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Noret, Nathalie ORCID logoORCID: https://orcid.org/0000-0003-4393-1887, Hunter, Simon and Rasmussen, Susan (2018) The relationship between peer-victimization, cognitive appraisals, and adjustment: A systematic review. Journal of School Violence, 17 (4). pp. 451-471.

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The relationship between peer-victimization, cognitive appraisals, and adjustment:

A systematic review

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Abstract

Underpinned by the Transactional Model of Stress (TMS), this systematic review synthesizes research testing the role of primary and secondary appraisals in the relationship between peer-victimization and adjustment. A comprehensive literature search was undertaken and 23 papers were included in the review. Primary appraisals of threat and control, but not blame, mediated the relationship between peer-victimization and adjustment. Secondary appraisals of self-efficacy and perceived social support were found to mediate and moderate the relationship. The findings of the review highlight the utility of the TMS in developing our understanding of individual differences in the relationship between peer-victimization and adjustment. The development of the TMS in a peer-victimization context, and future areas of research are discussed.

Keywords: Peer-victimization, Bullying, Transactional Model of Stress, Cognitive Appraisals, Adjustment.

Many children and adolescents experience peer-victimization and for some such experiences can lead to a number of negative psychological outcomes, such as anxiety and depression (McDougall & Vaillencourt, 2015). Since not all victims experience poor outcomes (Raskauskas & Huynh, 2015), research is now beginning to examine individual variation. This systematic review will examine how the transactional model of stress (TMS: Lazarus & Folkman, 1984) can help to explain this relationship. Specifically, the review will synthesize extant literature exploring how the relationship between peer-victimization and poor adjustment is due to individuals' cognitive appraisals.

The terms peer-victimization and bullying are frequently used interchangeably in the research literature (Casper, Meter, & Card, 2015). Peer-victimization is defined as a repeatedly experienced form of aggressive behavior, perpetrated within the peer group (Hunter, Boyle, & Warden, 2007). Bullying is a form of peer-victimization, where the aggressive behavior is experienced repeatedly and over-time, but where an intent to harm the victim, and a power imbalance (e.g. based on physical strength or popularity in the peer group) are key components of the definition (Whitney & Smith, 1993). For the purposes of this review, the term peer-victimization is used to encompass both peer-victimization and bullying.

Peer-victimization can include direct and indirect aggressive behaviors. Direct aggression includes the use of observable behaviors, where the intention to cause harm is clear. Such acts can include physical aggression, such as hitting and kicking, and verbal aggression, such as name-calling and insults (Marini, Dane, Bosacki, & YLC-CURA, 2006). Indirect aggression includes forms of social and emotional aggression, such as excluding and ignoring victims. Often the aim is to damage the trust and intimacy between friends with the ultimate goal of permanently damaging social structures such as friendship groups, acts

where the intention to harm is less obvious (Björkqvist, Lagerspetz, & Kaukiainen, 1992; Crick & Grotpeter, 1995).

The prevalence of these different types of aggressive behaviors is found to change over the course of childhood and adolescence. Gender differences have also been reported. Evidence suggests that girls are more likely to be victims of more indirect, social and emotional bullying and boys are more likely to experience direct acts such as name calling and physical aggression (Björkvist, 2001a; Prinstein, Boergers, & Vernberg, 2001; Rivers & Smith, 1994). Direct forms of aggression, such as physical and verbal bullying are more frequently reported by younger children whereas indirect forms of aggression are more likely to be reported by secondary school pupils (Björkvist, Österman, & Kaukiainen, 1992; Smith, Madsden, & Moody 1999). Overall, peer-victimization is most commonly experienced in middle school, during early adolescence (Hong & Espelage, 2012).

A number of meta-analyses have highlighted the relationship between peer-victimization and higher levels of internalizing distress such as symptoms of depression and anxiety, and higher rates of externalizing problems, such as aggressive behavior (Hawker & Boulton, 2000; Reijntjes et al., 2011; Reijntjes, Kamphuis, Prinzie, & Telch, 2010). Retrospective and longitudinal studies suggest that this relationship can occur both in the short- and long-term, even continuing into adulthood (e.g., Ttofi, Farrington, Lösel, & Loeber, 2011).

Although the relationship between peer-victimization and psychological adjustment is well established, not all children and adolescents experience negative outcomes (Newman, Holden, & Deville, 2005). Peer-victimization has been defined as a form of social stress (Björkvist, 2001b), as such applying the transactional model of stress (TMS) (Lazarus & Folkman, 1984) to testing the relationship between peer-victimization and adjustment may aid our understanding of this individual variation in outcomes.

The TMS proposes that individual reactions to a stressful experience are a result of an individual's cognitive appraisal processes and subsequent coping options (Lazarus and Folkman, 1984). Cognitive appraisal involves the evaluation of the significance of an event for an individual's wellbeing (Lazarus & Folkman, 1984). This appraisal process includes both primary and secondary appraisals. The process is not sequential; primary and secondary appraisals can occur at the same time and be mutually influential. The aim of this systematic review is to examine how such appraisals function in the relationship between peer-victimization and adjustment. The role of coping in the relationship between peer-victimization and adjustment has been examined in other reviews (e.g. Raskauskas & Huynh, 2015), and so will not be included in this review.

Through primary appraisal, the importance and relevance of an experience to personal goals and beliefs is evaluated. Lazarus and Folkman (1984) proposed three types of primary appraisal: (i) the appraisal of a situation as potentially harmful or involving a risk of loss to the individual, (ii) appraisals where an individual feels emotionally or physically threatened by an exchange, and (iii) challenge appraisals where there is the opportunity for some form of growth or mastery. The three forms of primary appraisal are not mutually exclusive and may be interrelated, for example, a harm/loss experience may also encompass an element of threat (Lazarus, 1999). In a peer-victimization context, research has demonstrated the importance of the primary appraisal process. For example, victims who report greater control over their experiences of peer-victimization are more likely to report seeking support (Terranova, 2009).

Secondary appraisals focus on the individual's evaluation of what resources they have available, and to what extent those resources may be successful in dealing with the situation. The socio-ecological framework of bullying (Espelage, 2014; Swearer & Hymel, 2015) discusses peer-victimization from an individual level, but also from the perspective of the

wider community and social setting. Such a framework can be used to identify potential resources available to victims. On an individual level, secondary appraisals can include aspects of self-efficacy, such as coping self-efficacy, which relates to how people think about their motivation for, and their ability to perform, future acts, (Bandura, 1997). Resources can also include the perception of available social support drawn from the broader microsystem including peers, family, teachers, and the wider school community. Such perceived support has been found to buffer the impact of peer-victimization (Flashpoler, Elfstrom, Vanderzee, Sink, & Birchmeier, 2009).

Primary and secondary appraisals inform the interpretation of an event as stressful, and, any subsequent reaction to it (Lazarus & Folkman, 1984). This systematic will examine how appraisals function in the relationship between peer-victimization and adjustment. As appraisals can theoretically affect an individual's reaction to a stressful encounter, and explain why people react differently to the same situation (Park & Folkman, 1997), they have been operationalized as either mediating or moderating variables.

Mediating variables explain the sequential order of variables, and can explain why there is a relationship between them (Baron & Kenny, 1986; Mackinnon, 2008). In the context of the TMS, an event is followed by an individual's appraisal of its personal significance, which in turn influences psychosocial adjustment (Lazarus & Folkman, 1984). For example, higher levels of victimization may directly impact on appraisals of threat and control which in turn impact on adjustment. The analysis of primary appraisals in the relationship between peer-victimization and adjustment may therefore be operationalized as mediation.

Secondary appraisal involves the evaluation of available resources to manage the stressful experience. These resources, such as perceived social support and self-efficacy, may be in place before the stressful experience. During the secondary appraisal process

individuals draw upon and evaluate whether these pre-existing resources would be successful in managing the situation (Lazarus & Folkman, 1984). Therefore, secondary appraisals may be best tested as moderating variables. A moderator can explain for whom, or under what conditions, two variables are related, where the nature of the relationship is dependent on the level of the moderator (Baron & Kenny, 1986; Holmbeck, 1997; Mackinnon, 2008). Related to peer-victimization, such analysis would enable us to test whether the relationship between peer-victimization and adjustment is stronger for those with fewer available resources (e.g. perceived social support).

The Current Study

The TMS offers a potential framework for understanding individual variation in reactions to peer victimization. Specifically, research has demonstrated that cognitive appraisals may play an important role in the relationship between peer-victimization and adjustment (e.g. Flashpohler et al., 2009; Lazarus & Folkman, 1984; Terranova, 2009). The aim of this systematic review is to synthesize relevant literature, to identify whether appraisals can explain the relationship between peer-victimization and adjustment. Specifically, the review will examine the extent to which primary appraisals mediate, and secondary appraisals moderate, the relationship between peer-victimization and adjustment.

Method

This systematic review follows the PRISMA standards for the undertaking and reporting of systematic reviews (Liberati et al., 2009). Four sets of search terms were developed for the four variables of interest: peer-victimization (e.g. 'peer-victimization' and 'bullying'), primary appraisal (e.g. 'threat appraisal'), secondary appraisal (e.g. 'perceived social support', and adjustment (e.g. 'maladjustment', 'depression'). Combinations of these search terms and Boolean and/or operators were used to search the PsychInfo, PsychArticles, Web of Science, Science Direct and Google Scholar databases. After removing duplicates, the titles and abstracts of 553 articles were screened, and the full texts of 1,108 articles were assessed for eligibility in the review (see Figure 1).

FIGURE 1 ABOUT HERE

Inclusion and Exclusion Criteria

Articles had to be empirical papers published in English in a peer-reviewed journal. The study had to include a sample of young people, defined as those younger than 18 years old, retrospective studies were excluded from the review. No limits were placed on publication year. Papers had to include measures of the key variables under investigation: peer-victimization or bullying, primary or secondary appraisal, and a measure of psychological adjustment. Measures of peer-victimization had to include a report of individual experiences and could include self-report, peer-nomination, or teacher nomination measures.

Search terms for the measurement of appraisal described different aspects of the primary and secondary appraisal process (e.g., 'primary appraisal', 'threat', 'perceived social support'). For primary appraisals, search terms reflected the importance and relevance of an experience to personal goals and beliefs (e.g. threat appraisals, blame appraisals). Appraisals and attributions have often been used interchangeably in the research literature, however they

are theoretically distinct (Smith & Lazarus, 1993). In a series of studies, Smith, Haynes, Lazarus and Pope (1993) found appraisals mediated the relationship between attributions and wellbeing, suggesting that attributions predict wellbeing because of individuals' appraisals of the event. Such findings highlight the distinction between the knowledge of an event (attributions) and the evaluation of the personal significance event (appraisals). As the TMS focuses on the role of appraisals in the relationship between stressor and adjustment, only studies that explored victims' immediate appraisal of their peer-victimization experiences were included, studies exploring attributions (e.g. Graham & Juvonen, 1998) were excluded.

Measures of secondary appraisal had to include a participant's judgement regarding the victim's ability to cope with the situation, for example perceived social support, or confidence in their ability to cope with a stressful situation or rely on their friends to help (i.e., assessing social or coping self-efficacy). Regarding perceived social support, Cohen and Willis (1985) drew a distinction between structural social support (e.g., the number of friends someone has) and functional social support (e.g., the quality or nature of available support). As secondary appraisal involves the immediate evaluation of available resources only studies including a measure of functional social support were included. Studies that measured structural support with no measure of the quality of this relationship, and studies where only the actual use of social support was measured, were excluded from the review. Intervention studies were also excluded from the review. Such studies often aim to increase victim's perception of available support and therefore the measure of such support is likely to change over the duration of the study. Any post measures may reflect the intervention and not victims' immediate appraisals, which are the focus of this review.

The aim of this review is to examine how, if at all, cognitive appraisals function in the relationship between peer-victimization and adjustment. Only studies that analyzed the key variables following the chronology set out by the TMS were included. Peer-victimization had

to precede appraisal, and appraisal had to precede adjustment. In order to identify the role of appraisals in this process only studies that measured appraisals as either a mediator or moderator of the relationship between peer-victimization and adjustment were included in the review. Any paper that analyzed appraisals in a manner that did not follow the sequence set out in the TMS (e.g. as a predictor of peer-victimization; Gini, Carli, & Pozzoli, 2009) was excluded from the review.

Reliability of study selection and inclusion

The first author undertook the screening of all papers. Article titles and abstracts were reviewed against the inclusion and exclusion criteria. Ambiguous titles and abstracts were retained and the full text was reviewed. Once the first author had completed this, a research assistant conducted a subsequent check. The research assistant was provided with a summary of the inclusion and exclusion criteria and reviewed 20% of the search results. The initial Cohen's Kappa was 0.41, suggesting a moderate level of agreement. Disagreements in the reviewed articles and the inclusion and selection criteria were amended and clarified. In particular, the amended criteria stressed the need for all variables to be measured in the study, and for the study to be written in English. The research assistant conducted a subsequent check on an additional 20% of the search results, which yielded a higher and good level of agreement (Cohen's Kappa =0.73). For those studies were there remained disagreement, the first author and research assistant discussed the papers and agreed a decision.

Assessment of Study Quality

Research into peer-victimization tends to be conducted using cross-sectional designs and questionnaire methods. Many of the current quality appraisal (QA) tools recommended for systematic reviews place greater value on the use of experimental methods. Such tools are not appropriate to judge the quality of research in this area, as such 'higher quality' methods cannot be used to ethically study experiences of peer-victimization and any subsequent

relationship with adjustment. Therefore, an adapted version of a QA tool for issues of prevalence was used (Munn, Moola, Riitano, & Lisy, 2014).

The QA tool was adapted to include only the first eight items of Munn, et al.'s (2014) tool. The aim of the review did not include the analysis of any subgroup populations, questions 9 and 10 of the tool examining confounding variables, subgroup differences and subpopulation identification, were not used. Details of the specific questions included in the QA tool are included in the notes section under table 1. The questions focus on the nature of the sample and sample size (questions 1 to 4), the measurement of the key variables of interest (questions 6 and 7) and the appropriateness of data analysis (questions 5 and 8).

Each paper was assessed on each of the eight criteria and judged to meet the criteria (yielding a score of 1), partially meet (0.5), or not meet/ not be described in the paper (0). A total quality score was then calculated which could range from zero to eight. A quality score of four or above would indicate a low risk of methodological bias and would be included in the review. Papers scoring below four would be excluded. The first author undertook the quality appraisal of all included papers.

Data analysis and Synthesis

The synthesis of results employed a qualitative analysis approach and focused on synthesizing the mediating and moderating relationships found between variables across studies. Meta-analysis was not considered an appropriate technique to employ because of the heterogeneity in the definition and measurement of the variables of interest across the studies.

Results

The final review included 23 papers, five exploring primary appraisals and 18 exploring secondary appraisals. No studies included measures of both primary and secondary appraisal. The total quality appraisal scores of the included studies were all above 4 and ranged from 5.5 to 8 (see Table 1).

TABLE 1 ABOUT HERE

Study Characteristics: Sampling and Design

The characteristics of all included papers are shown in Table 2. All papers were published between 1999 and 2016. Sample sizes ranged from 90 to 2,790 participants, from between 1 and 28 schools. All the included papers met the criteria related to the representativeness of the sample (QA tool, Q1) and adequacy of the description of participants (Q4).

The majority of papers reported an adequate sample size. Two studies reported low sample sizes, and did not meet the criterion set out in question 3 of the QA tool. Lim et al. (2011) reported a sample size of 96 and Seeds et al. (2010) reported a sample of 101, samples which would yield low statistical power for the regression analyses used in the papers (Field, 2013). The remaining papers reported an adequate sample size. Regarding the recruitment of participants questions on the QA tool (Q2), the majority of papers (N=21) recruited participants through school settings, few studies reported why or how particular schools were chosen. All studies recruited approximately equal numbers of males and females with the exception of Seeds, Harkness and Quality (2010), which included twice as many females as males. The ages of participants ranged from 8 to 19 years, mean ages ranged from 9.22 to 15.57 years (the mean age not reported in 12 studies). The ethnicity of participants was reported in 13 of the 23 papers. All these 13 papers included a different categorization of ethnicity, see table 2.

Cross-sectional designs were employed in the majority of studies (N=20). Three papers utilized a longitudinal design, varying between 8 months and 1 year. Eighteen papers relied exclusively on self-report measures and five papers included a mixture of methods including peer nomination and interviews. The majority of studies (N=19) reported detail on where the questionnaires were administered and by whom (QA tool, Q7). Four studies reported little detail on survey administration, making it difficult to judge the reliability of the data collection (Pouwelse, Bolman, Lodewijkc, & Spaa, 2011; Rigby, 2000; Rigby & Slee, 1999; Tanigawa, Furlong, Felix, & Sharkey, 2011).

Study Characteristics: Measurement of Variables

Peer-victimization was measured differently across the studies. Fifteen papers included one total composite measure of peer-victimization. Specific forms of peer-victimization, such as physical, verbal and indirect victimization, were measured in six papers. One paper included a total victimization score alongside a score on discriminatory and non-discriminatory peer-victimization and one paper included a total composite measure of peer-victimization alongside measures of other aggressive behaviors such as peer aggression and bullying.

The most frequently measured primary appraisal was threat appraisal, measured in all five primary appraisal studies. Control appraisals were measured in three papers, and two papers included a measure of blame appraisals. Two forms of secondary appraisal were measured in the included studies, perceived social support (N=16) and self-efficacy (N=2). Of the two papers measuring self-efficacy with the first measuring self-efficacy to enlist support from an adult, self-efficacy to enlist support from a friend, and school collective efficacy. The second paper included measures of self-efficacy for avoiding aggressive behavior, proactive behavior, victim-role disengagement, and avoiding self-blame. Regarding social support, four studies included a measure of global social support, the remaining 12

papers measured person domain specific forms of support. Six studies measured perceived parental support and two studies measured perceived support from a teacher. Perceived support from friends or peers was measured in 11 papers, seven of which measured this as a subscale of perceived social support, and five measured this as a component of friendship quality.

Regarding adjustment, 14 papers included one measure of adjustment and nine papers included more than one measure. Measures of depression were included in 15 papers, measures of anxiety or social anxiety were included in five studies, and measures of loneliness were included in three studies. Three papers included a general measure of psychological wellbeing, and social dissatisfaction or dysfunction was included in three papers. One paper measured suicide ideation and one paper measured the emotional outcomes of anger, sadness, and fear. Regarding externalizing symptoms, two studies included measures of aggression and five studies included general measures of externalizing symptoms or problem behavior.

A variety of measures were used across the studies, some used all standardized measures, and others used a combination of standardized tools and measures designed for the purposes of the study. All the papers included self-report measures of adjustment, one paper also included parent reports. Regarding the standardized measurement question on the QA appraisal (Q6), all studies either met or partially met this criterion. Where measures were designed specifically for the purposes of a single study (i.e., not previously validated), they were graded as partially meeting this criterion. Studies were also graded in this way if the reliability of one or more of the measures was low (defined as $\alpha<0.7$; Field, 2013).

Nature of the Relationship Between Variables

All five primary appraisal papers tested primary appraisal as a mediating variable. Regarding the 18 secondary appraisal papers, one paper tested secondary appraisal (perceived

social support) as both a mediator and moderator, and four tested it as mediating variable. Of these four papers, two measured self-efficacy one measured perceived global social support and one measured perceived social support from a friend. The remaining 13 papers tested secondary appraisal as a moderator and all measured perceived social support. All papers included in the review met the criterion set out in questions 7 and 8 of the QA tool, relating to appropriate statistical analysis and data analysis.

TABLE 2 ABOUT HERE

Synthesis of Key Findings

The relationship between peer-victimization, primary appraisals and adjustment.

All five primary appraisal papers measured threat appraisals. Two papers measured only threat appraisals, one paper measured threat appraisals alongside blame appraisals, and three papers measured threat, control and blame appraisals. The two papers that measured only threat appraisal included a number of measures of adjustment, the remaining three papers included only one.

Regarding threat appraisals, three studies found evidence of mediation, with one reporting that threat appraisals fully mediated the relationship between peer-victimization and depression (Gianotta, Settanni, Kliewer, & Ciairano, 2012), and one that threat appraisals partially mediated this relationship (Hunter, Durkin, Heim, Howe, & Bergin, 2010). Taylor, Sullivan, and Kliewer (2013) tested different types of peer-victimization and different aspects of primary appraisal. They found that relational victimization predicted threat appraisal (in the form of threats of negative self-evaluation) after 6 months, which in turn predicted depression two years later. No significant effect was found from physical victimization to depression. Two studies, measuring different aspects of internalizing symptoms, did not find a mediating role for threat appraisals. Catterson and Hunter (2010) found no mediating role

for threat appraisals in the relationship between peer-victimization and loneliness, and Anderson and Hunter (2010) found no mediating role of threat appraisals in the relationship between peer-victimization and the emotional outcomes of sadness and anger.

The role of threat appraisals in the relationship between peer-victimization and externalizing symptoms was examined in two studies. One study found no mediating role of threat appraisals (Gianotta et al., 2012). Conversely, Taylor et al. (2013) found that relational peer-victimization, but not physical victimization, predicted threat appraisal (threats of negative self-evaluation) after approximately 6 months, which in turn predicted aggression two years later.

Of the three studies measuring control appraisal, two studies found a partial mediating role for these appraisals in the relationship between peer-victimization and depression (Hunter et al., 2010) and between peer-victimization and loneliness (Catterson & Hunter, 2010). However, control appraisals did not mediate the relationship between peer-victimization and feelings of anger or sadness (Anderson and Hunter, 2010). Blame appraisals neither mediated the relationship between peer-victimization and loneliness (Catterson & Hunter, 2010), nor between peer-victimization and emotional outcome (Anderson & Hunter, 2010).

To summarize the primary appraisal literature; control and threat were found to play a role in the relationship between peer-victimization and adjustment. Although only measured in two studies, no significant mediating effect for blame was reported.

The relationship between peer-victimization, secondary appraisals, and adjustment.

Self-efficacy.

Two studies explored whether self-efficacy mediates the relationship between peer-victimization and adjustment. In their longitudinal study, Barchia and Bussey (2010) found

that collective self-efficacy (confidence in students and teachers' ability to stop bullying), and self-efficacy to enlist support from a friend, partially mediated the relationship between peer-victimization and depressive symptomology after 8 months.

When looking at particular characteristics of coping self-efficacy, Singh and Bussey (2011) found a number of mediating effects. Self-efficacy for avoiding self-blame and self-efficacy for victim role disengagement partially mediated the relationship between peer-victimization victimization and both social anxiety and depression. Self-efficacy for proactive behavior also partially mediated the relationship between victimization and social anxiety, but not between peer-victimization and depression. Self-efficacy for avoiding aggressive behavior partially mediated the relationship between peer-victimization and both externalizing symptoms social anxiety, but not between peer-victimization and depression.

Both studies that tested the role of self-efficacy in the relationship between peer-victimization and adjustment tested this as a mediating variable. These two studies explored different aspects of self-efficacy and reported significant mediating effects, demonstrating the role of this form of secondary appraisal in the relationship between peer-victimization and adjustment.

Global perceived social support.

Global social support was tested as a moderating variable in two studies, as a mediating variable in one study, and as both a mediator and a moderator in one paper. Global social support mediated the relationship between peer-victimization and adjustment in two papers (Pouwelse, Bolman, Lodewijkc, & Spaa, 2011; Seeds, Harkness, & Quilty, 2010). Specifically, Pouwelse et al. (2011) found that in boys, social support mediated the relationship between peer-victimization for those who were a victim and those who were defined as a bully-victim (i.e., who are both victim and bully). For girls, social support mediated the relationship only for those defined as a bully-victim. Global perceived social

support did not moderate the relationships between peer-victimization and wellbeing (Rigby, 2000), peer-victimization and suicide ideation (Rigby & Slee, 1999), or peer-victimization and depression (Pouwelse et al., 2011).

The included studies on global perceived social support yielded mixed findings. When global perceived social support was tested as a moderator found no significant effect was reported. The studies that tested this form of secondary appraisal as a mediator reported significant effects. Gender differences in this relationship were also reported. These studies demonstrate a role for global perceived social support in the relationship between peer-victimization and adjustment.

Perceived social support from a parent.

Contradictory gender differences were reported in the two studies. Tanigawa et al. (2011) found that perceived support from a parent moderated the relationship between peer-victimization and depression in boys but not girls, whereas Davidson and Demaray (2007) found that perceived support from a parent moderated the relationship between peer-victimization and internalized distress in girls and but not boys. Perceived social support from a parent did not moderate the relationship between peer-victimization and depression, (Holt & Espelage, 2007; Cheng et al., 2008; Lim et al., 2011, Rothon et al., 2011), or between peer-victimization and externalizing symptoms (Davidson & Demaray, 2007).

Perceived social support from a teacher, from the school or classmates.

Perceived social support from a teacher or classmate moderated the relationship between peer-victimization and internalizing symptoms, in boys but not girls (Davidson & Demaray, 2007). The relationship between peer-victimization and internalizing symptoms was stronger in those with less perceived support. Perceived support from a teacher, classmate, or school did not moderate the relationship between peer-victimization and depression (Tanigawa et al., 2011) or externalizing symptoms (Davidson & Demaray, 2007).

Perceived social support from friends or peers.

Of the seven papers that measured perceived social support from a friend or peer, one study found that perceived social support from friends or peers fully mediated the relationship between peer-victimization and psychological health (Chen & Wei, 2013). The remaining six papers six papers found perceived social support from friends or peers moderates the relationship between peer-victimization and adjustment.

Perceived close friend support moderated the relationship between peer-victimization and adjustment in boys but not girls (Tanigawa et al., 2011; Cheng, Cheung, & Cheung, 2008; Rothon, Head, Klineberg, & Stansfield, 2011). All three studies found a buffering effect for this source of support where the relationship between peer-victimization and depression was stronger in those with lower perceived social support from a close friend. Lim et al. (2011) reported the opposite result, where perceived social support from peers moderated the relationship between peer-victimization and depression in girls but not boys. Those who reported high peer-victimization and high perceived peer social support reported lower depression scores compared to those with low perceived social support. One study found no moderating role in the relationship between peer-victimization and internalizing symptoms (Davidson & Demaray, 2007).

This protective role of peer social support reported was not consistently found. Perceived social support from friends or peers moderated the relationship between peer-victimization and depression for both victims and bully-victims, with those with higher levels of social support reporting higher levels of anxiety/depression (Holt & Espelage, 2007). A similar result was found for externalizing symptoms. Davidson and Demaray (2008) found that perceived close friend support significantly moderated the relationship between peer-victimization and externalizing symptoms in boys, but those who reported high peer-

victimization and high-perceived support from a close friend reported *higher* externalizing symptoms.

All but one of the 12 studies that tested domain specific perceived social support tested this as a moderator. Studies that tested the role of perceived social support from parents/ guardians and from teachers/ classmates/ school yielded rather inconsistent results regarding the moderating effect. Regarding perceived support from a friend/ peer, findings of these studies found an effect for this form of social support, however it was not consistently found to be protective.

Social support characteristics of friendship quality.

Supportive aspects of friendship moderated the relationship between specific types of peer-victimization and adjustment. Perceived support from a friend moderated the relationship between relational victimization and externalizing behavior (Prinstein et al., 2001), where relational victimization was associated with externalizing problems for those with low, but not high, perceived support from a friend. In their longitudinal study, Cuadros and Berger (2016) reported that perceived support from a friend moderated the relationship between peer victimization and socio-emotional wellbeing six months later for both boys and girls. Hodges, Boivin, Vitaro, and Bukowski (1999) also reported a buffering effect in their one-year longitudinal study. They found perceived protection moderated the relationship between victimization and internalizing problems reported one year later. Victimization was related to higher internalizing problems for those with medium or low perceived protection. No relationship between victimization and internalizing problems was found for those who reported high levels of protection.

The protective nature of aspects of friendship was not consistently found, and differed on the basis of the type of peer-victimization experienced. Regarding particular types of victimization, Woods, Done, and Kalshi (2009) found no moderating effect for help in the

relationship between relational victimization and loneliness. But the help characteristic of friendship quality moderated the relationship between direct victimization and loneliness. Victims of direct aggression, with higher levels of perceived help in friendship quality, reported lower levels of loneliness.

The perceived help characteristic of friendship support also moderated the relationship between relational victimization and social concerns, but gender differences were found in the nature of this relationship (Schmidt & Bagwell, 2007). In girls, the relationships between relational victimization and social concerns, and between overt victimization and social concerns were strongest for those with low/ average help in friendships compared to those with a high degree of help. The opposite was found in boys, where the relationships between relational victimization and social concerns, and between overt victimization and social concerns, were stronger for those who reported a higher amount of help. Regarding the relationship between peer-victimization and depression, Schmidt and Bagwell (2007) reported that the friendship qualities of security and closeness, moderated this relationship. In girls, the relationship between overt victimization and depression was strongest in those with low security, however in boys the relationship was strongest in those with high security. Regarding closeness, in girls, the relationship between overt victimization and depression was stronger when closeness increased. For boys, there was no difference in the relationship between overt victimization and depression for the different levels of closeness.

Consistent with the findings of studies on perceived social support from friends/ peers, studies that measured perceived protective qualities of friendship demonstrated a moderating role for this form of secondary appraisal. Also in line with the perceived social support literature, such aspects of friendship quality were not always found to be protective in the relationship between peer-victimization and adjustment.

Discussion

This review examined whether primary appraisals mediate, and secondary appraisals moderate, the relationship between peer-victimization and adjustment. The extent to which a victim evaluates their experience as threatening or within their control (both primary appraisals) partially mediates the relationship between peer-victimization and adjustment. Self-efficacy and perceived social support (both secondary appraisals) also appear to play a role in explaining the relationship. Aspects of coping self-efficacy and perceived global social support acted as mediators, whereas perceived social support from particular individuals moderated the relationship between peer-victimization and adjustment. This moderating role for perceived social support was not consistently found to be protective. Findings also suggest that the relationship between peer-victimization, appraisals, and adjustment may be dependent on the victim's gender and the type of peer-victimization experienced.

The Relationship between Peer-Victimization, Primary Appraisal, and Adjustment

The consistent support for primary appraisals as mediating variables bolsters the theoretical relationship between the stressor, primary appraisal, and outcome posited by the TMS (Lazarus & Folkman, 1984). Specifically, it is the evaluation of the personal significance of the event that predicts subsequent wellbeing (Smith, Haynes, Lazarus, & Pope, 1993).

When children and adolescents feel threatened by a stressor, in this case peer-victimization, they may worry more about their experiences, which subsequently relates to internalizing symptoms, such as depression (Grych, Fincham, Jouriles, & McDonald, 2000). Regarding externalizing symptoms, threat appraisal mediated the relationship between peer-victimization and aggression in a two-year longitudinal study (Taylor et al., 2013), but not in a cross-sectional study (Gianotta et al., 2012). It may be that aggressive behavior is a long-term outcome of feeling threatened. If peer-victimization continues, victims may develop a

greater evaluation of threat and respond with anger through aggressive behavior (Grych, Harold, & Miles, 2003).

Control appraisals mediated the relationship between peer-victimization and both loneliness and depression. Children's perception of control can influence how they manage their situation, predicting coping strategies and subsequently adjustment (Compas, Banez, Malcarne, & Worsham, 1991). In a peer-victimization context, threat and control appraisals are negatively correlated suggesting they may be mutually influential (Catterson & Hunter, 2010). Those with a greater sense of control may appraise their situation as less threatening, subsequently reducing the impact on adjustment. Control appraisals however, did not mediate the relationship between peer-victimization and feelings of anger, sadness and fear. It may be that other appraisals such as blame or challenge may play a role in the development of such outcomes (Anderson & Hunter, 2010).

The primary appraisal of peer-victimization may be dependent on the type of victimization experienced, as demonstrated by Taylor et al. (2013). They found that indirect, but not direct, victimization predicted threat appraisal which subsequently predicted adjustment. Indirect bullying involves the threat to social structures, friendships, or reputation and often occurs with the ultimate goal of demeaning, insulting, and degrading the victim in front of the peer group (Björkqvist et al., 1992). Developing positive social relationships is a major goal in adolescence (Eder, 1985; La Greca & Lopez, 1998). Indirect victimization directly targets friendships and social relationships, therefore it may be evaluated as being of greater significance, and subsequently appraised as more threatening.

The Relationship between Peer-Victimization, Secondary Appraisal, and Adjustment

The importance of secondary appraisals outlined in the TMS is supported by the findings of this review. Secondary appraisals play a role in the relationship between peer-victimization and adjustment, supporting the notion that an individual's perception of

available resources to manage the stressor can buffer the impact on adjustment (Cohen & Willis, 1985; Lazarus & Folkman, 1984). Despite the TMS-informed prediction that secondary appraisals are moderating variables, the included studies assessed them as both moderators and mediators depending on the type of resource being appraised. The findings of the review highlight a range of resources evaluated as part of the secondary appraisal process. These resources can be mapped onto the individual and microsystem levels of the socio-ecological framework (Espelage, 2014; Swearer & Hymel, 2015). At an individual level, factors included self-efficacy and perceived global social support, which were operationalized consistently as mediators. In contrast, perceived social support from individuals within the microsystem, such as teachers and peers, was operationalized as a moderator.

Self-Efficacy

Self-efficacy to enlist support from a friend or parent, and self-efficacy in relation to coping with peer aggression, mediated the relationship between peer-victimization and adjustment. Peer-victimization can result in a reduction in coping self-efficacy, the extent to which people feel they can depend on others or on themselves to manage to the situation, this in turn can result in poorer adjustment (Barchia & Bussey, 2010; Singh & Bussey, 2011). These findings support the notion that self-efficacy, in this context an individual's confidence in their own ability to manage peer-victimization, can promote resilience to adversity (Bandura, 2006; Jerusalem & Schwarzer, 1992).

Social Support

Findings of the review of the perceived social support literature support the notion that perceived support from specific people (domain specific) and general perceptions of global social support represent two different constructs (Pierce, Sarason, & Sarason, 1991; Davis, Morris, & Kraus, 1998). Perceived global social support represents a more general

world-view of support (Davis et al., 1998), providing an overall feeling of being supported and socially accepted. Findings of this review found this form of perceived social support mediated, but did not moderate, the relationship between peer-victimization and adjustment. Victimization can damage social networks, resulting in victims feeling isolated which subsequently affects adjustment (Zimmer-Gembeck, Trevaskis, Nesdale, & Downey, 2014). This suggests that global perceived social support may play more of a sequential role in the relationship between peer-victimization and adjustment.

All but one of the studies in this review tested domain specific aspects of perceived social support of support as moderators. The findings may reflect children's previous experiences of accessing support from these domains, and the evaluation of how successful this support has been, and will be in the future (Pierce et al., 1991). The protective nature of perceived social support from teachers, parents, and peers/friends reported in some of the studies supports the buffering hypothesis of social support (Cohen & Willis, 1985). This suggests that perceived social support predicts the extent to which a stressful situation is appraised as threatening, harmful, or within the victim's control. Those with a perception of social support are more likely to appraise their experience as within their control and as such the appraisal of threat and harm is reduced. In addition, such perceived social support could provide victims with options on how to manage their situation, for example seeking support from a teacher or parent or talking to a friend (Cohen & Willis, 1985).

Some studies, however, found no moderating role of perceived support from a teacher or from a parent. Such studies included participants from an older age range, compared to the two studies that reported an effect. This may reflect the developmental shift seen in adolescence, where young people move away from dependence on parents and other adults for help and support, to a greater dependence on peers (Fuligni & Eccles, 1993).

The protective buffering role of perceived social support from friends was not consistently found. There are a number of possible explanations for why such support may not be protective. The findings may reflect children's evaluations of how successful such support has been in the past (Pierce et al., 1991), if victims have sought support previously but it failed to stop the victimization it may not be evaluated as a possible resource to draw upon for support. Alternatively, if children seek support from friends, discussing stressful experiences can be related to excessive rumination, which subsequently impacts on adjustment (Visconti & Troop-Gordon 2010). Finally, friends of the victim, may not offer any protection from victimization as they may be the perpetrators of the aggression, or the friendship may be characterized as high conflict, and as such would provide no support (Daniels, Quigley, Menard, & Spence, 2010).

Consistent with the literature on primary appraisals, findings suggest the relationship between peer-victimization, secondary appraisals and adjustment is dependent on the type of victimization experienced. Gender differences in outcomes to different types of victimization were also reported. The findings may reflect participants' previous experiences of accessing support in the past, and the success of this may be dependent on the type of victimization experienced. Friends and peers may perceive direct victimization as potentially more harmful or serious and therefore may be more likely to intervene and support the victim (Mishna, 2004). Boys and girls have different goals regarding friendship and peer relationships, where boys strive for dominance within the social group and girls strive for more intimate friendships (Scheithauer, Hayer, Petermann, & Jugert, 2006). Different forms of aggression challenge these goals differently, therefore any variation in outcome may also be due to gender differences in how the victimization is appraised. The reviewed literature however is limited, and yielded inconsistent results. Continued peer-victimization could affect the support networks available or the evaluation of the extent to which particularly sources of

support are likely to be helpful. Therefore, future research should employ longitudinal designs, and include measures of different types of victimization, different sources of perceived social support, and analysis by gender, to explore these issues further.

Future Research: Integrating the Transactional Model of Stress and the Socio-Ecological Framework

The findings of this review, alongside a parallel body of work on the role of coping, (e.g. Raskauskas & Huynh, 2015) demonstrate the utility of the TMS in aiding our understanding of how and why peer-victimization predicts adjustment. Appraisals are part of a complex transactional process between the person and their environment, where situational and individual factors play a role in the relationship between a stressor and adjustment (Lazarus & Folkman, 1984). The socio-ecological framework (Espelage, 2014) provides a useful framework for understanding such individual and situational factors pertinent to the peer-victimization experience. Future research, underpinned by an integration of both perspectives, would facilitate a more multidimensional understanding of the relationship between peer-victimization, appraisals, and adjustment.

Although not tested directly, the conclusions drawn from the reviewed literature suggest that continued experiences of peer-victimization are likely to change both primary and secondary appraisals. As with other reviews (e.g. Kretschmer, 2016), a dependence on cross-sectional methods was a feature of the work identified. This impedes our ability to identify causal relationships between peer-victimization, appraisals, and adjustment. From both a theoretical and analytical perspective, testing the role of appraisals in the relationship between peer-victimization and adjustment, and the social context of this relationship, should be undertaken using longitudinal data (Lazarus, 2000; Mackinnon, 2008).

Peer-victimization is typified by the frequent and repeated experience of aggressive behavior (Hunter et al., 2007), where the aim is to degrade and humiliate victims in front of

their peers (Björkvist, 2001b). The TMS outlines that situational factors such as the novelty and ambiguity, or the duration and perceived imminence, of the event, are likely to be appraised differently (Lazarus & Folkman, 1984). As peer-victimization continues, it is likely to affect the appraisal process as any coping strategies previously employed have failed to stop the victimization. Primary appraisals of threat may increase, and there may be a decrease in perceptions of control, and secondary appraisals of self-efficacy and global social support. Furthermore, friends and peers may not want to support the victim for fear of being targeted, which would subsequently influence the evaluation of the availability of support from friends/ peers (Mishna, 2004). Future longitudinal research should examine how the continuity or change in peer-victimization affects both primary and secondary appraisals, and subsequently adjustment.

The TMS also posits that appraisals can be mutually influential (Lazarus & Folkman, 1984). No studies were identified that had tested the interaction of appraisals in the relationship between peer-victimization and adjustment. Furthermore, Lazarus and Folkman (1984) proposed three forms of primary appraisal, threat, harm/loss, and challenge. Although previous research has identified a relationship between peer-victimization and challenge appraisals (Hunter, Boyle, & Warden, 2004), no studies were found that had studied the role of challenge appraisals in the relationship between peer-victimization and adjustment. Future longitudinal research should measure a broad range of appraisals, examine whether they are mutually influential in a peer-victimization context, and assess whether interactions between appraisals predict adjustment.

Practical Applications

The TMS offers a useful framework for understanding the relationship between peer-victimization and adjustment. As such, it could be used as a basis for developing theoretically sound and evidence-based interventions designed to buffer the impact of peer-victimization

on adjustment. Interventions could be developed to focus on specific cognitive appraisals found to play a role in the relationship between peer-victimization and adjustment. Such interventions could employ techniques to teach children and adolescents to employ more positive appraisals in response to victimization. Although limited, evidence suggests that social skills training focusing on appraisals, such as self-efficacy, can buffer the impact of victimization on adjustment (e.g. DeRosier, 2004). To date, the focus of many anti-bullying interventions tends to be on reducing the prevalence of the behaviors (Ttofi, Farrington, Lösel, & Loeber, 2011). Future research should also focus on developing interventions to buffer the negative impact of victimization. The findings of this review highlight that TMS offers a potential framework for the design of such interventions.

Limitations of the Review

The present review only considered studies published in English and in peer-reviewed journals. Valuable studies may have been omitted due to not being written in English, and there may be a publication bias in terms of the studies included in the review. All studies that met the inclusion criteria were included in the review, irrespective of the quality appraisal study. Therefore, the quality for the studies included in the review was diverse. There was heterogeneity in measures used for all variables of interest and as a result quantitative analysis of the findings through meta-analysis was not possible. This is reflective of the nature of the field, where there is great diversity in the way peer-victimization is measured.

Conclusion

The Transactional Model of Stress (Lazarus & Folkman, 1984) provides an important explanatory framework for understanding the impact of bullying on adjustment. Integrating the TMS within a Socio-Ecological Framework facilitates the exploration of individual and situational factors relevant to peer-victimization, and permits a more multi-dimensional examination of the relationship between victimization and adjustment. Primary and

secondary appraisals are identified as factors that can moderate or mediate this relationship, and can help explain individual variation in reactions to peer-victimization. Future research should employ greater use of longitudinal designs to examine a greater number of appraisals, and examine how appraisals change and interact over time in reaction to peer-victimization. Gender differences and differences in the types of victimization experienced should also be examined. Such research would contribute greatly to our understanding of the complex relationship between peer-victimization and adjustment.

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Figure 1: PRISMA diagram reporting search results

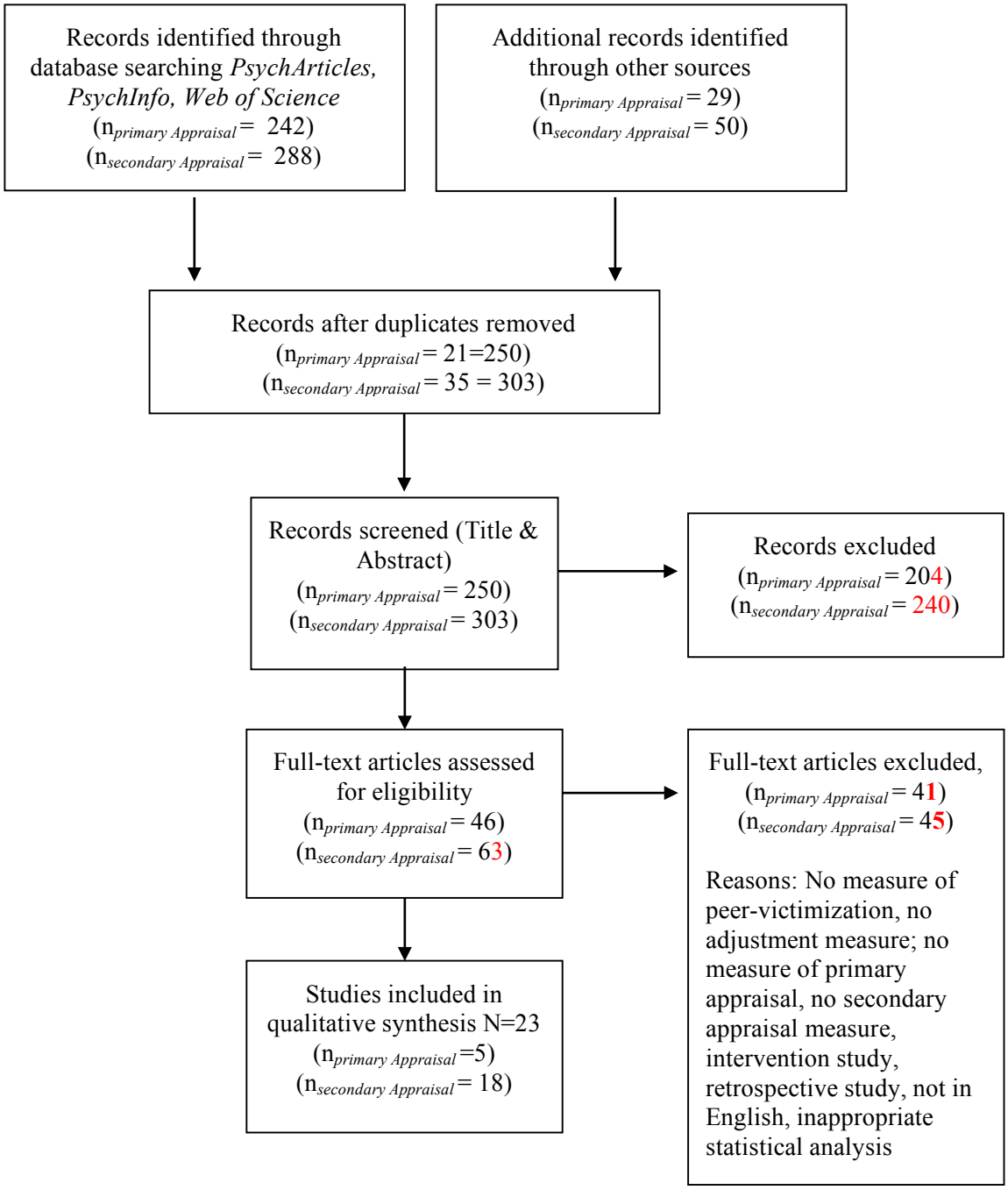

Table 1: Quality Appraisal of the Included Studies

	Study	Quality Appraisal Criterion*								
		1	2	3	4	5	6	7	8	Total
Primary Appraisal	1. Anderson & Hunter (2010)	●	◖	●	●	●	◖	●	●	7
	2. Catterson & Hunter (2010)	●	◖	●	●	●	◖	◖	●	6.5
	3. Gianotta et al. (2012)	◖	◖	●	●	●	◖	◖	●	6
	4. Hunter et al. (2010)	●	◖	●	●	●	◖	●	●	7
	5. Taylor et al. (2013)	●	●	●	●	●	◖	●	●	7.5
Secondary Appraisal	6. Barchia & Bussey (2010)	●		●	●	●	●	◖	●	7
	7. Chen & Wei (2013)	●	●	●	◖	●	●	●	●	7.5
	8. Cheng et al. (2008)	●	◖	●	●	●	●	●	●	7.5
	9. Cuadros & Berger (2016)	●	◖	●	●	●	●	●	●	7.5
	10. Davidson & Demaray (2007)	●	◖	●	●	●	●	●	●	7.5
	11. Hodges et al. (1999)	●	◖	●	◖	●	◖	◖	●	6
	12. Holt & Espelage (2007)	●	◖	●	●	●	●	●	●	6
	13. Lim et al. (2011)	●	●	○	●	●	◖	●	●	7.5
	14. Prinstein et al. (2001)	●	●	●	●	●	●	●	●	8
	15. Pouwelse et al. (2011)	●	◖	●	●	●	◖	○	●	6
	16. Rigby (2000)	●	◖	●	●	●	◖	○	●	6
	17. Rigby & Slee (1999)	●	◖	●	◖	●	◖	○	●	5.5
	18. Rothon et al. (2011)	●	●	●	●	●	◖	●	●	7.5
	19. Seeds et al. (2010)	●	◖	○	●	●	●	◖	●	6
	20. Schmidt & Bagwell (2007)	●	◖	●	●	●	◖	◖	●	6.5
	21. Singh & Bussey (2011)	●	◖	●	●	●	●	●	●	7.5
	22. Tanigawa et al. (2011)	●	◖	●	●	●	●	○	●	6.5
	23. Woods et al. (2009)	●	◖	●	●	●	◖	●	●	7

● Criteria Met ○ Criteria Not Met / Not reported ◖ Criteria Partially Met

**Notes:*

1) Was the sample size representative of the target population? 2) Were study participants recruited in an appropriate way? 3) Was the sample size adequate? 4) Were the study subjects and setting described in detail? 5) Is the data analysis conducted with sufficient coverage of the identified sample? 6) Were objective standard criteria used for measurement of the condition? 7) Was the condition measured reliably? 8) Was there appropriate statistical analysis?

Table 2: Study Characteristics

	Study	Sample						Design		Measures[2]			Analysis
		Country	$N_{Schools}$	N_{Sample}	Sex	Ethnicity[1]	Age	Design	Source	Peer-victimization	Appraisal	Adjustment	
Primary Appraisal	1. Anderson & Hunter (2010)	UK	3	146	M=44% F=56%	NR	10-13 years M_{Age} = 11.5 (SD=1.02)	CS	SR	Physical, verbal and indirect victimization,	Threat, blame & control appraisals	Emotional outcome; anger, sadness and fear (*single item measures of feeling angry, sad or scared)*	Mediation
	2. Catterson & Hunter (2010)	UK	4	110	M=49.1% F=50.9%	NR	8-12 years M_{Age} =10.08 (SD=1.04)	CS	SR	Total Peer-victimization	Threat, blame & control appraisals	Loneliness	Mediation
	3. Gianotta et al. (2012)	Italy	1	155	M=47.7% F=52.3%	NR	12-13 years, M_{Age} =12.2 (SD=0.5)	CS	SR	Physical and relational victimization	Threat appraisals: negative self-evaluation negative evaluation by others, loss of relationship Total threat to self	Internalizing symptoms; depressive symptomology externalizing symptoms; **p**hysical aggression, nonphysical aggression, delinquency	Mediation
	4. Hunter et al. (2010)	UK	NR	925	M=54% F= 46%	26.6%-99.1% of pupils in participating schools were classified as 'minority' pupils.	8-12 years M_{Age} =9.81 (SD-0.91)	CS	SR	Discriminatory & non-discriminatory peer-victimization	Threat & control appraisals	Depression	Mediation
	5. Taylor et al. (2013)	USA	ComS	326	M=46% F=54%	100% African American	10-16 years M_{Age} =12.1 (SD=1.6)	LS 2 years	I; SR & PR	Physical and relational victimization	Threat appraisals: negative self-evaluation, negative evaluation by others	SR; physical aggression, non-physical aggression and relational aggression, Anxiety & depression PR; behavioral and emotional problems, aggression and anxiety/depression	Mediation
S e	6. Barchia & Bussey	Australia	14	T1 1,285	T1 M=46.1%	NR	12-16 years	LS 8 Months	SR	Total peer-victimization	School collective efficacy, self-	Depression	Mediation

	(2010)			T2 1177	F= 53.9% T2 M=46.1% F=53.9%		Grades 7 - 10 M_{Age} NR				efficacy to enlist support from friend and parent		
	7. Chen & Wei (2013)	Taiwan	12	1,650	M=51,4% F=48.2% Dnr=0.4%	NR	13-16 years Grades 7-9 M_{Age} NR	CS	SR	Total peer-victimization	Perceived social support (peers)	Psychological health *(A measure of participants general mental health status).*	Mediation
	8. Cheng et al. (2008)	Hong Kong	4	712	M=53.7% F=46.3%	NR	13-18 years M_{Age}=15.7 (SD=2)	CS	SR	Total peer-victimization	Perceived social support (close friend, parents)	Depression	Moderation
	9. Cuadros & Berger (2016)	Chile	4	614	M=49.9% F=50.1%	NR	Grades 4-6 M_{Age} NR	LS 1 years	SR	Total peer-victimization	Friendship quality (affection: *degree of affection in a friendship*, disclosure: *disclosure of personal information,* perceived support: *support and care and acceptance in a friendship*, closeness: *degree of closeness*)	Socioemotional wellbeing	Moderation
	10. Davidson & Demaray (2007)	USA	1	355	M=47% F=53%	Caucasian =97%, Hispanic=2%, African American=0.8%, Asian American=0.3%	11-14 years Grades 6-8 M_{Age} NR	CS	SR	Total peer-victimization	Perceived social support (parents, teacher, classmates, school, friend)	Externalizing distress, internalizing distress	Moderation
	11. Hodges et al. (1999)	Canada (French-Canadian)	7	T1 533 T2 393	T1 M=51.4% F=48.6% T2 M=47.8% F=52.2%	NR	T1 M_{age}=10 years 7 months	LS 1 year	PN, SR & TR	Total peer-victimization	Friendship quality (Protection: *extent to which friends would help and protect them,* and companionship; *indication of time spent together. Security*: feeling safe in friendship, and conflict; *degree of conflict in a friendship*)	Behavioral problems	Moderation

	12. Holt & Espelage (2007)	USA	2	784	M=47% F=53%	White, Non-Hispanic= 52.9%, African American = 269; 34.3%Hispanic =5.7%, Asian = 1.3%, Native Ameri can = 1.1% "Other" = 4.6%	12-19 years M_{Age} = 14.51 (SD=1.97)	CS	SR	Total peer-victimization	Perceived social support (parents, friend)	Anxiety, depression	Moderation
	13. Lim et al. (2011)	USA	ComS	96	M=46.9% F=53.1%	Caucasian=51.0%, African American=29.2%, Hispanic=4.2%, Native American= 5.2%, bi- or multiracial= 3.1%, other or unknown= 7.3%	8-17 years M_{Age} = 12.8 (SD=1.8)	CS	SR	Total peer-victimization	Perceived social support (parents, friend)	Depression	Moderation
	14. Prinstein et al. (2001)	USA	NR	566	M=44.7% F=55.3%	Caucasian=21.8%, Hispanic=60.3% African American=10.6%, 7.3% other or mixed ethnicity mixed ethnicity)	14-17 years Grades 9-12 M_{Age} NR	CS	SR	Overt aggression, relational aggression, overt victimization, & relational victimization.	Close friend support (Friend)	Depression, loneliness, self-esteem, externalising symptoms,	Moderation
	15. Pouwelse et al. (2011)	Netherlands	10	606	M=52.5% F=47.5%	61.1% Dutch origin=61.1%, Surinam or Antillean origin=9.7%, Turkish origin=11.1%, Moroccan origin=9.6%, other origins=8.5%	9-13 years M_{Age} NR	CS	SR	Total peer-victimization	Perceived social support (Global)	Depression	Moderation & Mediation
	16. Rigby (2000)	Australia	3	845	M=53.3% F=46.7%	NR	12-16 years M_{Age} NR	CS	SR	Total peer victimization.	Perceived social support (Global)	Somatic complaints, anxiety, depression, social dysfunction	Moderation
	17. Rigby & Slee, (1999)	Australia	Study 1= 2 Study 2 = 3	S1 1,103 S2 845	S1 M=542 F=561 S2 M=450 F=395	NR	12-18 years S2 12-16 years M_{Age} NR	CS	S1 SR S2 PN & SR	Total peer-victimization	Perceived social support (Global)	Suicide Ideation	Moderation
	18. Rothon et al. (2011)	UK	28	2,790	M=48.6 % F=51.4%	White =27%, Bangladeshi=25.1%, Black= 20.9%, Indian=9.1%, Pakistani=6.7%, Other ethnic origin=11.2%	T1 M_{Age} NR Years 7 and 9 11-14 years	CS	SR	Total peer-victimization	Perceived social support (parents, friend)	Depression	Moderation

	19. Schmidt & Bagwell (2007)	USA	3	670	M=53% F=47%	Hispanic=54%, White=34%, 12% African American=12%	8-10 years M_{Age}=9.22 (SD=0.91)	CS	SR	Overt victimization & relational victimization.	Friendship quality (closeness: *the sense of attachement in the friendship*, companionship: *extent friends offer affection and intimacy*, security: *level of trust in the friendship*, help: *the help offered in a friendship to manage problems*)	Depression & anxiety; social concerns (*participants' worries about themselves in social settings)* & worry (*extent to which participants internalise their anxiety)*	Moderation
	20. Seeds et al. (2010)	Canada	NR	101	M=36.6% F=63.4%	European ancestry=96%	13-18 years M_{Age} = 15.51 (SD=1.27)	CS	I, SR	Peer perpetrated bullying	Perceived social support (Global)	Depression	Mediation
	21. Singh & Bussey (2011)	Australia	18	2,161	M=50.4% F=49.6%	White=63%, Middle-Eastern=17%, Asian=10%, Other ethnic groups=10%.	10-15 years M_{Age} =12.74 (SD=NR)	CS	SR & PN	Total peer-victimization	Self-efficacy for: avoiding aggressive behavior, proactive behavior, victim-role disengagement, and avoiding self-blame.	Social anxiety, depression, externalising problems	Mediation
	22. Tanigawa et al. (2011)	USA	3	544	M=43.8% F=56.2%	Hispanic/Latino=40%, White=29%, Multiethnic=20%; Asian=5%, Black/African American=2%, American Indian or Alaskan Native=<1%), Other =<1%.	11-13 years 7^{th} & 8^{th} grades M_{Age} NR	CS	SR	Total peer-victimization	Perceived social support (parents, teachers, classmates and friend)	Depression	Moderation

	23. Woods et al. (2009)	UK	1	401	M=47% F=53%	Black=42%, Asian=25%, White=23%, Mixed=8%, Other=1.7%	11-16 years M_{Age} NR	CS	SR	Direct & relational victimization	Friendship quality (closeness: *the sense of attachment in the friendship*, conflict: *the degree of conflict in a friendship*, companionship: *extent friends offer affection and intimacy*, security *level of trust in the friendship*, help: *the help offered in a friendship to manage problems*)	Loneliness and social dissatisfaction	Moderation

Notes:
NR = Not Reported; ComS = Community Sample; M= Males; F= Females; Dnr= Did not report; S = Study; T = Time point; CS = Cross Sectional Study; LS = Longitudinal Study; SR = Self-Report; I = Interview; PR = Parent Report; PN = Peer Nomination; TN = Teacher Nomination
[1]Ethnicity: The categories presented here are taken directly from the studies.
[2]Measures: only the measures relevant to the inclusion criteria are summarised here