A meta-analysis of predictors of bullying and victimisation in adolescence

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Abstract

Bullying is common and harms all involved, yet there is no clarity regarding factors that influence bullying and victimisation for adolescent samples. This meta-analysis aims to synthesise the literature and identify reliable risk and protective factors to adolescent bullying and victimisation. A systematic search of the literature using databases; PsycINFO and Scopus, was undertaken to identify relevant publications from 1985 until July 2014. Inclusion criteria included longitudinal data, an adolescent sample and a focus on predictive factors of bullying or victimisation. From 4698 articles identified, 18 were included. Four predictors of victimisation (prior victimisation, conduct problems, social problems and internalising problems) and four predictors of bullying (conduct problems, social problems, school problems and age) were identified. The literature provides little consistency in predictors assessed and replication is needed for clarification, however, social problems and conduct problems are consistent risk factors and a potential focus for future interventions.

Bullying has been defined as repeated exposure to negative actions by another or others over time (Olweus, 1993). As well as the action being repetitive and harmful, there must be a power imbalance between the bully and their victim (Griffin & Gross, 2004). This definition encompasses physical forms of bullying as well as relational bullying such as name-calling or social exclusion. For the purposes of this paper, "bullies" or "bullying" shall be used to refer to the perpetration of these negative acts, and "victims" or "victimisation" shall be used to refer to those who are the target of these acts.

There are a number of negative outcomes of being a victim of bullying as well as being a bully. Victimisation is associated with psychological maladjustment (Juvonen, Nishina, & Graham, 2000; Nansel, et al., 2001) including the onset of anxiety and depression (Bond, Carlin, Thomas, Rubin, & Patton, 2001), loneliness and decreasing levels of social satisfaction (Kochenderfer-Ladd & Wardrop, 2001), as well as increased behavioural, adjustment and emotional problems (Lopez & DuBois, 2005). Bullying is also associated with psychological problems (Kumpulainen, Rasanen, & Puura, 1998; Nishina, Juvonen, & Witkow, 2005), such as a higher prevalence of suicidal ideation and depression (Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, & Rantanen, 1999), long-term social problems, as bullies can often lack the skills to effectively relate to other students (Laursen, Finkelstein, & Betts, 2001), and higher rates of violent offending and arrest/conviction for crimes in adulthood (Fergusson, Boden & Horwood, 2014). Given the negative outcomes of both bullying and victimisation, it is important to determine the factors that lead to these phenomena, which could potentially be the focus of intervention.

Despite this need, and an abundance of research on the outcomes of bullying and victimisation, the body of literature that focuses on the predictors of these phenomena is

not extensive. That which does exist tends to focus on risk, rather than protective factors. However, protective factors are arguably as important as risk factors as these can be targeted and amplified so that bullying and victimisation need not develop. Research also tends to focus on childhood predictors of bullying and victimisation, rather than those across different stages of development; this may be a problem as adolescent predictors of bullying and victimisation may differ from those in childhood. Numerous cross-sectional studies exist but less longitudinal research is available. Although cross-sectional studies may indicate that a relationship exists between two variables, they do not allow for the differentiation between cause and effect (Mann, 2003). However, risk and protective factors may be identified through longitudinal research (Mann, 2003).

The meta-analysis of Cook, Williams, Guerra, Kim and Sadek (2010) focused on predictors of bullying and victimisation. However, most of the data included were cross sectional, and children and adolescents were considered as a collective group. Individual-level correlates of bullying were found to be externalising behaviour and other-related cognitions, whereas contextual correlates of bullying included peer influence and community factors (Cook et al., 2010). Factors related to victimisation included peer status and social competence (Cook et al., 2010). The findings of this study may not completely align with longitudinal research, as a small effect for the relationship between victimisation and internalising problems was found. In contrast, the meta-analysis of longitudinal studies concerning victimisation and internalising problems reported by Reijntjes, Kamphuis, Prinzie and Telch (2010) concluded that internalising problems were both a risk factor for, and an outcome of, victimisation.

The Cook et al. (2010) analysis found a small effect for the contribution of the home environment to both bullying and victimisation. However, other individual studies indicate a more robust relationship between parenting style, family environment and the onset of bullying and victimisation in children, with numerous studies showing that both bullies and victims are more likely to come from abusive, harsh or unsupportive home environments (Barker, et al., 2008; Nation, Vieno, Perkins, & Santinello, 2008; Schwartz, Dodge, Pettit, Bates, & The Conduct Problems Prevention Research Group, 2000).

Cook et al. (2010) did not focus on the predictive power of bullying and victimisation. Although they looked at externalising behaviour as a predictor of bullying and victimisation, it is not clear whether this measure included bullying. There is a growing body of literature that suggests that bullying is stable across time (Espelage, Bosworth & Simon, 2001; Salmivalli, Lappalainen & Lagerspetz 1998; Strohmeier, Wagner, Spiel & von Eye, 2010), meaning bullying at time one predicts bullying at a later time point. Research also tends to show that victimisation is stable across time (Juvonen et al., 2000; Salmivalli et al., 1998; Strohmeier et al., 2010). Although these findings require replication, they indicate that bullying and victimisation are important variables to consider as predictors of later bullying and victimisation.

As mentioned above, most research pertaining to predictors of bullying and victimisation focuses on childhood predictors. However, the outcomes of bullying and victimisation may be more harmful in adolescence than in childhood. For example, adolescent victims and perpetrators of bullying are at a greater risk of suicidal ideation, and adolescent victims of bullying also have increased odds of attempting suicide (Kim & Leventhal, 2008). Although this is a very real threat for adolescents, suicide in children is

comparatively rare (Simon-Davies, 2011). Adolescent bullies and victims of bullying have received less attention in the research than their childhood counterparts, and for this reason, this review will focus on this developmental stage.

The main aims of this analysis are 1) to focus on longitudinal research; 2) to determine both risk and protective factors for bullying and victimisation; and 3) to focus on adolescence. All risk and protective factors identified through the search will be considered, and not limited to factors previously explored in other meta-analytic reviews.

Method

Data sources

The search strategy aimed to identify all research that focused on risk or protective factors for bullying or victimisation during adolescence. Studies were located using two databases: PsychINFO and Scopus. Articles were required to be peer reviewed, longitudinal, written in English and published since 1985. The search descriptors used were: included: *bully, victim, longitudinal, prospective* and *adolescent.* These search terms were combined using AND in 12 different ways, for example, 'bully AND victim AND longitudinal', or 'bully AND prospective', and all the results of these searches were included in articles to be reviewed for inclusion.

Selection criteria

Studies were selected on the following inclusion criteria: (a) participants had a mean age between 11 and 18 years during the study period; (b) the study had a longitudinal or prospective design; (c) the total study period spanned at least six months; and (d) the study included analysis of predictive factors for bullying or victimisation.

Study selection

Figure 1 depicts a detailed representation of the selection strategy. The databases were searched in July 2014 returning a total of 4698 articles. Of these, 1806 were duplicates and were excluded. Initially, titles and abstracts were reviewed by one reviewer (M.K.) to assess the suitability of the remaining 2892 articles. There were 2331 articles excluded on the basis of their title where it was clear that the topic was not bullying in adolescence (e.g., victimisation from crime, work place bullying, or an adult sample). Another 482 articles were excluded following screening their abstract, mostly because they related to victimisation from violence but not bullying. At this stage validity checks were conducted on a random sample of the abstracts (M.K. and C.H.). The remaining 67 articles were then independently full-text reviewed by two reviewers (M.K. and C.H.) to assess the validity of the options selected and reduce bias in the exclusion process. A total of 21 articles were included in the review. Articles were excluded because they did not include a sample within the 11-18 years age range (n=14), they did not focus on risk or protective factors but focused on outcomes (n=12), they were not longitudinal (n=6), they focused only on cyber bullying or cyber victimisation (n=4), they had a study period shorter than 6 months (n=1) or they were a review study (n=1). Studies that reported an intervention trial (n=3), that may have had an impact on levels of bullying or victimisation were also excluded as were articles that focused solely on violence or aggression (n=5), although if the article referred to bullying as aggression but included measures of bullying, these articles were included in the final set. The two reviewers fully agreed upon the final articles included.

Meta analysis

A meta-analysis was conducted to assess the main predictors of bullying and victimisation identified in the included studies. At this stage two further articles were excluded due to there either being an insufficient amount of data available for the meta-analysis (~~Larsen et al., 2012;~~ Salmivalli, Sainio & Hodges, 2013) or the effect sizes were unable to be converted to a correlational effect size (Bond et al., 2001) and the authors did not respond to e-mail requests to provide the relevant data. For the remaining 19 studies, a meta-analysis was performed using the Comprehensive Meta-analysis (CMA) program (Version 3).

Each study reported between 2 and 6 measurement time points. However, only one included more than 4 time points (Baly, Cornell & Lovegrove, 2014) and therefore 1 to 4 time points were included in the meta-analysis, allowing the stability of bullying and victimisation to be assessed. Although all studies spanned the adolescent period of development, the age of participants at the first time point varied across studies, and the length of time between the follow up time points also varied. Given this variability, the use of only the first and last time points would not have necessarily led to consistency across studies.

Several decisions were made regarding the inclusion of variables given the wide range of variables assessed across the studies. Variables were only included in the meta-analysis if two or more studies had assessed the variable of interest. Risk factors of bullying that were excluded due to only being assessed in a single study include: callous unemotional traits, narcissism and impulsivity (Fanti & Kimonis, 2013), race, cyber bullying, parental monitoring and empathy (Low & Espelage, 2013), academic failure

(Hemphill et al., 2012), autonomy support from teachers and attending a band 2 or 3 school (Lam, Law, Chan, Wong & Zhang, 2014), social problems and thought problems (Kim, Leventhal, Koh, Hubbard & Boyce, 2006), birth order, place of residence, physical appearance and SES (Kim, Boyce, Koh & Leventhal, 2009). Protective factors of bullying that were excluded due to only being assessed in a single study included: friend support (Kendrick, Jutengren & Stattin, 2012), competence support from teachers and relatedness to teachers at school (Lam et al., 2014).

Risk factors of victimisation that were excluded include: impulsivity, bullying (Fanti & Kimonis, 2013), birth order, physical appearance, SES, place of residence (Kim et al., 2009), competence support from teachers and attending a band-3 school (Lam et al., 2014), as well as the interaction between depression and rumination (Shapero, Hamilton, Liu, Abramson & Alloy, 2013). Protective factors of victimisation that were excluded include: puberty (Fanti & Kimonis, 2013), height (Kim et al., 2009), relatedness to teachers at school, autonomy support from teachers, attending a band-2 school (Lam et al., 2014) and proactive aggression (Salmivalli & Helteenvuori, 2007). Self-esteem (Salmivalli & Isaacs, 2005), appearance satisfaction (Faris & Felmlee, 2014) and social self-concept (Bellmore & Cillessen, 2006) were also deleted as they were not similar enough to compare. Being a trouble maker (Marsh, Parada, Yeung & Healey, 2001) and parental psychological control were both found to be risk factors and protective factors to later victimisation but these variables were deleted as they were only explored in one study.

Following deletion of variables, remaining variables within the same study that were conceptually comparable were combined using a Fisher-Z-Transformation. Two

measures used by Salmivalli and Helteenvuori (2007), proactive aggression and reactive aggression, were combined into a single measure of aggression. Measures of physical victimisation and relational victimisation used by Ma and Bellmore (2012) were combined in to a single measure of victimisation, as were two comparable measures of internalising problems. Having friends that are victims and being socially isolated (Faris & Felmlee, 2014) were combined into the variable 'social problems'. Mother and father education were combined into the variable 'parental education' (Kim et al., 2009; Low & Espelage, 2013). Rumination, anxiety and depression were combined to one measure of internalising problems (Shapero et al., 2013). Family conflict and poor family management were combined to a single measure 'family problems', while academic failure, school suspension and low commitment to school were combined to a single measure 'school problems' (Hemphill et al., 2012). Two similar measures, band-3 school and band-2 school, were also combined to a single measure of 'school problems' (Lam et al., 2013). Lastly, because Salmivalli and Helteenvuori (2007) and Kim et al. (2009) were the only studies that considered males and females separately, the male and female variables were combined using Fisher-Z-Transformations.

Individual effect sizes (correlations or odds ratios) were input into CMA and mean weighted effect sizes (and 95% confidence intervals; *CI*) were calculated for all predictor variables where data was available in two or more of the studies. Predictors that yielded a non-significant result were included. A random effects model was used because the study effect sizes were not assumed to be drawn from a sample with a single true population effect size.

Cohen's (1988) guidelines were used to interpret the strength of effect sizes for the meta-analysis. The following conservative effect size interpretations were adopted as a result: $r = .10$ (small), .24 (medium) and .37 (large).

Statistical analyses

Heterogeneity analyses were undertaken, and we report T (or tau, the estimated standard deviation of true effect sizes), Q (a test for homogeneity of effect sizes across studies), and I^2 (a measure of the magnitude of heterogeneity, or the percentage of the observed variance that is real rather than spurious). Subgroup analyses were undertaken to assess whether potential moderator variables (bullying/victimisation assessment type, study location) could account for significant variability among effect sizes. These analyses used mixed-effects models, consisting of a random effects model within subgroups, and a fixed effects model across subgroup, with both models calculated using the method of moments (Borenstein, 2009). Simple meta-regressions were used to assess three continuous moderators: age of participants, length (in months) of follow-up, and the quality assessment rating of each study.

The final set of 18 articles was subjected to a quality assessment. The method used was based on that of Ferro and Speechley (2009) and used a revised version of the Downs and Black (1998) methodological quality checklist that did not include questions that were only relevant to intervention studies. The Downs and Black (1998) checklist is considered to be a valid and reliable measure (Sanderson, Tatt & Higgins, 2007; Olivo et al., 2008). See Table 2 for the quality ratings. ~~The full list of the criteria used can be seen in Appendix A.~~ One item was excluded from Ferro and Speechley's (2009) revised list because it was thought to be irrelevant in the context of longitudinal bullying and

victimisation research; this was "*were the staff, places and facilities where the patients were studied, representative of the treatment the majority of patients received?*". Each item on the revised checklist was scored either a 1 (yes) or a 0 (no, or unable to determine from available information). The maximum score achievable was 14. The items covered standard of reporting (7 items), external validity (2 items), internal validity (4 items), and study power (1 item), with higher scores indicating articles with higher methodological quality. A score of 1 was only granted for the power rating if the study explicitly mentioned how they considered power.

Publication bias analyses were also conducted using Rosenthal's fail-safe N (1979), to address a potential "file drawer" problem in which only positive results are published. Fail-safe N analyses estimate the number of studies that would need to be conducted and not published in order for the reported positive results to be deemed null.

Results

Description of studies

A summary of the characteristics of the included studies can be found in Table 1. Twelve studies focussed solely on predictors of victimisation, two focused solely on the predictors of bullying and five assessed the predictors of both bullying and victimisation. No studies focused solely on protective factors and approximately half the studies focused solely on risk factors. The other half of the studies focused on both risk and protective factors or factors that could be either protective or detrimental, such as social status.

All of the included studies were published within the last 14 years, with the most recent published in 2014 (Baly et al., 2014; Lam et al., 2014). Eight of the studies were conducted in the United States of America. Two were conducted in Finland, two in Korea, and one each in Australia, Sweden, China, Greece, the Netherlands, Scotland and the United Kingdom.

Inclusion criteria for variables in meta-analysis

Predictors of victimisation

Sixteen studies assessed potential predictors of victimisation. Four significant predictors of victimisation were identified in two or more of the reviewed studies, including prior victimisation itself (see Table 3). None of these predictors could be considered protective. All studies that explored the stability of victimisation found that victimisation at one time point was predictive of victimisation at the following time point, with large effect sizes ranging from Cohen's $d = 0.444$ to 0.573. The effects found for conduct problems, internalising problems and social problems as predictors of victimisation were small, ranging from Cohen's $d = 0.087$ to 0.101. In these three instances, greater problems were associated with greater victimisation.

There was a large amount of variability between the effect sizes related to social problems and prior victimisation (Table 3), and for each of these relationships, I^2 indicated that a high proportion of this variability reflected real differences.

The fail-safe N for the overall effect for predictors of victimisation indicated that 1608 missing studies would be needed to reverse the findings to be nonsignificant.

Predictors of bullying

Seven studies explored potential predictors of bullying. Four predictors of bullying were identified in two or more of the reviewed studies (see Table 4). Social problems was found to predict bullying with a medium effect size (Cohen's $d = 0.206$) with greater social problems predictive of greater bullying. Age, conduct problems and school problems showed small effect sizes in their prediction of bullying. Greater conduct and school problems and younger age were associated with greater bullying. The fail-safe N for the overall effect for predictors of bullying indicated that 21 missing studies would be needed to reverse the findings to be nonsignificant.

Moderator analyses

Assessment type

Eleven of the studies used self-report to measure bullying and victimisation and eight of the studies used peer report methods. Assessment type was not a significant moderator of the association between victimisation at one time point and victimisation at a later time point (V1 and V2 $Q = 0.88$, $p = .346$; V2 and V3 $Q = 0.44$, $p = .509$). In respect to the relationship between social problems and later victimisation, assessment type (peer report vs. self-report) was a significant moderator ($Q = 15.21$, $t = 3.28$, $p < .001$) with self-report associated with smaller effects than peer report between the two variables.

Location of study

Eight of the studies were conducted in the USA, with the remaining conducted elsewhere. The location of the study (USA versus Other) was not a significant moderator of the association between victimisation at one time point and victimisation at a later time

point (V1 and V2 $Q = 2.60$, $p = .107$; V2 and V3 $Q = 0.46$, $p = .500$), nor for the association between social problems and later victimization ($Q = 0.59$, $p = .442$).

Length of follow up

The range of follow-up durations between assessments of victimisation at times 1 and 2, and assessments of victimisation at times 2 and 3 was 4 to 16 months. Length of follow was a significant moderator in the relationship between social problems and later victimisation (*slope* = -.027, p = .002), with the negative slope statistic indicating that a longer follow up was associated with a smaller effect between social problems and later victimisation. Length of follow up was not a significant moderator of the relationship between prospective assessments of victimisation (V1 and V2 *slope* = -.012, $p = .430$; V2 and V3 *slope* = .024, $p = .386$).

Age

The mean age of participants was not associated with any effect size associations between social problems and later victimisation (*slope* = .004, $p = .941$) or prospective assessments of victimisation (V1 and V2 *slope* = -0.031, $p = 0.488$; V2 and V3 *slope* = .112, $p = .099$).

Quality Assessment

The mean score across all studies on the revised Quality Index was 8.6 (SD=1.8) out of a possible score of 14. The scores ranged between 5 and 12. Table 2 depicts the quality rating for each of the included studies. Moderator analyses found that the study quality rating score could not account for the heterogeneity found in the effect size associations between social problems and later victimisation (*slope* = -.033, $p = .723$) or

prospective assessments of victimisation (V1 and V2 *slope* = 0.009, *p* = 0.807; V2 and V3 *slope* = .048, *p* = .542).

In terms of the specific quality areas, the standard of reporting was a mean score of 5.47 out of a possible score of 7, external validity was 0.26 out of a possible score of 2, internal validity was 2.84 out of a possible score of 4. Specifically in terms of the outcome measures, the majority of studies included multiple questions asking about different kinds of bullying and victimisation. However, two of the studies had a single item measuring bullying or victimisation. Both of these studies provided a definition of bullying; one asked responders whether they had engaged in this behaviour (Hemphill et al., 2012) and the other asked whether they been subject to this behaviour (Larsen et al., 2012). Only one study (Marsh et al., 2001) provided information regarding a power calculation, however, many studies had large sample sizes, so power is unlikely to be a major quality concern for the papers included in the analysis.

Discussion

The aim of this meta-analysis was to critically examine existing evidence regarding the predictive factors of adolescent bullying and victimisation. The inclusion criteria for this review included the use of an adolescent sample, a focus on risk or protective factors of bullying or victimisation, and a longitudinal study design. Studies focusing on a specific group or samples that were part of an intervention study were not included as they were thought not to be representative of the general adolescent population. Eighteen articles met inclusion criteria and reported sufficient data to be included in the meta-analysis.

Summary of findings

The majority of findings pertain to risk rather than protective factors, and the majority focussed on victimisation rather than bullying. Many predictors of bullying and victimisation were assessed only within a single study, and therefore were not included in the meta-analysis.

The risk factors identified in the meta-analysis to significantly predict victimisation were conduct problems, social problems, prior victimisation and internalising problems. No protective factors to victimisation were identified. Conduct problems, social problems and school problems were also identified as risks to bullying and older age was protective of bullying. The current meta-analysis identified relatively fewer predictors than that reported by Cook et al. (2010), however, this may be because Cook's analysis included cross sectional studies as well as studies with child samples, rather than focusing solely on longitudinal studies and adolescents. Furthermore, age was treated as a categorical variable by Cook et al. (2010), differentiating children from adolescents, and although it was found to be a significant predictor of bullying and victimisation, the results are not comparable to the present analyses which assessed the influence of age within the period of adolescence. However, in line with the present findings, Cook et al (2010) identified externalising, social factors, and school factors as predictors of bullying and internalising, externalising, and social factors as predictors of victimisation.

In the present study, conduct problems were identified as a risk for both bullying and victimisation with a small effect observed for both. A number of previous cross sectional studies indicate this link between bullying and conduct problems (Juvonen,

Graham & Schuster, 2003; Kumpulainen et al., 2001; Viding, Simmonds, Petrides & Frederickson, 2009; Wolke et al., 2000); however, the link between victimisation and conduct problems has received less attention. In one of the few studies to consider this link, Schwartz, Mcfayden-Ketchum, Dodge, Pettit and Bates (1999) found that early behaviour problems were a risk for later victimisation in children. Both studies examining the link between adolescent conduct problems and victimisation included in this review (Kendrick et al., 2012; Marsh et al., 2001) did not stipulate that to be classified as a victim; one must not also be a bully. As such, the victims in these studies are likely to have been bully/victims, a group that has been linked with conduct problems in previous research (Juvonen et al., 2003; Kumpulainen et al., 2001; Wolke et al., 2000). However, it is also conceivable that many researchers do not conceptualise victims as having conduct problems and so have failed to examine this link in the past. Further research is needed to confirm a true link between conduct problems and victimisation, particularly in adolescence.

Social problems were also identified as a risk to both bullying and victimisation with a small effect for victimisation and a medium effect for bullying. The Cook et al. (2010) meta-analysis also found social factors to be related to both bullying and victimisation, although the social factors identified mainly were protective, such as social problem solving and social competence. In the current study, risk factors for bullying included social problems identified using a scale from the Korean YSR (K-YSR) which included statements regarding socially immaturity (Kim et al., 2006) and interaction with antisocial friends (Hemphill et al., 2012). Risk factors for victimisation included K-YSR social problems, as well as peer rejection and friendlessness (Salmivalli & Isaacs, 2005),

social isolation (Faris & Felmlee, 2014) conflict and betrayal with friends (Boulton, Trueman, Chau, Whitehand & Amatya, 1999) and metaperceptions of social preference (Bellmore & Cillessen, 2006). Collectively, these individual measures suggest that bullying may be related to social immaturity and antisocial associations while victimisation may be related to social isolation. However, further research would be needed to confirm these observed patterns.

In respect to victimisation, the relationship with social problems was moderated by both assessment type (peer report vs. self-report) and length of follow up. A longer lag between measurement occasions indicated a weaker relationship between social problems and later victimisation and the use of self-report measures was also associated with a weaker relationship relative to peer report. Self- report measures may well be less reliable in adolescence, especially when individuals are identifying social problems and victimisation which, due to their social nature, may be better recognised by peers. Previous research confirms that victimisation is more strongly associated with social factors when peer report measures are used as opposed to self-report (Bouman et al., 2012).There is on-going debate regarding the benefits and pitfalls of self-versus peer report measures (Stassen Berger, 2007) and this finding lends support to the notion that peer report may be more effective than self-report in measuring social problems and victimisation experiences, particularly in adolescence.

Previous meta-analyses have not considered victimisation as a risk for later victimisation (Cook et al., 2020), but in the current study victimisation was found to be stable across time with a large effect based on each of the different measurement periods. Victimisation in childhood appears less stable (Kochenderfer-Ladd & Wardrop 2003;

Monks, Smith & Swettenham 2003). However, in contrast with previous studies looking at both children and adolescents (Espelage et al., 2001; Kumpulainen, Rasanen & Henttonen, 1999; Pepler, Jiang, Craig & Connolly, 2008) we found that bullying was not significantly stable across time. This unique finding suggests that although victims may become more stable in their roles across time, bullies may be transient in their roles, particularly across adolescence. An implication of this finding is that early interventions may be beneficial in preventing on-going victimisation, whereas; early intervention targeting bullies may not necessarily be identifying those individuals who will bully others at a later stage of development and thus be less effective at preventing bullying in the long-term.

The notion that bullying is not stable across time may align with the finding that age was weakly protective against being a bully. Age was the only protective factor identified in the meta-analysis. This finding aligns with previous studies that show that, following the transition to high school, bullying decreases with age (Craig et al., 2009; Pelligrini & Long, 2002) and also suggests that the reason bullying is not stable is because some bullies may stop bullying as they mature.

Internalising problems were a significant predictor of victimisation but not bullying. The finding regarding victimisation is consistent with another meta-analysis that specifically focused on internalising problems in children and adolescents and showed that internalising problems were both a risk and outcome of victimisation (Reijntjes et al., 2010). Cook et al. (2010) reported that the relationship between victimisation and internalising difficulties was significantly stronger in the adolescent group relative to the child group. This finding contrasts with other studies that indicate internalising problems

may have less predictive power in adolescence than in childhood (Ttofi, Farrington, Lösel & Loeber, 2011) or that have failed to find a moderating effect of age (Reijntjes et al., 2010). The present analysis indicated that there was not significant heterogeneity in the effect size between victimisation and internalising problems, and thus age was not explored as a moderator for this relationship.

Variables grouped as school problems were identified as a risk for bullying. These variables included attending a school specifically catering for adolescents with poor grades (Lam et al., 2014), and academic failure and low commitment to school (Hemphill et al., 2012). Cook et al. (2010) also found a stronger link between academic performance and bullying than academic performance and victimisation.

There were no identified protective factors of victimisation that were assessed in more than one study, and may suggest either that the factors that make an adolescent vulnerable to victimisation are complex and intertwined, or that researchers tend to focus more on negative, rather than protective factors.

Gender was not identified as a significant predictive factor of bullying or victimisation. One study found being female was protective against bullying (Lam et al., 2014) and another found it was a risk for later bullying (Low & Espelage, 2013). One study found being female was protective for later victimisation (Lam et al., 2014) and another found it was a risk (Faris & Felmlee, 2014). The literature for children indicates that bullies appear to most often be boys, but both males and females tend to be victims (Rodkin & Berger, 2008). The present results indicate that gender may have a less clear-cut role for adolescents, perhaps due to males and females engaging in more similar, less physical forms of bullying as they age.

Limitations and Future Implications

This review highlights the fact that further research is needed as many of the predictors identified in the present review were explored only in single studies. Further research is needed to confirm that results based on individual studies are not due to chance or sampling bias (Coolican, 2009). Basing research design on theories of bullying and victimisation may help focus the predictors of interest. However, the lack of a consistent focus across studies also points to the likelihood that bullying and victimisation are complex constructs for which single predictors are not sufficient. Future research would be well placed to determine the collective factors that predict bullying and victimisation, including mediating and moderating factors. For example, research is needed delineating how exactly peer relationships play a role in the development of bullying or victimisation.

The current study included predictors across up to 4 successive time points, rather than taking only first and last time points from each study, causing the length of time between time points to be less than six months for some variables (Lam et al., 2014; Salmivalli & Isaacs, 2005; Salmivalli & Helteenvuori, 2007). However, this method was undertaken to assess the stability of bullying and victimisation, and suggested an increase in the stability of victimisation over time. Future research on predictive factors could start assessment of predictors early in adolescence and follow up over comparable periods of time to improve consistency across studies.

This synthesis of the literature also highlights the fact that there is more focus on victims than bullies and more focus on risk than protective factors. These gaps in the literature must be addressed if targeted intervention studies are to be developed.

Bully/victims, those who both bully others and are bullied by their peers, were not considered a separate group for the purposes of this analysis because the majority of papers included in the analysis did not treat bully/victims separately. This is a limitation of the analysis that should also be addressed in future research. Furthermore, studies that focused solely on cyber bullying or cyber victimisation were excluded in the current analysis to allow a focus on predictors of traditional forms of bullying; however, cyber bullying and victimisation are poorly understood yet are becoming increasingly relevant in modern culture (Livingstone & Brake, 2010). Future studies should aim to determine whether the risk and protective factors for cyber bullying and cyber victimisation are different from those for traditional forms of these behaviours as well as whether there are different risk and protective factors for bully/victims. Given the reduced quality ratings observed for some of the studies in the analysis, it is also important that future studies are methodologically rigorous particularly in regard to external validity. Few studies could claim that their participants were truly representative of the larger population of young people. However, the quality rating of a study could not account for the heterogeneity found in relation to the associations between measures of victimization across time, or between social problems and victimization.

Conclusion

The research synthesised in this review leads to a number of conclusions about the trajectories of bullying and victimisation for the adolescent age group. For example, social problems appear to be a consistent issue for bullies and victims across both childhood and adolescence and conduct problems are a consistent issue for bullies and

may be for victims as well. Previous research also suggests that victimisation is unstable in childhood, but this review confirms it is stable across time in adolescence.

The findings suggest a number of possible targets for intervention including victims and children with social problems or conduct problems. Early intervention in these areas may prevent future bullying and victimisation in adolescence.

In conclusion, given the complex nature of bullying and victimisation, it is likely that a number of factors contribute to the presence of bullying and victimisation in adolescent samples. Given this, more research is needed to replicate the reported relationships and to determine the combination of factors that contribute to these phenomena. The use of common measurement tools between studies will help create consistency in the literature.

References

Baly, M. W., Cornell, D. G., & Lovegrove, P. (2014). A longitudinal investigation of self- and peer reports of bullying victimization across middle school. *Psychology in the Schools, 51,* 217-140. doi:10.1002/pits.21747.

Barker, E. D., Boivin, M., Brendgen, M., Fontaine, N., Arseneault, L., Vitaro, F., Bissonnette, C., & Tremblay, R. E. (2008). Predictive validity and early predictors of peer-victimization trajectories in preschool. *Archives of General Psychiatry, 65*, 1185-1192.

Bellmore, A. D., & Cillessen, A. H. N. (2006): Reciprocal influences of victimization, perceived social preference, and self-concept in adolescence. *Self and Identity, 5*, 209-229. doi: 10.1080/15298860600636647.

Bond, L., Carlin, J. B., Thomas, L., Rubin, K., & Patton, G. (2001). Does bullying cause emotional problems? *A prospective study of young teenagers British Medical Journal, 323,* 480-484.

Borenstein, M. (2009). *Introduction to meta-analysis*. Chichester, UK: John Wiley & Sons.

Boulton, M. J., Trueman, M., Chau, C., Whitehand, C., & Amatya, K. (1999). Concurrent and longitudinal links between friendship and peer victimization: implications for befriending interventions. *Journal of Adolescence, 22*, 461-466.

Bouman, T., van der Meulen, M., Goossens, F. A., Olthof, T., Vermande, M. M., & Aleva, E. A. (2012). Peer and self-reports of victimization and bullying: Their differential association with internalizing problems and social adjustment. *Journal of School Psychology, 50,* 759–774. http://dx.doi.org/10.1016/j.jsp.2012.08.004.

Cohen, J. (1988). *Statistical Power Analysis for the Behavioral Sciences*, 2nd Edition. Hillsdale: Lawrence Erlbaum.

Comprehensive Meta-Analysis (Version 3) [Computer software]. Englewood, NJ: Biostat.

Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., & Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: A meta-analytic Investigation. *School Psychology Quarterly, 25*, 65– 83. doi: 10.1037/a0020149.

Coolican, H. (2009). *Research Methods and Statistics in Psychology* (5th ed.). UK: Hooder Education.

Craig, W. M., Harel-Fisch, Y., Fogel-Grinvald, H., Dostaler, S., Hetland, J., Simons-Morton, B., Molcho, M., de Mato, M. G., Overpeck, M., Due, P., Pickett, W., HBSC Violence & Injuries Prevention Focus Group & HBSC Bullying Writing Group. (2009). A cross-national profile of bullying and victimization among adolescents in 40 countries. *International Journal of Public Health, 54,* S1–S9. doi: 10.1007/s00038-009-5413-9.

Duval, S., & Tweedie, R. (2000a). A nonparametric trim and fill method of accounting for publication bias in meta-analysis. *Journal of the American Statistical Association, 95*, 89-97.

Duval, S., & Tweedie, R. (2000b). Trim and fill: a simple funnel plot based method of adjusting for publication bias in meta-analysis. *Biometrics, 56*, 455-463.

Espelage, D. L., Bosworth, K., & Simon, T. R. (2001). Short-term stability and prospective correlates of bullying in middle-school students: An examination of

potential demographic, psychosocial, and environmental influences. *Violence and Victims, 16*, 411-426. doi: 10.1300/J135v02n02_08.

Fanti, K. A., & Kimonis, E. R. (2013). Dimensions of juvenile psychopathy distinguish "bullies," "bully-victims," and "victims". *Psychology of Violence, 3,* 396–409. doi: 10.1037/a0033951.

Faris, R., & Felmlee, D. (2014) Casualties of social combat: School networks of peer victimization and their consequences. *American Sociological Review, 79,* 228–257. doi: 10.1177/0003122414524573.

Fergusson, D. M., Boden, J. M., & Horwood, L. J. (2014) Bullying in childhood, externalizing behaviors, and adult offending: Evidence from a 30-year study, *Journal of School Violence, 13,* 146-164. doi: 10.1080/15388220.2013.840642.

Ferro, M. A., & Speechley, K. N. (2009). Depressive symptoms among mothers of children with epilepsy: A review of prevalence, associated factors, and impact on children. *Epilepsia, 50*, 2344-2354. doi: 10.1111/j.1528-1167.2009.02276.x.

Griffin, R. S., & Gross, A. M. (2004). Childhood bullying: Current empirical findings and future directions for research. *Aggression and Violent Behavior, 9*, 379-400. doi:10.1016/S1359-1789(03)00033-8.

Hemphill, S. A., Kotevski, A., Tollit, M., Smith, R., Herrenkohl, T. I., Toumbourou, J. W., & Catalano, R. F. (2012). Longitudinal predictors of cyber and traditional bullying perpetration in Australian secondary school students. *Journal of Adolescent Health, 51,* 59 – 65. doi:10.1016/j.jadohealth.2011.11.019.

Ireland, J. L., & Archer, J. (2004). Association between measures of aggression and

bullying among juvenile and young offenders. *Aggressive Behavior, 30,* 29–42.

doi: 10.1002/ab.20007.

Juvonen, J., Graham, S., & Schuster, M. A. (2003). Bullying among young adolescents:

The strong, the weak, and the troubled. *Pediatrics, 112,* 1231 -1237.

Juvonen, J., Nishina, A., & Graham, S. (2000). Peer harassment, psychological

adjustment, and school functioning in early adolescence. *Journal of Educational*

Psychology, 92, 349-359. doi: 10.1037//0022-0663.92.2.349.

Kaltiala-Heino, R., Rimpelä, M., Marttunen, M., Rimpelä, A., & Rantanen, P. (1999).

Bullying, depression, and suicidal ideation in Finnish adolescents: School survey.

British Medical Journal, 319, 348-351.

Kendrick, K., Jutengren, G., & Stattin, H. (2012). The protective role of supportive

friends against bullying perpetration and victimization. *Journal of Adolescence.*

35, 1069–1080. doi:10.1016/j.adolescence.2012.02.014.

Kim, Y. S., Boyce, T., Koh, Y-J., & Leventhal, B. (2009). Time trends, trajectories, and

demographic predictors of bullying: A prospective study in Korean adolescents.

Journal of Adolescent Health, 45, 360–367. doi:10.1016/j.jadohealth.2009.02.005.

Kim, Y. S. & Leventhal, B. (2008). Bullying and suicide: A review. *International*

Journal of Adolescent Medicine and Health, 20, 133-154.

Kim, Y. S., Leventhal, B., Koh, Y-J., Hubbard, A., & Boyce, T. (2006). School bullying

and youth violence: Causes or consequences of psychopathologic behavior?

Archives of General Psychiatry, 63, 1035-1041.

Kochenderfer-Ladd, B., & Wardrop, J. L. (2001). Chronicity and instability of children's

    peer victimization experiences as predictors of loneliness and social satisfaction

    trajectories. *Child Development, 72*, 134–151.

Kumpulainen, K., Räsänen, E., Henttonen, I., Almqvist, F., Kresanov, K., Linna, S.-L.,

    Moilanen, I., Piha, J., Puura, K., & Tamminen, T. (1998). Bullying and

    psychiatric symptoms among elementary school-age children. *Child Abuse and*

    Neglect, 22, 705-717.

Kumpulainen, K., Rasanen, E., & Henttonen, I. (1999) Children involved in bullying:

    Psychological disturbance and the persistence of the involvement. *Child Abuse &*

    Neglect, 23, 1253–1262.

Lam, S. -F., Law, W., Chan, C.-K., Wong, B. P. H., & Zhang, X. (2014). A latent class

    growth analysis of school bullying and its social context: The self-determination

    theory perspective. *School Psychology Quarterly,* 1-16. doi: 0.1037/spq0000067.

Larsen, J. K., Vermulst, A. A., Eisinga, R., English, T., Gross, J. J., Hofman, E., Scholte,

    R. H. J., & Engels, R. C. M. E. J. (2012). Social coping by masking? Parental

    support and peer victimization as mediators of the relationship between

    depressive symptoms and expressive suppression in adolescents. *Youth*

    Adolescence, 41, 1628–1642. doi 10.1007/s10964-012-9782-7.

Laursen, B., Finkelstein, B. D., & Betts, N. T. (2001). A developmental meta-analysis of

    peer conflict resolution. *Developmental Review, 21*, 423– 449.

    doi:10.1006/drev.2000.0531.

Lee, E. (2009). The relationship of aggression and bullying to social preference: Differences in gender and types of aggression. *International Journal of Behavioral Development, 33,* 323–330. doi: 10.1177/0165025408098028.

Lereya, S. T., Samara, M., Wolke, D. (2013). Parenting behavior and the risk of becoming a victim and a bully/victim: A meta-analysis study. *Child Abuse & Neglect, 37,* 1091–1108.

Livingstone, S., & Brake, D. R. (2010). On the rapid rise of social networking sites: New findings and policy implications. *Children and Society, 24,* 75-83. doi: 10.1111/j.1099-0860.2009.00243.x.

Lopez, C., & DuBois, D. L. (2005). Peer victimization and rejection: Investigation of an integrative model of effects on emotional, behavioral, and academic adjustment in early adolescence. *Journal of Clinical Child and Adolescent Psychology*, *34*, 25–36. doi: 10.1207/s15374424jccp3401_3.

Low, S., & Espelage, D. (2013). Differentiating cyber bullying perpetration from non-physical bullying: Commonalities across race, individual, and Family Predictors. *Psychology of Violence, 3*, 39 –52. doi: 10.1037/a0030308.

Ma, T-L., & Bellmore, A. (2012). Peer victimization and parental psychological control in adolescence. *Journal of Abnormal Child Psychology, 40*, 413–424. doi 10.1007/s10802-011-9576-5.

Mann, C. J. (2003). Observational research methods. Research design II: Cohort, cross sectional, and case-control studies. *Emergency Medicine Journal, 20*, 54-60.

Marsh, H. W., Parada, R. H., Yeung, A. S., & Healey, J. (2001). Aggressive school troublemakers and victims: A longitudinal model examining the pivotal role of self concept. *Journal of Education Psychology, 93*, 411-419.

Monks, C. P., Smith, P. K., & Swettenham, J. (2003). Aggressors, victims, and defenders in preschool: Peer, self-, and teacher reports. *Merrill-Palmer Quarterly, 49,*453–469. doi: 10.1353/mpq.2003.0024.

Nansel, T. R., Overpeck, M., Pilla, R. S., Ruan, W. J., Simons-Morton, B., & Scheidt, P. (2001). Bullying behaviors among US youth: Prevalence and association with psychosocial adjustment. *The journal of the American Medical Association, 285*, 2094-2100. doi:10.1001/jama.285.16.2094.

Nation, M., Vieno, A., Perkins, D. D., & Santinello, M. (2008). Bullying in school and adolescent sense of empowerment: An analysis of relationships with parents, friends, and teachers. *Journal of Community & Applied Social Psychology, 18,* 211-232. doi: 10.1002/casp.921.

Nishina, A., Juvonen, J., & Witkow, M. R. (2005). Sticks and stones may break my bones, but names will make me feel sick: The psychosocial, somatic, and scholastic consequences of peer harassment. *Journal of Clinical Child and Adolescent Psychology, 34*, 37–48. doi: 10.1207/s15374424jccp3401_4.

Olivo, S. A., Macedo, L. G., Gadotti, I. C., Fuentes, J., Stanton, T., & Magee, D. J. (2008) Scales to assess the quality of randomized controlled trials: A systematic review. *Physical Therapy, 88,*156–175.

Olweus, D. (1993). *Bullying at school: What we know and what we can do.* Oxford, UK: Blackwell Publishers.

Pellegrini, A.D., & Long, J.D. (2002) A longitudinal study of bullying, dominance, and victimization during the transition from primary school through secondary school. *British Journal of Developmental Psychology, 20,* 259–280.

Pepler, D., Jiang, D., Craig, W., & Connolly, J. (2008). Developmental trajectories of bullying and associated factors. *Child Development, 79*, 325–338.

Reijntjes, A., Kamphuis, J. H., Prinzie, P., & Telch, M. J. (2010). Peer victimization and internalizing problems in children: A meta-analysis of longitudinal studies. *Child Abuse & Neglect, 34*, 244–252. doi:10.1016/j.chiabu.2009.07.009.

Rodkin, P. C., & Berger, C. (2008). Who bullies whom? Social status asymmetries by victim gender. *International Journal of Behavioral Development, 32*, 473-485. doi: 10.1177/0165025408093667.

Roland, E., & Idsøe, T. (2001). Aggression and bullying. *Aggressive Behavior, 27*, 446–462. doi: 10.1002/ab.1029.

Rosenthal, R. (1979). The file drawer problem and tolerance for null results. *Psychological Bulletin, 86*, 638-641.

Rothon, C., Head, J., Klineberg, E., & Stansfeld, S. (2011). Can social support protect bullied adolescents from adverse outcomes? A prospective study on the effects of bullying on the educational achievement and mental health of adolescents at secondary schools in East London. *Journal of Adolescence, 34,* 579–588. doi:10.1016/j.adolescence.2010.02.007.

Salmivalli, C., & Helteenvuori, T. (2007). Reactive, but not proactive aggression predicts victimization among boys. *Aggressive Behavior, 33,* 198–206. doi: 10.1002/ab.20210.

Salmivalli, C., & Isaacs, J. (2005). Prospective relations among victimization, rejection, friendlessness, and children's self- and peer-perceptions. *Child Development, 76*, 1161 – 1171.

Salmivalli, C., Lappalainen, M., & Lagerspetz, K. M. J. (1998). Stability and change of behavior in connection with bullying in schools: A two year follow-up. *Aggressive Behavior, 24*, 205–218.

Salmivalli, C., Sainio, M., & Hodges, E. V. E. (2013) Electronic victimization: Correlates, antecedents, and consequences among elementary and middle school students. *Journal of Clinical Child & Adolescent Psychology, 42*, 442-453. doi: 10.1080/15374416.2012.759228.

Sanderson, S., Tatt, I. D., & Higgins, J. P. (2007) Tools for assessing quality and susceptibility to bias in observational studies in epidemiology: A systematic review and annotated bibliography. *International Journal of Epidemiology, 36,* 666–676.

Schwartz, D., Dodge, K. A., Pettit, G. S., Bates, J. E., & The Conduct Problems Prevention Research Group (2000). Friendship as a moderating factor in the pathway between early harsh home environment and later victimization in the peer group. *Developmental Psychology, 36*, 646-662.

Shapero, B. G., Hamilton, J. L., Liu, R. T., Abramson, L. Y., & Alloy, L. B. (2013) Internalizing symptoms and rumination: The prospective prediction of familial and peer emotional victimization experiences during adolescence. *Journal of Adolescence, 36,* 1067–1076. http://dx.doi.org/10.1016/j.adolescence.2013.08.011.

Simon-Davies, J. (2011). *Suicide in Australia.* ACT: Department of Parliamentary

Services.

Stassen Berger, K. (2007). Update on bullying at school: Science forgotten?

Developmental Review, 27, 90-126. doi:10.1016/j.dr.2006.08.002.

Strohmeier, D., Wagner, P., Spiel, C., & von Eye, A. (2010) Stability and constancy of

bully-victim behaviour: Looking at variables and individuals. Zeitschrift fur

Psychologie / *Journal of Psychology, 218,* 185–193. doi: 10.1027/0044-

3409/a000028.

Sumter, S. R., Baumgartner, S. E., Valkenburg, P. M., & Peter, J. (2012). Developmental

trajectories of peer victimization: Off-line and online experiences during

adolescence. *Journal of Adolescent Health, 50,* 607– 613.

doi:10.1016/j.jadohealth.2011.10.251.

Sweeting, H., Young, R., Westand, P., & Der, G. (2006). Peer victimization and

depression in early–mid adolescence: A longitudinal study. *British Journal of*

Educational Psychology, 76, 577–594. doi:10.1348/000709905X49890.

Ttofi, M. M., Farrington, D. P., Lösel, F., & Loeber, R. (2011). Do the victims of school

bullies tend to become depressed later in life? A systematic review and meta-

analysis of longitudinal studies. *Journal of Aggression, Conflict and Peace*

Research, 3, 63–73. doi: 10.1108/17596591111132873.

Vaillancourt, T., Brittain, H. L., McDougall, P., & Duku, E. (2013). Longitudinal links

between childhood peer victimization, internalizing and externalizing problems,

and academic functioning: Developmental cascades. *Journal of Abnormal Child*

Psychology, 41, 1203–1215. doi: 10.1007/s10802-013-9781-5.

Viding, E., Simmonds, E., Petrides, K.V., & Frederickson, N. (2009). The contribution of callous-unemotional traits and conduct problems to bullying in early adolescence. *Journal of Child Psychology and Psychiatry, 50,* 471–481. doi:10.1111/j.1469-7610.2008.02012.x.

Voss, L.D., & Mulligan, J. (2000). Bullying in school: Are short pupils at risk? Questionnaire study in a cohort. *British Medical Journal, 320,* 612–613. doi: http://dx.doi.org/10.1136/bmj.320.7235.612.

Wolke, D., Woods, S., Bloomfield, L., & Karstadt, L. (2000). The association between direct and relational bullying and behaviour problems among primary school children. *Journal of Child Psychology and Psychiatry, 41,* 989–1002.