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## Protective Factors Against the Impact of School Bullying Perpetration and Victimization on Young Adult Externalizing and Internalizing Problems

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### Abstract

School-based bullying perpetration and victimization is common worldwide and has profound impacts on student behavior and mental health. However, few studies have examined young adult outcomes of bullying perpetration or victimization. Research on factors that protect students who have bullied or been bullied is also lacking. This study examined young adult externalizing and internalizing problems (aged 18-19 years) and adolescent protective factors related to self-reported bullying perpetration and victimization among over 650 Victorians aged 16-17 years.

Opportunities for prosocial involvement in the family lessened subsequent involvement in nonviolent antisocial behavior, as an outcome of prior bullying. High academic performance and having strategies to cope with stress reduced young adult depressive symptoms for participants who had been victims of bullying. The implications for bullying prevention and early intervention programs are discussed.

### Keywords

bullying; protective factors; young people; externalizing problems; internalizing problems; longitudinal study

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Despite the large extant literature on bullying perpetration and victimization, these remain leading concerns for parents, teachers, health professionals and scholars in the youth development, psychology, education, and health promotion fields (e.g., Cross et al., 2009; Hemphill et al., 2012; Renda, Vassallo, & Edwards, 2011). Evidence is clear that bullying is prevalent among students and that the impacts of bullying—for victims and perpetrators

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alike— can be severe and long-lasting into adulthood (e.g., Hemphill et al., 2011; Olweus, 2011; Renda et al., 2011) including for perpetrators, property and violent offending, alcohol and illicit substance use and dependence, and police arrests (Gibb, Horwood, & Fergusson, 2011) and for victims, depressive symptoms (Hemphill et al., 2011). However, few studies have looked specifically at the effects of bullying and being bullied on young adult internalizing and externalizing problems, and in particular, the factors that reduce the negative impacts of bullying perpetration and victimization on later functioning. By identifying so called protective factors, variables thought to mitigate the impact of bullying and being bullied on later outcomes, researchers can help identify targets for prevention and intervention programs (Institute of Medicine, 1994). The current study examined the links between bullying perpetration and victimization among Victorian students aged 16-17 years and outcomes of externalizing and internalizing problems in young adults at ages 18-19 years, with a focus on hypothesized protective factors.

School-based or “traditional” bullying includes aggressive or hostile intentional acts perpetrated repeatedly by one or more individuals toward a victim with intent to harm (Olweus, 1993). Bullying is further differentiated from other forms of aggression on the basis of a power imbalance between the perpetrator(s) and the victim(s) (e.g., differences in physical size or strength or status in school community; Olweus, 1993). Bullying behavior can be covert (e.g., exclusion, spreading rumors) or overt (e.g., verbal and physical abuse). It is increasingly recognized that the measurement of bullying can be difficult, particularly when trying to capture the repetitive nature of the behavior and the differences in power of the perpetrator and victim (Dooley, Pyzalski, & Cross, 2009; Grigg, 2010).

Bullying is a very common problem in schools worldwide. In a survey of 28 European and North American countries, it was found that, for 11-, 13- and 15-year-olds, bullying prevalence rates ranged from 5% (girls) and 6% (boys) in Sweden to as high as 38% (girls) and 41% (boys) in Lithuania (Due et al., 2005). Results from the United States (U.S.) National Crime Victimization Survey (2007, School Crime Supplement) showed that approximately 32% of students aged 12-18 years reported having been bullied on school grounds (National Center for Educational Statistics: Institute of Education Sciences, 2011). Nansel and colleagues (2001) surveyed over 15,000 U.S. students aged 12-16 years and found that 30% of the sample reported having bullied others. A national Australian study of 8- to 14-year-olds found that rates of all forms of bullying perpetration, including cyber-bullying, were 11% for boys and 7% for girls (Cross et al., 2009).

## Outcomes of Bullying for Perpetrators and Victims

Many students who bully others also perpetrate other forms of antisocial behavior, both nonviolent (e.g., stealing) and violent (e.g., Hay, Meldrum, & Mann, 2010; Hinduja & Patchin, 2007). Those students who bully others at school are more likely than others to show increased general aggression over time (Kim, Leventhal, Koh, Hubbard, & Boyce, 2006). Notably, a study by Hemphill et al. (2011) found that bullying others at 15-16 years of age predicted theft, violent behavior, and binge drinking one year later (Hemphill et al., 2011). Further, students who bully are at heightened risk for later delinquency (Bender & Lösel, 2011; Farrington, Loeber, Stallings, & Ttofi, 2011; Lösel & Bender, 2011),

criminality (Jiang, Walsh, & Augimeri, 2011; Olweus, 2011; Sourander et al., 2006), and repeat offending (Olweus, 1993, 2011). In a New Zealand study, bullying predicted later property and violent offending, police arrests, and alcohol and illicit substance use and dependence (Gibb et al., 2011).

Consequences of being bullied include internalizing problems, such as being withdrawn, reporting somatic complaints, and experiencing anxiety and depression (Arseneault et al., 2006; Hodges & Perry, 1999). A study of 2,680 students found that being bullied in the early secondary school years (age 13) was associated with reports of anxiety and depressive symptoms the following year (Bond, Carlin, Thomas, Rubin, & Patton, 2001). Hemphill and colleagues found that students who were bullied were more likely to report depressive symptoms one year later (Hemphill et al., 2011). Importantly, there is evidence that having been bullied places individuals at higher risk for depression well into their adult years (Ttofi, Farrington, Lösel, & Loeber, 2011).

### Protective Factors for Externalizing and Internalizing Outcomes

As Lösel and Farrington (2012) note, the terminology in this field is not consistent. Protective factors are typically conceptualized as variables thought to mitigate the impact of bullying and being bullied on later outcomes. In the current article, the authors draw on the conceptualization of protective factors described by Farrington and Ttofi (2011b), distinguishing between *risk-based* protective factors (factors that predict a low probability of negative outcomes such as antisocial behavior and depression) and *interactive* protective factors (factors that moderate the effects of risk factors, like bullying, on later outcomes, such as antisocial behavior; (Farrington & Ttofi, 2011b). Relatively little research on bullying has examined risk-based and interactive protective factors. Hence, in the literature reviewed below it is sometimes necessary to draw on research that has focused on risk factors (factors that predict a high probability of negative outcomes). There remains much debate in the literature as to whether or not risk and protective factors are at opposite ends of the continuum versus that they are qualitatively different from one another (Herrenkohl, Lee, & Hawkins, 2012; Stouthamer-Loeber, Loeber, Farrington, Wikström, & Wei, 2002).

Increasingly, ecological models of development inform understanding of young people's behavior. Bronfenbrenner's (1979) ecological systems theory emphasizes the influence of environmental factors on development and identified five environmental systems with which the individual interacts. The system most proximal to the individual, the microsystem, includes the groups that most directly impact on development such as family, school, and peers. The current article examines the influence of the protective factors in the microsystem of young Victorians, as well as the influence of neighborhoods (less proximal to the individual and part of the exosystem). These factors affect development during the adolescent and the young adult period (e.g., Catalano & Hawkins, 1996), although there are shifts in the relative importance of these factors with peers becoming more influential with age (Goldstein, Davis-Kean, & Eccles, 2005).

A number of studies have shown the relation between family risk-based protective factors and both externalizing and internalizing behaviors among youth (Hawkins et al., 2000;

Hemphill et al., 2009; Herrenkohl et al., 2000), as well as the associations between family influences and adolescent bullying and bullying victimization (Baldry & Farrington, 2005; Wang, Iannotti, & Nansel, 2009). In the family context, high parental support is negatively related to the perpetration of physical, verbal, relational and cyber-bullying (Wang, Iannotti, & Nansel, 2009) and good family management lowers the risk of violence (Herrenkohl et al., 2003). In a study specifically focused on protective factors for bullying and victimization, Baldry and Farrington (2005) found that family protective factors included having supportive and authoritative (highly accepting of child, good supervision and supportive of autonomy) parents. Highly supportive parenting was particularly protective for boys who solved their problems in emotional ways (e.g., getting very nervous or angry).

To date, research on family factors has largely focused on the risk factor of family conflict; an established predictor of youth violence, physical aggression, bullying perpetration and victimization (Farrington & Ttofi, 2011a; Hawkins et al., 2000; Hemphill et al., 2009; Herrenkohl et al., 2000). For example, in a study by Hemphill and colleagues, family conflict at age 12-13 years was a predictor of bullying others two years later (Hemphill et al., 2012). Hence, students living in a home environment characterized by conflict may themselves bully others at school and engage in other externalizing behaviors (Farrington & Ttofi, 2011a; Hawkins et al., 2000; Hemphill et al., 2009; Herrenkohl et al., 2000). The reverse of the findings is also expected; that students living in families with low level of conflict will be less likely to engage in bullying perpetration and antisocial behavior. For internalizing problems, Herrenkohl, Kosterman, Hawkins, and, Mason (2009) analyzed data for young people surveyed from age 10-27 years and found that both high initial levels of family conflict and growth in family conflict predicted adult experiences of stressful life events, and that these life events predicted adult depressive symptoms.

Previous research has extensively studied school risk and protective factors for externalizing behavior, bullying perpetration and victimization, and to a lesser extent, internalizing behavior. Two of the main protective factors studied in this area are attending a school with a positive climate and being connected to school—both are associated with a lower risk of bullying perpetration (Williams & Guerra, 2007) and related behaviors such as violence (Herrenkohl et al., 2003; Herrenkohl et al., 2012).

Although characterized as a risk factor, another variable commonly studied in relation to school-based bullying perpetration and victimization is low academic performance (Beran, Hughes, & Lupart, 2008; Spriggs, Iannotti, Nansel, & Haynie, 2007). Students reporting academic failure (at age 12-13) have higher odds than others for bullying perpetration two years later (Hemphill et al., 2012). However, findings have been mixed, with only some researchers providing evidence of a connection between low academic performance and bullying perpetration and victimization (Swearer, Espelage, Vaillancourt, & Hymel, 2010). Evidence for associations between poor academic performance and externalizing problems (Farrington, 1989; Maguin et al., 1995), as well as low academic performance and internalizing problems, has also been found (Frojd et al., 2008; Jaycox et al., 2009). Higher grade point averages are a direct protective factor for youth violence (Bernat, Oakes, Pettingell, & Resnick, 2012). In this article, we expect that the risk-based protective factor

of high academic performance will reduce the likelihood of negative young adult outcomes for bullies (e.g., violent antisocial behavior) and victims (e.g., depressive symptoms).

Within the study of neighborhood factors there has typically been a focus on the risk factor of community disorganization (i.e., poor housing, presence of crime) which has predicted violence (Herrenkohl et al., 2003); Maguin et al., 1995). In a study of children, neighborhood social cohesion moderated the link between hostile parenting and externalizing behavior (Silk, Sessa, Sheffield Morris, Steinberg, & Avenevoli, 2004). Similarly, Bacchini, Esposito, and Affuso (2009) showed that students who bullied others and students who were bullied reported experiencing violence and danger in their neighborhoods. Espelage, Bosworth, and Simon (2000) also found that amongst middle school students bullying behavior was positively related to concerns about neighborhood safety. In this article, we expect that neighborhoods characterized by good organization will be a risk-based protective factor against the impact of bullying perpetration and victimization on young adult outcomes.

A student level protective factor linked with externalizing problems is emotion control (i.e., being able to control feelings and relax oneself when tense)—it has been associated with reduced odds of youth violence (Hemphill et al., 2009). In addition, a belief in the moral order (e.g., understanding it is important to be honest with parents even if they become angry or punish the student) has been linked to less problem behavior among youth (Catalano & Hawkins, 1996). In one of the few studies that have specifically investigated protective factors related to bullying others and being bullied, Baldry and Farrington (2005) found that in adolescent Italian males a protective factor was the young person's problem-solving coping skills. There was also an interactive protective factor effect for bullying demonstrating that having increased levels of problem-solving skills buffered the effects of having high emotion-oriented coping strategies (e.g., getting very angry or nervous).

## The Current Study

The current study examined the longitudinal impact of bullying victimization and perpetration on internalizing and externalizing problems, as well as the risk-based and interactive protective factors that alter the impact of bullying and being bullied on these later outcomes. It was hypothesized that there are links between school bullying perpetration and young adult externalizing problems, and between school bullying victimization and internalizing problems in young adulthood and risk-based protective factors would predict less negative young adult outcomes for bullies and victims.

## Method

### Participants

The sample for this study comprised Victorian students from the International Youth Development Study (IYDS), a longitudinal study of antisocial and prosocial behaviors among adolescents in Victoria, Australia, and Washington State, USA. The Victorian sample consisted of 927 (481 female, 446 male) students who were first surveyed in 2002 when they were 10-11 years old. These students have been reassessed annually for 10 years,

including in 2008 when aged 16-17 years ( $M = 17.0$ ,  $SD = 0.4$ ). The most recent surveying of Victorian participants occurred in 2010 when the mean age of the sample was 19.0 years ( $SD = 0.4$ ). Of the original sample, 791 (85%) completed the survey at age 16-17 years (367 males, 424 females) and 809 (87%) completed the most recent survey at age 18-19 years (365 males, 444 females). The original sampling and recruitment for the IYDS has been described elsewhere (McMorris, Hemphill, Toumbourou, Catalano, & Patton, 2007). Briefly, the IYDS used a two-stage cluster sampling approach: (a) random selection of public and private schools stratified according to geographic location, using a probability proportionate to grade-level size sample procedure; and (b) one class at each grade level (Year 5, 7, and 9), within each school, was selected at random.

## Measures

The self-reported measures of bullying perpetration and victimization, young adult outcomes, and protective factors are contained within a modified version of the *Communities that Care* survey, used in the IYDS. The survey has acceptable psychometric properties in the U.S. (Arthur, Hawkins, Pollard, Catalano, & Baglioni, 2002; Glaser, Van Horn, Arthur, Hawkins, & Catalano, 2005; Pollard, Hawkins, & Arthur, 1999) and has been used in Victoria (Bond, Thomas, Toumbourou, Patton, & Catalano, 2000; Hemphill, Toumbourou, Herrenkohl, McMorris, & Catalano, 2006).

**Risk-Based Protective Factors at Age 16-17 Years**—Four student level risk-based protective factors were measured in this study. *Emotion control* comprised four items (e.g., “I am always able to keep my feelings under control”) rated on a four-point scale from *definitely no* to *definitely yes* (Cronbach's alpha = .77). *Belief in the moral order* was also assessed with four items (e.g., “It is important to be honest with your parents, even if they become upset or you get punished”) rated on the same scale as emotion control (Cronbach's alpha = .69). *Adaptive stress/coping* included four items (e.g., “When I have a problem...I think about the best ways to handle it”) rated on the same scale described above (Cronbach's alpha = .63). One item measured *being helped* (“How many times in the past year [12 months] have you: Been helped by another student at your school?”) rated on an eight-point scale from *never* to *40 or more times*.

Four family level risk-based protective factors were included in this study. *Attachment to parents* comprised four items (e.g., “Do you feel very close to your mother?”) rated on a four-point scale from *definitely no* to *definitely yes* (Cronbach's alpha = .77). *Opportunities for prosocial involvement in the family* had three items (e.g., “My parents ask me what I think before most family decisions affecting me are made”) rated on the same scale as attachment to parents (Cronbach's alpha = .79). *Strong family management* included nine items (e.g., “The rules in my family are clear”; Cronbach's alpha = .83) and *family concord* had three items (e.g., “People in my family have serious arguments”; Cronbach's alpha = .84; see explanation of coding below). Both scales were rated on a four-point scale from *definitely no* to *definitely yes*.

Two school level risk-based protective factors were included here. *Opportunities for prosocial involvement at school* had five items (e.g., Teachers ask me to work on special

classroom projects) rated on the same four-point scale described above (Cronbach's alpha = .63). *High academic performance* was comprised of two items (e.g., “Putting them all together, what were your grades/marks like last year?”) rated on four-point scales ranging from *very poor/definitely no* to *very good/definitely yes* (Cronbach's alpha = .74).

The community level factor of *organized neighborhood* comprised five items (e.g., “How much do each of the following statements describe your neighborhood: I feel safe in my neighborhood?”; Cronbach's alpha = .84) rated on a four-point scale from *definitely no* to *definitely yes*.

Scores on these scales were dichotomized to identify the most “protected group” (scored as 1). For protective factor scales, the point on the scale that distinguished the top quartile (75%) was used as the cutpoint to determine the most protective point. For risk-based protective factor scales (e.g., family concord), the point on the scale that distinguished the lower quartile (25<sup>th</sup> centile) was used as the cutpoint on the scale to determine the most protective group. The percentage of participants in the most protected category ranged from 25.9% for belief in the moral order to 49.5% for high academic performance (full details available from first author).

**Bullying Victimization and Perpetration at Age 16-17 Years—***Bullying victimization* was assessed by asking students if they had been “bullied recently (teased or called names, had rumors spread about you, been deliberately left out of things, threatened physically or actually hurt).” In a question that immediately followed the victimization item, *bullying perpetration* was measured by asking students if they had taken part in “bullying another student(s) at school recently.” Item responses for both items were *never, less than a few times a year, a few times a year, once or twice a month, once or twice a day, and everyday or most days*. For bullying victimization and perpetration, scores were dichotomized (0 = *never or less than a few times a year* and 1 = *a few times a year to everyday or most days*). It is possible that students both engaged in bullying and had been bullied; however, this combined group was not examined here.

**Young Adult Externalizing and Internalizing Outcomes—**The young adult outcomes measured in this study comprised externalizing (nonviolent and violent antisocial behavior) and internalizing (depressive symptoms, self-harm) outcomes. *Nonviolent antisocial behavior* was measured using six items such as: “Have you ever stolen or tried to steal a motor vehicle such as a car or motorcycle?” and “Have you ever stolen something worth more than \$50?” *Violent antisocial behavior* was measured using a three-item scale, with items including: “Have you ever beat up someone so badly they probably needed a doctor?” “Have you ever attacked someone with the idea of seriously hurting them?” and “Have you ever got into physical fights with other people?” Response options to items measuring nonviolent and violent antisocial behavior were *no; yes, but not in the past 12 months; yes, once in the past 12 months; and yes, more than once in the past 12 months*. For nonviolent and violent antisocial behavior, scores were dichotomized (0 = no involvement in the past 12 months, 1 = having engaged in violent/nonviolent behavior at least once in the past 12 months).



*Depressive symptoms* were measured using the Kessler Psychology Distress Scale (K-10; Kessler et al., 2002). Participants were asked to report how often ten statements were true for them during the past 30 days, including “About how often did you feel depressed” and “About how often did you feel hopeless.” Items were rated on a five-point scale: *none of the time, a little of the time, some of the time, most of the time, and all of the time*. Scores range from 10 to 50, with high levels of depressive symptoms represented by scores greater than 30 (Kessler et al., 2002). Cronbach's alpha in the current study was .92.

*Self-harm* was assessed during young adulthood using one item asking participants, “In the past year, have you ever deliberately hurt yourself or done anything that you knew might have harmed you or even killed you?” The response options were *yes* or *no*.

## Procedure

Ethics approval was obtained from The University of Melbourne Human Ethics in Research Committee and then relevant educational authorities. At age 16-17 years, permission to administer the survey was obtained from each school principal. The age 16-17 year survey was group administered within the students' classrooms, and required approximately 50-60 minutes to complete. Students no longer attending school during the follow-up surveys, or who were absent on the day of the survey, were surveyed individually by trained personnel. Both parental written informed consent and student assent was obtained for each participant. For the young adult survey, the participants completed surveys individually, online. Participants provided informed consent before completing the online survey. As an alternative to the online survey, participants could request a telephone interview or a hard copy survey to be returned by post. After each survey, participants received a gift voucher.

## Analyses

Data analysis was performed with the Stata/IC 11.0 for Windows program (StataCorp, 2009) for all participants with complete data on all variables analyzed in each analysis. All logistic regression analyses controlled for age, gender and the clustering of students in schools (i.e., measures of association used robust “information-sandwich” estimates of standard errors, with adjustment for student clustering within schools). First, logistic regression analyses were performed on the entire sample to examine the associations between bullying perpetration at age 16-17 years and young adult nonviolent and violent antisocial behavior, as well as bullying victimization at age 16-17 years and subsequent depressive symptoms and self-harm in young adulthood. For bullies, logistic regression analyses examined associations between each age 16-17 years protective factor and nonviolent and violent antisocial behavior in young adulthood. For victims, logistic regression analyses examined links between the age 16-17 year protective factors and young adult depressive symptoms and self-harm. In the final step, interactive protective factors for young adult outcomes were investigated. For the statistically significant age 16-17 years protective factors for each young adult outcome, interaction effects were tested by multiplying bullying status (i.e., bully/victim) and the relevant protective factor and including this new variable in the logistic regression analyses.

## Results

### Rates of Bullying Perpetration and Victimization

At age 16-17 years, there were 89 bullies (12%) and 150 victims of bullying (19%). Bullies at age 16-17 years compared to nonbullies had over four times the odds of engaging in nonviolent antisocial behavior and two times the odds of violent antisocial behavior in young adulthood (see Table 1). Being a victim of bullying at age 16-17 years was associated with over a threefold increase in the odds of experiencing depressive symptoms (see Table 1). There were no associations between being a victim of bullying and self-harm in young adulthood ( $p = .09$ ), hence analyses in subsequent sections of this article do not include self-harm.

### Risk-Based Protective Factors for Externalizing Problems

Results of the logistic regression analyses demonstrated that being given opportunities for prosocial involvement in the family at 16-17 years of age protected bullies from engaging in young adult nonviolent antisocial behavior (see Table 2). For example, 13% of bullies who had opportunities for prosocial involvement in their families reported nonviolent antisocial behavior in young adulthood, compared to 48% who did not have opportunities for prosocial family involvement at age 16-17 years. None of the modifiable protective factors predicted violent antisocial behavior; the strongest protective factor was being female (results not shown but are available from the first author).

### Risk-Based Protective Factors for Depressive Symptoms

The results of the logistic regression analyses in Table 3 showed that, for victims of bullying, adaptive stress/coping mechanisms at age 16-17 years were associated with lower odds of being depressed in young adulthood (i.e., victims who reported coping mechanisms self-reported lower rates of depressive symptoms [3%] relative to victims without coping mechanisms [23%]). Furthermore, high academic performance protected against depressive symptoms in young adulthood. For example, victims who performed well academically reported lower rates of later depression (7%) compared to rates for those who did not perform well academically (23%).

### Interactive Protective Factors of Young Adult Outcomes

Tests of interactive protective effects for the young adult outcomes of nonviolent antisocial behavior, violent antisocial behavior, and depressive symptoms did not reveal any statistically significant results.

## Discussion

This longitudinal study of bullying perpetration and victimization in Victorian students is unique for its comprehensive measurement of risk-based and interactive protective factors and psychosocial outcomes. Bullying perpetration at age 16-17 years was associated with both nonviolent and violent antisocial behavior in young adulthood, with up to 41% of bullies engaging in these behaviors compared with less than 13% of nonbullies. Being bullied at age 16-17 years was linked to young adult depressive symptoms (17% of victims)

compared with nonvictims (around 6%). Different risk-based protective factors were identified for each young adult outcome. Opportunities for prosocial involvement in the family were a risk-based protective factor against nonviolent antisocial behavior for bullies. The main predictor for bullies of violent antisocial behavior was being female. For victims, adaptive stress/coping mechanisms and high academic performance were risk-based protective factors for depressive symptoms. No interactive protective effects were found in the current study.

The results of this study are consistent with previous research that has shown both bullying perpetration and victimization are linked with deleterious outcomes (Gibb et al., 2011; Hemphill et al., 2011; Olweus, 2011; Renda et al., 2011). In particular, bullying others in late adolescence was linked to the young adult nonviolent antisocial behavior and violent antisocial behavior, and being bullied was associated with depressive symptoms. These findings demonstrate the long-term impact bullying perpetration and victimization can have on emotional and behavioral outcomes, and underline the need for effective prevention and early intervention programs.

Consistent with previous research on externalizing problems, family risk-based protective factors were related to young adult externalizing outcomes. For nonviolent antisocial behavior, having opportunities within the family to participate in prosocial activities was a risk-based protective factor. This finding is consistent with theories (Catalano & Hawkins, 1996), which state that providing young people with opportunities to engage in positive activities will reduce participation in problem behavior.

High academic performance was a risk-based protective factor for young adult depressive symptoms for victims. To date, research demonstrating links between academic performance and bullying perpetration and victimization or externalizing and internalizing outcomes has been mixed (Swearer et al., 2010), although generally in the direction of finding lower academic performance is associated with negative outcomes (Beran et al., 2008; Frojd et al., 2008; Hemphill et al., 2012; Jaycox et al., 2009; Spriggs et al., 2007). Experiencing success at school is recognized as being an important influence on later outcomes including employment, income earning capacity, and less reliance on welfare (Education Foundation Australia, 2007) and hence, related to lower depressive symptoms (Paul & Moser, 2009). The findings of this study confirm the need to assist students to achieve academically by creating safe school environments that foster learning and by providing extra support for students who may need it.

Not surprisingly, a young person's own coping skills was a risk-based protective factor for depressive symptoms among victims. Other researchers (e.g., Baldry & Farrington, 2005) have also reported this finding. This result supports efforts to teach coping strategies to young people who are victims of bullying and may be vulnerable to depressive symptoms. In and of itself, such an approach may not be sufficient to improve outcomes; however, it is an important inclusion as part of a prevention package that also targets family and school factors.

There were no modifiable risk-based protective factors identified in this study for young adult violent antisocial behavior engaged in by bullies; the strongest predictor of young adult violent antisocial behavior was being female (results available from first author). Contrary to expectation, no interactive protective effects were identified in this study. This is likely due to insufficient power to detect effects in the statistical analyses given that the number of cases in the subgroups was relatively low, despite a relatively large total sample.

### **Strengths and Limitations of this Study**

This study has a number of strengths. It draws on a rich data set collected as part of an ongoing longitudinal study of young people's development. It therefore provides a rare opportunity to examine the young adult outcomes of adolescent bullying perpetration and victimization and risk-based and interactive protective factors that impact on these outcomes, using a state-representative sample.

A limitation of this study is that a generic item was used to measure bullying perpetration and victimization and the cutpoint was set at “a few times a year,” which defines repeated behavior consistent with the definition of bullying but is less stringent than some researchers' definitions (Solberg & Olweus, 2003). It is important that studies like this one are replicated using more sophisticated measures of, and criteria for, bullying perpetration and victimization. A further limitation of this study is that risk-based protective factors were sometimes created by recoding risk factors. Such an approach may lose information if one considers risk-based protective factors to be qualitatively different to risk factors. Also, the cutpoints for dichotomizing protective factors (25% quartile) sometimes resulted in small numbers of participants in particular categories (e.g., no bullies were in the protective category for belief in the moral order and had engaged in violent antisocial behavior). Interpretation of the results, therefore, needs to be considered in light of these low numbers. It is also recognized in the research literature that there is a group of students who are both bullies and victims (6% of age 16-17 year students in the current sample); however, this group was not studied here.

### **Implications for Practice and Conclusion**

This longitudinal study has followed young people from adolescence into young adulthood to examine the impact of bullying perpetration and victimization on externalizing and internalizing outcomes, as well as the risk-based and interactive protective factors that ameliorate the effects of bullying in these outcomes. The risk-based protective factors identified were high academic performance, coping skills, and opportunities for prosocial involvement in the family. No interactive protective factors were identified in this study. The implications of these findings are that it is important that prevention and early intervention programs target multiple areas of a young person's life—particularly their own skills and the family environment to improve outcomes. Continued focus on the role of risk-based and interactive protective factors is needed to inform new ways of reducing externalizing and internalizing outcomes in young people.

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**Table 1**  
**Bullying and Young Adult Outcomes**

Bullies versus nonviolent antisocial behavior (AB)				
	Nonviolent AB none	Nonviolent AB any	Nonviolent AB %	Partially adjusted <sup>a</sup> OR (95%) nonviolent AB
Not a bully	<i>n</i> = 510	<i>n</i> = 73	12.2	4.06 (2.43–6.80)
Bully	<i>n</i> = 48	<i>n</i> = 33	40.7	<i>p</i> < .001
Bullies versus violent antisocial behavior (AB)				
	Violent AB none	Violent AB any	Violent AB %	Partially adjusted <sup>a</sup> OR (95%) violent AB
Not a bully	<i>n</i> = 515	<i>n</i> = 68	11.7	2.02 (1.16–3.52),
Bully	<i>n</i> = 60	<i>n</i> = 21	25.9	<i>p</i> = .01
Victims versus depressive symptoms				
	Depressive not high risk	Depressive high risk	Depressive %	Partially adjusted <sup>a</sup> OR (95%) depressive
Not a victim	<i>n</i> = 549	<i>n</i> = 36	6.2	3.31 (1.96–5.58)
Victim	<i>n</i> = 115	<i>n</i> = 24	17.3	<i>p</i> < .001
Victims versus self-harm				
	Self-harm none	Self-harm any	Self-harm %	Partially adjusted <sup>a</sup> OR (95%) self-harm
Not a victim	<i>n</i> = 545	<i>n</i> = 39	6.7	1.82 (0.91–3.65)
Victim	<i>n</i> = 123	<i>n</i> = 16	11.5	<i>p</i> = .09

<sup>a</sup>Model controlled for age, sex and clustering of students in the schools at age 16-17 years.

**Table 2**  
**Protective Effects Against Young Adult Nonviolent Antisocial Behavior (NVAB) and Violent Antisocial Behavior (VAB) for Bullies Only**

Age 16-17 Variable	Nonviolent antisocial behavior (NVAB)				Violent antisocial behavior (VAB)			
	Partially adjusted <sup>a</sup>		Partially adjusted <sup>a</sup>		Partially adjusted <sup>a</sup>		Partially adjusted <sup>a</sup>	
	% NVAB in protective category	% NVAB in nonprotective category	OR	95% CI	% VAB in protective category	% VAB in nonprotective category	OR	95% CI
Individual								
Emotion control	44.4	37.7	1.45	0.50, 4.16	25.9	24.5	1.15	0.36, 3.72
Belief in the moral order	20.0	41.3	0.43	0.11, 1.77	0.0	26.7	1.00 <sup>b</sup>	—
Adaptive stress/coping	33.3	44.0	0.58	0.23, 1.47	20.0	28.0	0.57	0.19, 1.74
Being helped	38.9	42.2	0.71	0.27, 1.86	36.1	17.8	2.18	0.77, 6.16
Family								
Attachment to parents	35.7	43.1	0.69	0.18, 2.72	21.4	27.7	0.69	0.15, 3.11
Strong family management	21.4	44.8	0.33	0.10, 1.12	7.1	29.9	0.18	0.02, 1.61
Family concord	46.2	40.3	1.09	0.30, 3.98	30.8	25.4	1.08	0.30, 3.94
Opportunities for prosocial involvement in the family	12.5	47.7	0.15*	0.03, 0.71	18.8	27.7	0.66	0.16, 2.68
School								
High academic performance	30.0	47.1	0.50	0.17, 1.46	16.7	31.4	0.44	0.14, 1.40
Opportunities for prosocial involvement at school	33.3	42.0	0.70	0.21, 2.35	25.0	26.1	0.91	0.18, 4.65
Community								
Organized neighborhood	25.0	44.1	0.49	0.11, 2.16	8.3	29.4	0.29	0.03, 2.56

Note. In the logistic regression models, the number of participants ranged 74 to 80.

<sup>a</sup>Model controlled for age, sex and clustering of students in the schools at age 16-17 years.

<sup>b</sup>Logistic regression could not run due to 0 cases in violent behavior and protective category.

\*  $p = .02$ .

**Table 3**  
**Protective Effects Against Young Adult Depression for Victims Only**

Age 16-17 Variable	Depression		Partially adjusted <sup>a</sup>	
	% Depressed in protective category	% Depressed in nonprotective category	OR	95% CI
<i>Individual</i>				
Emotion control	13.6	20.0	0.69	0.29, 1.66
Belief in the moral order	18.2	17.1	0.94	0.31, 2.84
Adaptive stress/coping	2.7	22.6	0.11*	0.01, 0.92
Being helped	8.5	23.2	0.38	0.12, 1.19
<i>Family</i>				
Attachment to parents	13.8	17.8	0.74	0.21, 2.63
Strong family management	16.7	17.4	0.84	0.32, 2.25
Family concord	22.6	15.7	1.40	0.54, 3.60
Opportunities for prosocial involvement in the family	23.5	15.2	1.64	0.68, 3.97
<i>School</i>				
High academic performance	6.9	23.1	0.23*	0.07, 0.70
Opportunities for prosocial involvement at school	7.7	17.5	0.37	0.08, 1.81
<i>Community</i>				
Organised neighborhood	13.33	18.35	0.74	0.22, 2.43

Note. In the logistic regression models, the number of participants ranged from 122 to 138.

<sup>a</sup>Model controlled for age, sex and clustering of students in the schools at age 16-17 years.

\* Exact *p* for adaptive stress/coping = .04 and for high academic performance = .01.