, sex, alcohol use and individual levels of risk and protection.

It may therefore be concluded there is something inherent within communities that influences the level of violence. Further research is needed to determine the community characteristics that discourage violent behaviour.

Table 6: Multivariable analysis of factors associated with violent behaviour

	Odds ratio	95% confidence interval	p-value
Sex	0.2	0.2–0.3	0.00
Age	0.9	0.8–1.0	0.12
Lifetime alcohol use	2.9	2.3–3.6	0.00
Total risk factors	1.6	1.5–1.7	0.00
Total protective factors	0.9	0.8–0.9	0.00
Socioeconomic quartile	0.8	0.6–1.1	0.26
Community	-	-	0.00

Antisocial behaviour—risk and protective factors

Being female and having more protective factors reduced the likelihood of participation in antisocial behaviours.

Lifetime alcohol use and a higher number of risk factors increased the likelihood of antisocial behaviour.

Table 7: Multivariable analysis of factors associated with antisocial behaviour

	Odds ratio	95% confidence interval	p-value
Sex	0.7	0.5–0.8	0.00
Lifetime alcohol use	5.2	4.1–6.7	0.00
Total risk factors	1.8	1.7–1.9	0.00
Total protective factors	0.9	0.8–0.9	0.00

5 Conclusion and implications

This section explores the implications of the data analysis for the timing of, and setting for, interventions to reduce the level of antisocial and violent behaviours among young people.

Risks impact over a broad developmental period throughout childhood and adolescence. Exposures appear to be cumulative, with the total number of elevated risk factors and depressed protective factors providing the most effective prediction of outcomes.

As risk factors can accumulate throughout development, and young people develop at different rates, recommending a single critical period where intervention would yield the most benefit is problematic.

In selecting a mixture of programs that are likely to be most effective, it may be more useful to think of the exposure to risk at any given developmental stage.

By measuring young peoples' experiences of the risk and protective factors within their community, specific factors that are elevated and widespread can be identified and targeted by policies, programs and actions shown to reduce those risk factors and promote protective factors.

Prevention activities are likely to be most successful where they work in a coordinated way to improve conditions for healthy youth development over many years (Gardner & Brounstein 2001). By pooling the knowledge, experience and resources of planners from crime prevention, substance abuse prevention, and health and mental health promotion, a more coordinated and integrated local prevention strategy can emerge.

The term prevention can also be used broadly to refer to interventions aimed at reducing the progression, escalation or continuation of a disorder or problem.

For example, Australian alcohol and drug use policies emphasise the minimisation of drug-related harm and, in that context, prevention encompasses a broader set of goals including reduction of supply, demand and harm, and is not limited solely to the reduction of alcohol or drug use. These harm minimisation principles are outlined in an occasional paper by the Victorian Parliamentary Drugs and Crime Prevention Committee, [Harm Minimisation: Principles and Policy Frameworks](#) (accessed 30 June 2009).

5.1 Points of intervention

Intervention in the preschool years

In the preschool years, most of the risks to which children are exposed derive from family factors. As such, intervention programs that target parents and carers are most effective in improving the child's developmental environment during this time.

However, education and training programs for parents require a time commitment that many parents are unable or unwilling to make. Non-participation rates in studies conducted under strict research conditions (efficacy studies) are as high as 50% (Printz & Miller 1994; Webster-Stratton & Spitzer 1996). Even for those who do take part, the ability of the parents to implement and continue with parenting behaviours they have learned varies.

Evidence suggests that single and low-income parents whose children are potentially at the highest risk of health and behaviour problems are less able to attend parenting programs and maintain changes in parenting behaviours (Printz & Miller 1994; Webster-Stratton & Hammer 1990). A 2001 report prepared on behalf of the then Victorian Department of Human Services detailed a range of reputable interventions, programs and service models that have contributed to the state, national and international evidence base underlying investment in the early childhood period of life (Moore et al 2001).

Intervention during the school years

School entry creates new opportunities for school-based intervention programs that directly target the child or the school environment where the child spends a considerable amount of their time.

Over recent decades Australia has developed school drug education curricula based on the harm minimisation approach. In Western Australia, the National Drug Research Institute has developed and evaluated a schools-based program aimed at reducing alcohol-related harm. An evaluation of the School Health and Alcohol Harm Reduction Project included the random assignment of schools to participate in the intervention or as control schools. Follow-up of a cohort of early high school students exposed to the curriculum found the intervention was associated with reductions in both alcohol use and alcohol-related harm (McBride et al 2000).

Intervention during the transition to adolescence

Major biological, emotional, intellectual and social changes take place during adolescence. As children move into adolescence there are increasing requirements to make independent decisions and to self-manage behaviours as the young person moves from parental determination to autonomous action.

Follow-up research reveals considerable adult continuity of health-compromising behaviours adopted in adolescence (Patton et al 1998; Toumbourou, Hamilton & Fallon 1998).

Adolescence is a particularly important stage of development where intervention programs may yield benefits as the patterns of behaviour that young people adopt will have long term consequences for their health and quality of life.

During the transition from childhood to adolescence the incidence of a number of health-compromising behaviours including tobacco, alcohol and drug use, and sexual risk-taking increases. A number of these adolescent onset behaviours are causing concern within Australian communities due to increased prevalence.

Rising substance use, binge drinking, mental health problems, suicide, deliberate self-harm and sexually transmitted diseases such as chlamydia were documented through the 1990s (Hill et al 2002; Moon et al 1998).

Longitudinal studies based on community samples have led to a greater understanding of the modifiable determinants of youth health and social problems relating to:

- substance abuse (Hawkins, Catalano & Miller 1992)
- crime (Loxley et al 2004)
- depression (National Crime Prevention 1999)
- antisocial behaviour (Lewinsohn et al 1994).

5.2 Intervention in a community setting

The local community environment plays an influential role in adolescent development including the provision of opportunities for young people to participate in positive activities. The level of neighbourhood safety, on the other hand, influences the extent to which these opportunities can be accessed.

Intervention research has demonstrated that the geographic community environment can be an important influence on adolescent health-compromising behaviours such as tobacco and alcohol use (Beyer et al 2004).

- Controlled community trials have demonstrated the potential to reduce tobacco use by developing and enforcing regulations to prohibit tobacco sales to underage youth (Jason et al 1999).
- Community mobilisation programs have also demonstrated reductions in youth alcohol use. Activities resulting from such programs have included reducing sales of alcohol to underage youth, changing parental attitudes and practices relating to underage alcohol use, and modifying children's estimates of the prevalence of alcohol misuse (Arthur & Blitz 2000).
- Community interventions have also been developed to deliver evidence-based strategies to enhance children's perceptions of prosocial options within their families, schools and neighbourhoods. The implementation of this type of community mobilisation project has been demonstrated to reduce youth crime rates in the United States (Gomez et al 2005).

5.3 Intervention variables

Local community-specific data can provide a clearer direction for investment in prevention and early intervention strategies. The greatest improvements in the health of children and young people will be achieved by implementing a mix of programs that are coordinated to address the local profile of developmental risk and protective factors.

The data from the Healthy Neighbourhoods School Survey clearly show a high level of community variation in health-compromising behaviours in young people in their early adolescence, which is not entirely explained by socioeconomic status.

Number of risk and protective factors

This data analysis demonstrates that there is a strong association between the total number of risk and protective factors to which the young person is exposed and their likely involvement in unhealthy, violent and antisocial behaviours.

Developmental stage

Particular risk and protective factors operate differently depending on the young person's developmental stage. Support for healthy child development will require intensive coordination of prevention efforts across all developmental stages from childhood through to adulthood and across the four domains of family, school, peers and community.

Multistage and multilevel interventions

In most of the communities surveyed, at least some level of early alcohol use and violent and/or antisocial behaviours had emerged prior to the transition to secondary school.

This indicates that prevention activities addressing these behaviours should commence in primary school. However, the increasing prevalence of health-compromising behaviours as young people move through adolescence, as well as changes in the relative importance of risk factors operating within the different domains of family, school, peers and community at different developmental stages, suggests the need for comprehensive intervention strategies that span across child–adolescent development and across social environments.

Data to inform local action

Localised survey data that measure a range of outcomes relevant to adolescent health and development provide a valuable resource for identifying possible ages and targets for preventive interventions, as well as for identifying communities with the highest levels of need.

The availability of local data on how young people are faring provides communities with the information they need to develop customised prevention strategies that reflect their own population needs, issues and priorities.

Victoria is currently undertaking a survey on the health and wellbeing of more than 10 000 students in Years 7, 9 and 11 that will enable these data to be provided to local communities across the State.

The data in this paper demonstrate the need for policies and preventative programs that not only take account of how different risks and social influences emerge at different developmental stages, but also consider the impact of different conditions and influences that may apply in different communities.

References

- Arthur, MW & Blitz, C 2000, 'Bridging the gap between science and practice in drug abuse prevention through needs assessment and strategic community planning', *Journal of Community Psychology*, vol 28, p 241.
- Beyers, JM, Toumbourou, JW, Catalano, RF, Arthur, M & Hawkins, JD 2004, 'A cross-national comparison of risk and protective factors for adolescent substance use: The United States and Australia', *Journal of Adolescent Health*, vol 35, issue 1, pp 3–16
- Bond, L, Thomas, L, Toumbourou, J, Patton, GC & Catalano, R 2000, *Improving the lives of Young Victorians in Our Community: A survey of risk and protective factors*, Centre for Adolescent Health Report prepared for Community Care Division, Department of Human Services, ISBN 174056 001 9.
- Bond, L, Toumbourou, JW, Thomas, L, Catalano, RF & Patton, G 2005, 'Individual, family, school and community risk and protective factors for depressive symptoms in adolescents: A comparison of risk profiles for substance use and depressive symptoms', *Prevention Science*, vol 6, issue 2, pp 73–88
- Bor, W, McGee, TR & Fagan, AA 2004, 'Early risk factors for adolescent antisocial behaviour: an Australian longitudinal study', *Australian and New Zealand Journal of Psychiatry*, vol 38, pp 365–372.
- Brewer, DD, Hawkins, JD, Catalano, RF & Neckerman, HJ 1995, 'Preventing serious, violent, and chronic juvenile offending: A review of evaluations of selected strategies in childhood, adolescence, and the community', in JC Howell, B Krisberg, JD Hawkins & JJ Wilson (eds), *A sourcebook: Serious, violent, and chronic juvenile offenders*, Sage Publications, Thousand Oaks, CA, pp 61–141.
- Brookmeyer, KA, Fanti, KA & Henrich, CC 2006, 'Schools, Parents, and Youth Violence: A Multilevel, Ecological Analysis', *Journal of Clinical Child and Adolescent Psychology*, vol 35, issue 4, pp 504–514.
- Catalano, RF & Hawkins, JD 1996, 'The social development model: A theory of antisocial behaviour', in JD Hawkins (ed), *Delinquency and crime: Current theories*, Cambridge University Press, New York, pp 149–197.
- Coie JD, Watt NF, West SG, Hawkins JD, Asarnow JR, Markman HJ, Ramey SL, Shure MB & Long B 1993, 'The science of prevention: A conceptual framework and some directions for a national research program', *American Psychologist*, vol 48, pp 1013–1022.
- Gardner, SE & Brounstein, PJ 2001, *Principles of substance abuse prevention*, U.S. Department of Health and Human Services, Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Prevention, Division of Knowledge Development and Evaluation, Rockville, MD.
- Gomez BJ, Greenberg MT & Feinberg ME 2005, 'Sustainability of community coalitions: an evaluation of communities that care', *Prevention Science*, vol 6, issue 3, pp 199–202.

- Green, AE, Gesten, EL, Greenwald, MA & Salcedo, O 2008, 'Predicting Delinquency in Adolescence and Young Adulthood: A Longitudinal Analysis of Early Risk Factors', *Youth Violence and Juvenile Justice*, vol 6, issue 4, pp 323–342.
- Greenberg, MT, Feinberg, ME, Brendan J, Gomez, BJ & Osgood, DW 2005, 'Testing a community prevention focused model of coalition functioning and sustainability: A comprehensive study of communities that care in Pennsylvania', in T Stockwell, P Gruenewald, JW Toumbourou and W Loxley (eds), *Preventing harmful substance use: The evidence base for policy and practice*, Wiley, London, pp 129–142.
- Hawkins, JD, Catalano, RF & Miller, JY 1992, 'Risk and protective factors for alcohol and other drug problems in adolescence and early adulthood: Implications for substance abuse prevention', *Psychological Bulletin*, vol 112, pp 64–105.
- Hawkins, JD, Arthur, MW & Catalano, RF 1995, 'Preventing substance abuse', in M Tonry & D Farrington (eds), *Building a safer society: Strategic approaches to crime prevention*, Crime and justice: A Review of Research, University of Chicago Press, Chicago, vol 19, pp 343–427.
- Hawkins, JD, Herrenkohl, T, Farrington, DP, Brewer, D, Catalano, RF & Harachi, TW 1998, 'A review of predictors of youth violence', in R Loeber & DP Farrington (eds), *Serious and violent juvenile offenders: Risk factors and successful interventions*, U Pittsburgh, School of Medicine, Western Psychiatric Inst and Clinic, Pittsburgh, PA, pp 106–146.
- Hawkins, JD, Brown, EC, Oesterle, S, Arthur, MW, Abbott, RD & Catalano, RF 2008, 'Early effects of Communities That Care on targeted risks and initiation of delinquent behaviour and substance use', *Journal of Adolescent Health*, vol 43, issue 1, pp 15–22.
- Hemphill, SA, Toumbourou, JW, Herrenkohl, TI, McMorris, BJ & Catalano, RF 2006, 'The effect of school suspensions and arrests on subsequent adolescent antisocial behaviour in Australia and the United States', *Journal of Adolescent Health*, vol 39, issue 5, pp 623–784.
- Herrenkohl, TI, Maguin, E, Hill, KG, Hawkins, DJ, Abbott, RD & Catalano, RF 2000, 'Developmental Risk Factors for Youth Violence', *Journal of Adolescent Health*, vol 26, pp 176–186.
- Hill, D, White, V & Effenci, Y 2002, 'Changes in the use of tobacco among Australian secondary students: Results of the 1999 prevalence study and comparisons with earlier years', *Australian and New Zealand Journal of Public Health*, pp 26–156.
- Homel, R, Freiberg, K, Lamb, C, Leech, M, Hampshire, A, Hay, I, Elias, G, Carr, A, Manning, M, Teague, R & Batchelor, S 2006, *The Pathways to Prevention Project: The First Five Years, 1999–2004*, Griffith University and Mission Australia, Sydney, viewed at http://www.griffith.edu.au/__data/assets/pdf_file/0017/13382/pathways-final.pdf (PDF 2598KB).
- Jason, LA, Katz, R, Vavra, J, Schnopp-Wyatt, DL & Talbot, B 1999, 'Long-term followup of youth access to tobacco laws' impact on smoking prevalence', *Journal of Human Behaviour and Social Environment*, vol 2, issue 3, pp 1–13
- Jessor, R, Turbin, MS & Costa, FM 1998, 'Protective factors in adolescent health behaviour', *Journal of Personality and Social Psychology*, vol 75, issue 3, pp 788–800.

- Keleher, H & Armstrong, R 2005, *Evidence-based mental health promotion resource*, report for the Department of Human Services and VicHealth, Melbourne
- Lewinsohn, PM, Rohde, P & Seeley, JR 1994, 'Psychosocial risk factors for future adolescent suicide attempts', *Journal of Consulting and Clinical Psychology*, vol 62, pp 297–305.
- Lipsey, MW & Derzon, JH 1998, 'Predictors of Violent or Serious Delinquency in Adolescence and Early Adulthood', in R Loeber & DP Farrington (eds), *Serious and Violent Juvenile Offenders: Risk Factors and Successful Interventions*, Sage Publications.
- Loeber, R, Wung, P, Keenan, K, Giroux, B, Stouthamer-Loeber, M, Van Kammen, WB & Maughan, B 1993, 'Developmental pathways in disruptive child behaviour', *Development and Psychopathology*, vol 5, pp 103–133.
- Loxley, W, Toumbourou, JW, Stockwell, T, Haines, B, Scott, K, Godfrey, C, Waters, E, Patton, G, Fordham, R, Gray, D, Marshall, J, Ryder, D, Sagggers, S, Sanci, L & Williams, J 2004, *The Prevention of Substance Use, Risk and Harm in Australia: A review of the Evidence*, Population Health Division, Australian Government Department of Health and Ageing, Canberra
- McBride, N, Midford, R, Farrington, F & Phillips, M 2000, 'Early results from a school alcohol harm minimization study: the School Health and Alcohol Harm Reduction Project', *Addiction*, vol 95, issue 7, pp 1021–1042.
- Moffitt, TE, Caspi, A, Harrington, H & Milne, BJ 2002, 'Males on the life-course persistent and adolescence-limited antisocial pathways: Follow-up at age 26 years', *Development and Psychopathology*, vol 14, pp 179–207.
- Midford, R & Boots, K 1999, 'COMPARI: Insights from a three year community based alcohol harm reduction project', *Australian Journal of Public Health—Interchange*, vol 5, issue 4, pp 46–58.
- Moon, L, Rahman, N & Bhatia, K 1998, *Australia's children: their health and well-being*, Australian Institute of Health and Welfare, Canberra.
- Moore, T, Ochiltree, G & Cann, W 2001, *Best Start—Effective Programs: Examples of Effective Interventions*, Programs and Service Models, Department of Human Services, Melbourne, Victoria.
- Mrazek, PJ & Haggerty, RJ (eds) 1994, *Reducing Risks for Mental Disorders: Frontiers for Prevention Intervention Research*, National Academy Press, Washington, DC.
- National Crime Prevention 1999, Pathways to prevention: *Developmental and early intervention approaches to crime in Australia*, Commonwealth Attorney-General's Department: Canberra, viewed at <http://www.crimeprevention.gov.au/agd/www/Ncphome.nsf/Page/B78FEDFB9A1D980ACA256B14001A096E?OpenDocument>
- Patton, GC, Carlin, JB, Coffey, C, Wolfe, R, Hibbert, M & Bowes, G 1998, 'The course of early smoking: a population-based cohort study over three years', *Addiction*, vol 93, pp 1251-1260.

- Printz, RJ & Miller, GE 1994, 'Family-based treatment for childhood antisocial behaviour: Experimental influences on dropout and engagement', *Journal of Consulting and Clinical Psychology*, vol 62, pp 645–650.
- Rutter, M 1985, 'Resilience in the face of adversity: Protective factors and resistance to psychiatric disorder', *British Journal of Psychiatry*, vol 147, pp 598–611.
- Silburn, S 2008, 'Chart of protective and risk factors over life developmental stages', unpublished, ARACY, Perth.
- Smart, D, Richardson, N, Sanson, A, Dussuyer, I, Marshall, B, Toumbourou, JW, Prior, M & Oberklaid, F 2005, *Patterns and precursors of adolescent antisocial behaviour: Outcomes and connections (The Third Report)*, Crime Prevention Victoria and Australian Institute of Family Studies, Melbourne, pp xvi and 136.
- StataCorp. 2007, *Stata Statistical Software: Release 10*, StataCorp LP, College Station, TX.
- Toumbourou, J, Hamilton, M & Fallon, B 1998, 'Treatment level progress and time spent in treatment in the prediction of outcomes following drug-free therapeutic community treatment', *Addiction*, vol 93, pp 1051–64.
- Toumbourou, J, Patton, G, Sawyer, S, Olsson, C, Web-Pullmann, J, Catalano, R & Godfrey, C 2000, 'Evidence-based health promotion', *Resources for Planning No 2: Adolescent Health*, Health Development Section, Public Health Division, Department of Human Services, Victoria, pp 31.
- Toumbourou, JW, Williams, IR, White, VM, Snow, PC, Munro, GD & Schofield, PE 2004, 'Prediction of alcohol related harm from controlled drinking strategies and alcohol consumption trajectories', *Addiction*, vol 99, pp 498–508.
- Toumbourou, JW & Catalano, RF 2005, 'Predicting developmentally harmful substance use', in T Stockwell, P Gruenewald, JW Toumbourou & W Loxley (eds), *Preventing harmful substance use: The evidence base for policy and practice*, Wiley, London, pp 53–66.
- Toumbourou, JW, Williams, J, Waters, E & Patton, G 2005, 'What do we know about preventing drug-related harm through social developmental intervention with children and young people?', in T Stockwell, P Gruenewald, JW Toumbourou & W Loxley (eds), *Preventing harmful substance use: The evidence base for policy and practice*, Wiley, London, pp 87–100.
- Williams, J, Toumbourou, JW, Mc Donald, M, Jones, S & Moore, T 2005, 'A sea change on the island continent: frameworks for risk assessment, prevention and intervention in child health in Australia', *Children & Society*, vol 19, pp 91–104.

Appendix 1: Definitions of risk and protective factors

Risk factor definitions

Community Domain	Low community attachment	Neighbourhoods where residents report low levels of bonding to the neighbourhood have higher rates of juvenile crime, violence and drug use. <i>Sample statement: I'd like to get out of my neighbourhood.</i>
	Community dis-organisation	Neighbourhoods with high population density, lack of natural surveillance of public places, physical deterioration, and high rates of adult crime have higher rates of juvenile crime, violence and drug use. <i>Sample question: How much do you agree with the following statements? There are fights in my neighbourhood.</i>
	Personal transitions and mobility	Young people without stability and strong personal relationships are more likely to use drugs and become involved in Antisocial behaviours. <i>Sample question: Have you moved house in the past year (last 12 months)?</i>
	Community laws/norms favourable to substance use	Communities where laws regulating alcohol and other drug use are poorly enforced have higher rates of youth alcohol and drug use, violence, and delinquency. Further, rates of youth alcohol and drug use and violence are higher in communities where adults believe it is normative or acceptable for minors to use alcohol or other drugs. <i>Sample question: How wrong would most adults in your neighbourhood think it is for kids your age to drink alcohol?</i>
	Perceived availability of drugs	The availability of cigarettes, alcohol, marijuana and other illegal drugs is related to a higher risk of drug use and violence among adolescents. <i>Sample question: How easy would it be for you to get marijuana?</i>
Family Domain	Poor family management	Parents' use of inconsistent and/or unusually harsh or severe punishment with their children places the children at higher risk for substance use and other problem behaviours. <i>Sample statement: The rules in my family are clear.</i>
	Family conflict	Children raised in families high in conflict are at risk of violence, delinquency, school dropout, teen pregnancy and drug use. <i>Sample statement: We argue about the same things in my family over and over again.</i>
	Family history of antisocial behaviour	Children from families with a history of problem behaviours (eg crime, violence or alcohol or drug abuse or dependence) are more likely to engage in these behaviours. <i>Sample question: Has anyone in your family ever had a severe alcohol or drug problem?</i>
	Parental attitudes favourable to drug use	In families where parents are tolerant of their children's alcohol or drug use, children are more likely to become drug abusers. The risk is further increased if parents involve children in their own drug or alcohol using behaviour; for example, by asking the child to light the parent's cigarette or get the parent a beer from the refrigerator. <i>Sample question: How wrong do your parents feel it would be for you to smoke cigarettes?</i>
	Parental attitudes favourable to antisocial behaviour	In families where parents are tolerant of their children's misbehaviour, including violent and delinquent behaviour, children are more likely to become involved in violence and crime during adolescence. <i>Sample question: How wrong do your parents feel it would be for you to pick a fight with someone?</i>

School Domain	School failure	Beginning in the late primary school grades (years 4–6), children who fall behind academically for any reason are at greater risk of drug abuse, school dropout, teenage pregnancy and violence. <i>Sample question: Putting them altogether, what were your marks like last year?</i>
	Low commitment to school	Factors such as not liking school, spending little time on homework, and perceiving coursework as irrelevant are predictive of drug use, violence, delinquency and school dropout. <i>Sample question: Now, thinking back over the past year in school, how often did you try to do your best work in school?</i>
Peer-Individual Domain	Rebelliousness	Young people who do not feel part of society, are not bound by rules, don't believe in trying to be successful or responsible, or who take an active rebellious stance toward society, are at higher risk for social problems, dropping out of school, and drug abuse. <i>Sample statement: I ignore rules that get in my way.</i>
	Favourable attitudes to antisocial behaviour	Young people who accept or condone antisocial behaviour are more likely to engage in a variety of problem behaviours. <i>Sample question: How wrong do you think it is for someone your age to steal anything worth more than \$10?</i>
	Favourable attitudes to drug use	Youth who express positive attitudes toward drug use are at higher risk of subsequent drug use. <i>Sample question: How wrong do you think it is for someone your age to use marijuana?</i>
	Perceived risks of drug use	Young people who do not perceive drug use to be risky are more likely to engage in drug use. <i>Sample question: How much do you think people risk harming themselves (physically or in other ways) if they try marijuana once or twice?</i>
	Interaction with antisocial peers	Young people who interact with other young people who display antisocial behaviour are at increased risk of abusing drugs and becoming involved in crime. <i>Sample question: Think of your four best friends (the friends you feel closest to). In the past year (12 months), have any of your best friends sold illegal drugs?</i>
	Friends' use of drugs	Young people who associate with peers who engage in alcohol or substance use are much more likely to engage in the same behaviour. <i>Sample question: In the past year (12 months), have any of your four best friends used marijuana?</i>
	Sensation seeking	Young people who seek out opportunities for dangerous, risky behaviour in general are at higher risk for engaging in drug use and other problem behaviours. <i>Sample question: How many times have you done something dangerous because someone dared you to do it?</i>
	Rewards for antisocial involvement	Young people who see antisocial behaviour as rewarding and having few costs are at higher risk of engaging in antisocial behaviour. <i>Sample question: What are the chances you would be seen as cool if you smoked marijuana?</i>

Protective factor definitions

Community Domain	Community opportunities for prosocial involvement	When opportunities for positive participation are available in a community, children are more likely to become bonded to the community. <i>Sample question: Which of the following activities for people your age are available in your community? For example, sports teams, scouts/guides, youth groups, community service.</i>
	Community rewards for prosocial involvement	Recognition for positive participation in community activities helps children bond to the community, thus lowering their risk of problem behaviours. <i>Sample statement: My neighbours notice when I am doing something well and let me know.</i>
Family Domain	Family attachment	Young people who feel strongly bonded to their family are less likely to engage in substance use and other problem behaviours. <i>Sample question: Do you feel very close to your mother?</i>
	Family opportunities for prosocial involvement	Young people who have more opportunities to participate meaningfully in the responsibilities and activities of the family are more likely to develop strong bonds to the family. <i>Sample statement: My parents ask me what I think before most family decisions affecting me are made.</i>
	Family rewards for prosocial involvement	When parents, siblings, and other family members praise, encourage, and recognise things done well by their child, children are more likely to develop strong bonds to the family. <i>Sample question: How often do your parents tell you they're proud of you for something you've done?</i>
School Domain	School opportunities for prosocial involvement	When young people are given more opportunities to participate meaningfully in the classroom and school, they are more likely to develop strong bonds of attachment and commitment to school. <i>Sample statement: In my school, students have lots of chances to help decide things like class activities and rules.</i>
	School rewards for prosocial involvement	When young people are recognised for their contributions, efforts and progress in school, they are more likely to develop strong bonds of attachment and commitment to school. <i>Sample statement: My teachers praise me when I work hard in school.</i>
Peer-Individual Domain	Peer-individual social skills	Young people who are socially competent are less likely to use drugs and engage in other problem behaviours. <i>Sample question: You are at a party at someone's house, and one of your friends offers you a drink containing alcohol. What would you say or do?</i>
	Peer-individual belief in the moral order	Young people who have a belief in what is 'right' or 'wrong' are less likely to use drugs or engage in delinquent or other problem behaviours. <i>Sample question: It is important to be honest with your parents, even if they become upset or you get punished.</i>

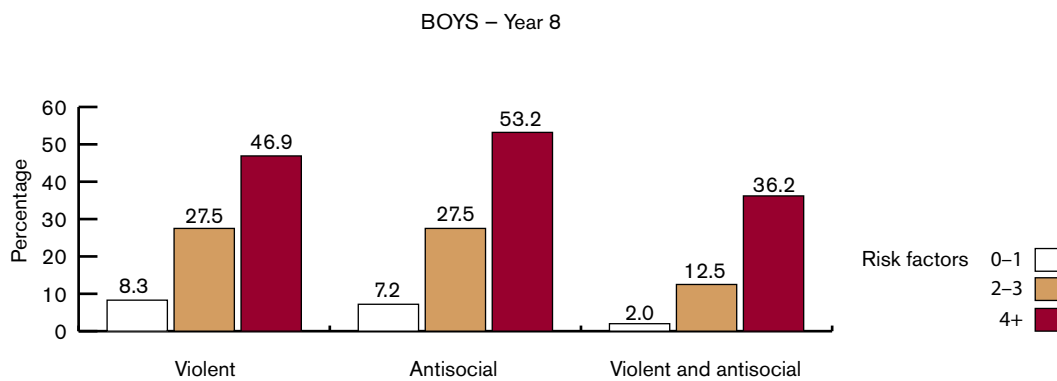
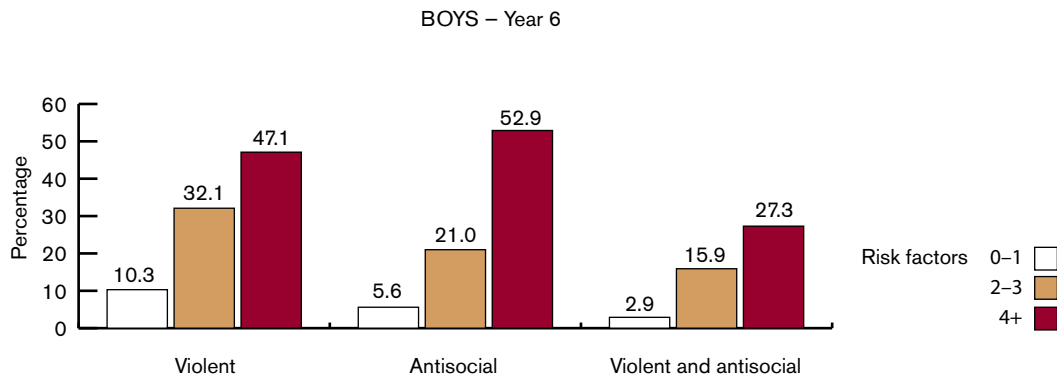
Appendix 2: Confidence level tables

Table 8: Prevalence of alcohol use, violent behaviour and antisocial behaviour by sex and year level and the range across communities

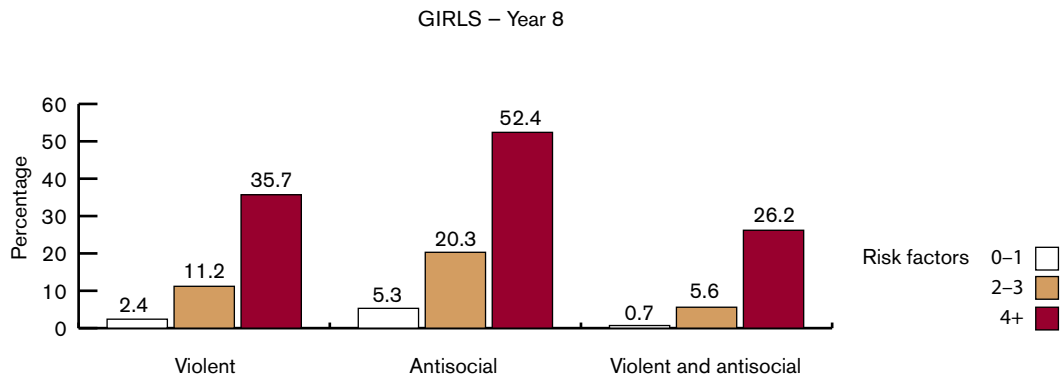
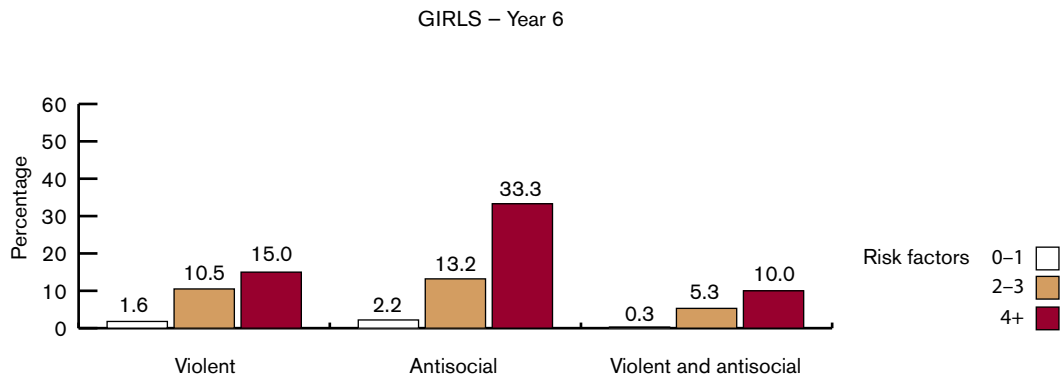
Behaviour	Sex	Year 6		Year 8	
		Mean (95% CI)	Range across communities	Mean (95% CI)	Range across communities
Lifetime alcohol	Male	38.0 (35.7-40.4)	26.1 – 58.9	57.8 (55.1-60.4)	31.4 – 78.8
	Female	21.6 (19.7-23.6)	11.9 – 35.0	47.4 (44.8-50.0)	23.9 – 73.7
Recent alcohol	Male	19.6 (17.7-21.5)	7.7 – 35.7	30.0 (27.6-32.5)	9.8 – 50.8
	Female	9.0 (7.7-10.3)	3.5 – 18.6	23.5 (21.3-25.7)	6.5 – 46.1
Binge drinking	Male	4.7 (3.6-5.8)	0 – 10.9	8.2 (6.7-9.6)	0 – 27.0
	Female	1.7 (1.1-2.2)	0 – 5.1	6.7 (5.4-8.0)	0 – 23.6
Violent	Male	14.2 (12.6-15.9)	1.8 – 28.1	12.3 (10.6-14.1)	3.2 – 30.0
	Female	3.1 (2.3-3.9)	0 – 8.1	4.1 (3.1-5.1)	0 – 11.1
Antisocial behaviour	Male	8.8 (7.4-10.2)	1.4 – 16.1	11.2 (9.5-12.9)	1.6 – 33.3
	Female	3.8 (2.9-4.8)	0.0 – 9.5	8.7 (7.2-10.1)	0 – 22.2
Violent and antisocial behaviour	Male	5.1 (4.0-6.1)	0 – 12.8	4.3 (3.2-5.3)	0 – 22.2
	Female	0.9 (0.5-1.3)	0 – 4.0	1.7 (1.1-2.4)	0 – 11.1

Appendix 3: Risk and protective factors associated with behaviours (diagrams)

RISK FACTORS BOYS

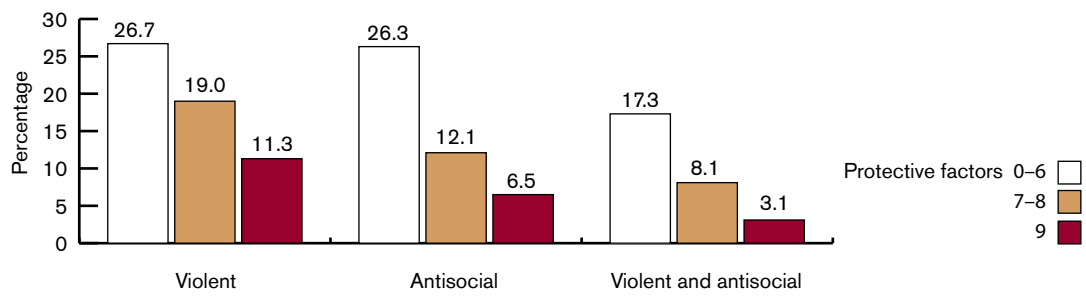


RISK FACTORS GIRLS

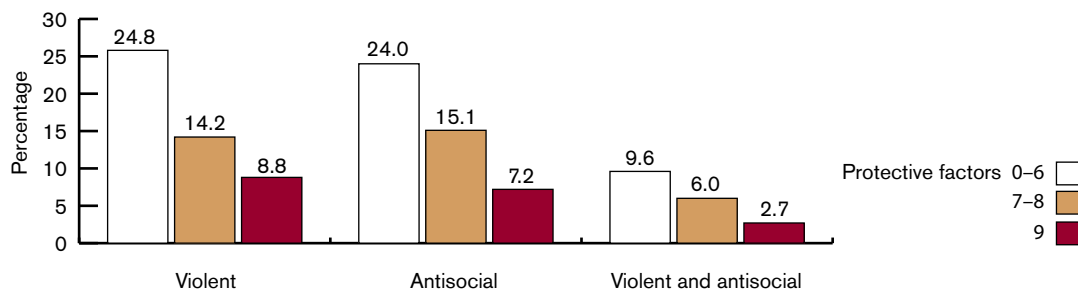


PROTECTIVE FACTORS BOYS

BOYS – Year 6

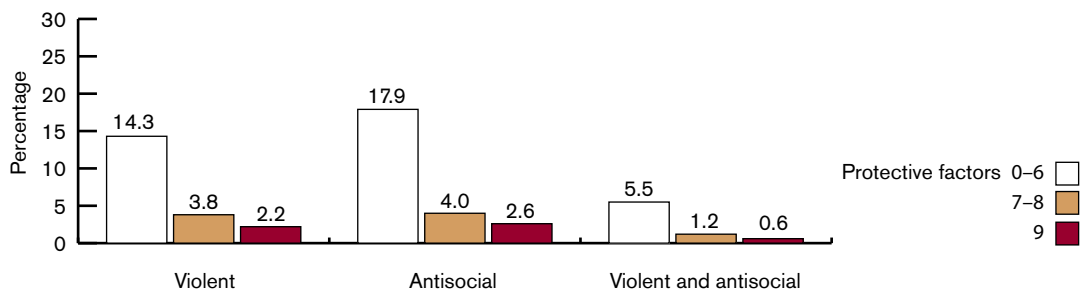


BOYS – Year 8



PROTECTIVE FACTORS GIRLS

GIRLS – Year 6



GIRLS – Year 8

