# Effectiveness and transportability of primary school violence prevention interventions: A systematic review

Jessica Ehrenreich

Naseegha Firfirey

PSY4000W

University of Cape Town

Supervisor: Catherine Ward

Co-supervisor: Soraya Lester

Word count

Abstract: 248

Main Body: 9,999

## Plagiarism Declaration

1. We know that plagiarism is wrong. Plagiarism is to use another's work and pretend that it is one's own.
2. We have used the APA convention for citation and referencing. Each contribution to, and quotation in, this essay from the work(s) of other people has been attributed, and has been cited and referenced.
3. This essay is our own work.
4. We have not allowed, and will not allow, anyone to copy our work with the intention of passing it off as his or her own work.
5. We acknowledge that copying someone else's assignment or essay, or part of it, is wrong, and declare that this is our own work.

Signature: *Jessica Ehrenreich*

Signature: *Naseegha Firfirey*

**Acknowledgements**

We would like to express our gratitude to our supervisor, Prof. Catherine Ward, for her continuous efforts and guidance throughout this research project.

A further thank you goes to our co-supervisor, Soraya Lester, who has provided us with her ongoing support, feedback and assistance with this thesis.

A special thank you to Alex D'Angelo, the librarian at the University of Cape Town, for his assistance in research related queries.

Lastly, we would like to thank our families for their persistent support, patience and encouragement.

## Abstract

School violence is a problem both globally and in the South African context, and results in a number of social, emotional, and psychological consequences. We conducted a systematic review to identify and assess the effectiveness of interventions aimed at preventing primary school violence among peers, as well as the transportability of these interventions to the South African context. Studies were eligible if they were published between 2005 and 2017, were randomised controlled trials and assessed violence between primary school learners. Studies that assessed interventions aiming to reduce violence such as bullying, externalising behaviour and aggression were included in the review. We identified 35 studies that met our eligibility criteria. Thirty-three of the studies were conducted in high-income countries. Of these, 26 were conducted in North America, including Canada and the United States, six studies were conducted in Europe and one in the Western Pacific. Two studies were conducted in Africa; one was completed in a lower-middle income country and the other a low-income country. The majority of the studies reported a significant improvement in violence related behaviours. The studies described 23 different interventions, which varied considerably in design and content. Two interventions targeted only boys, one targeted only girls, while the rest targeted both boys and girls. Eleven of the interventions have been transported from the original place of study. However, none of them were transported to upper middle-income countries such as South Africa. More research is required on the effectiveness of interventions in low- and middle-income contexts.


*Keywords:* systematic review; primary school violence; bullying; aggression; randomised controlled trials; intervention; transportability.

## Introduction

The magnitude of the problem of violence in South African primary schools is alarming. A nationally representative school violence study done in South Africa in 2008 showed that 15.3% of primary school children had experienced or been exposed to various forms of violence while attending school (Burton, 2008a). This refers to both interpersonal physical and emotional violence, namely physical attacks, sexual harassment and threats of violence (Burton, 2008a). Incidents of physical attacks by learners amounted to 7.5% (Burton, 2008b) while 12% of primary school learners stated that they had been victims of relational violence - shouting or intentionally being embarrassed by learner perpetrators in the presence of other peers (Burton, 2008a). Between 2006 and 2007, cases of sexual harassment among South African primary school learners amounted to 106,249 (Burton, 2008c). There is some evidence, although not nationally representative, that many - 91.3% in one small study - primary school children have witnessed learners physically attacking one another (Shields, Nadasen, & Pierce, 2008). This kind of exposure is also detrimental to children's mental state (Shields et al., 2008).

Although these studies revealed high rates of interpersonal violence among learners, 96.3% of primary school learners stated that they did not consider themselves in danger at school, which might indicate the extent to which school violence has become normalised (Burton, 2008b). The prevalence of violence in primary schools appears to vary according to socioeconomic background, race and gender. Greater rates of learner-to-learner violence in primary schools were reported to have been experienced by Coloured (22%) and Black learners (20.2%) compared to White learners (16.9%; Burton, 2008c; De Wet, 2003; Shields et al., 2008). In terms of gender, relational violence is more common among girls while boys are more likely to engage in physical forms of violence (Menesini & Salmivalli, 2017).

Rates of school violence in South Africa are higher than those in the United States (US) and other high-income countries (Burton, 2008c) although globally, violence in primary

schools also occurs at high rates. For instance, in a study on prevalence of violence in primary schools in Cairo, interpersonal violence between learners amounted to 69% (Ez-Elarab, Sabbour, Gadallah, & Asaad, 2007). In Massachusetts, 23% of elementary school learners reported having been bullied up to three times in one month (Yerger & Gehret, 2011).

Clearly, violence among learners in primary schools is prevalent, and this is the focus of this systematic review. Violence refers to:

> The intentional use of physical force or power, threatened or actual, (against oneself), another person, or against a group or community, that either results in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation (Krug, Dahlberg, Mercy, Zwi, & Lozano, 2002, p. 5).

More specifically, school violence refers to "violence occurring on school premises, while travelling to or from school, or during a school-sponsored event" (Lester, Lawrence, & Ward, 2017, p. 2). Forms of school violence include harassment, bullying and teasing (Leoschut, 2008). According to Olweus (1997), bullying refers to when a learner is "exposed, repeatedly and over time, to negative actions on the part of one or more other students" (p. 496). These actions may be physical or emotional (Burton, 2008b; Olweus, 1997). Bullying also involves unequal power relations between the bully and victim (Lester et al., 2017; Menesini & Salmivalli, 2017). This imbalance can result from the victim being physically weaker than the bully, having less institutional power or a difference in number where a group is bullying an individual (Olweus, 1997). Bullying is a subset of violence, and, from the definitions of 'violence' and 'bullying' above, differences between the two lies in the imbalance of power and repetition of acts in bullying while violent acts need only occur once. Whether these violent acts occur once or are repeated, it is a problem that is unacceptable and needs to be addressed. Thus, violence, including bullying, will be addressed in this review.

Not only is the extent of violence in primary schools alarming but its consequences are too, in both local and international contexts. High rates of school violence negatively affect the quality of education received as well as the emotional and physiological state of these victims (Burton, Leoschut, & Popovac, 2011; Makota & Leoschut, 2016). Exposure to school violence may lead to permanent health, economic, educational and social problems (World Health Organization, United Nations Office on Drugs and Crime, & United Nations Development Programme, 2014). Learners who experience violence are likely to have low confidence levels and to be less popular at school (Johnson, 2009; Yerger & Gehret, 2011). School violence affects their academic performance and learning abilities (Ez-Elarab et al., 2007; Johnson, 2009), and increases the dropout and absenteeism rates (Menesini & Salmivalli, 2017). In turn, these consequences negatively affect opportunities for employment later on for victims (Gavine, Donnelly, & Williams, 2016; Menesini & Salmivalli, 2017). Suicide rates as well as reports of mental health disorders such as depression and anxiety are higher for learners exposed to violence than those who are not (Johnson, 2009; Liang, Flisher, & Lombard, 2007; Olweus, 1997; Yerger & Gehret, 2011). A long-term consequence for learners involved in school violence is the increased risk of delinquency and criminal behaviour later on in life (Olweus & Limber, 2010).

There are several reasons why an emphasis needs to be placed on interventions specifically in primary schools, rather than later in the educational trajectory. Firstly, earlier exposure to violence is related to a long list of health risk behaviours, such as consuming alcohol and smoking, that emerge in adolescence, as well as experiencing a range of chronic health conditions such as depression, cancer and heart disease (Ez-Elarab et al., 2007; Gavine et al., 2016). Early exposure to violence might contribute to an increased and more severe use of or exposure to violence at an older age (Eisenbraun, 2007). If exposure to violence can be prevented in young children, it is highly likely that these behaviours will be prevented in

adolescents (Nation et al., 2003). Secondly, Yerger and Gehret (2011) also suggest that younger learners are more vulnerable and inclined to be influenced by those who surround them daily such as parents and school teachers. Due to this vulnerability, children not only learn negative actions and habits from parents and teachers but positive ones too if they are exposed to them. The third reason is that adjusting negative behaviours is more difficult later on when children are older and have already adopted their negative habits (Yerger & Gehret, 2011). Lastly, interventions have shown better outcomes when conducted in primary schools (Dymnicki, Weissberg, & Henry, 2011; Kärnä et al., 2013; Piotrowski & Hoot, 2008). Due to the high prevalence rates and consequences of violence in primary schools discussed above, the importance of violence prevention interventions hardly needs to be stressed.

There is clear evidence that primary schools are important targets for violence prevention interventions. One significant gap in the literature is that not much attention appears to have been paid to interventions that reduce school violence in general, rather than bullying specifically. Another gap is that there appear to be very few interventions aimed at preventing primary school violence, while a great deal of attention has been paid to violence in high schools. This limitation extends particularly to the South African context where the rates of violence are high (Ward et al., 2012). Our proposal therefore addresses another gap as the majority of prevention interventions have been studied in high income countries. South Africa is an upper middle-income country (The World Bank Group, 2017) and the transportability - the replication of interventions to different contexts - of these successful interventions is unknown.

Given the importance of prevention interventions in primary schools and the difficulty in identifying interventions in low- to middle-income countries, a systematic review will be conducted. A systematic review allows us to examine the state of the evidence and whether

there is any evidence to suggest that these interventions might be suitable in low- to middle-income countries.

## Objectives

The key aim of this review is to answer the following research questions:

1. How effective are violence prevention interventions in reducing peer violence in primary school settings?
2. Is there evidence that these effective interventions might be successfully transported into low-and middle-income contexts such as South African primary schools?

## Methods

### Criteria for Inclusion and Exclusion of Studies in the Review

Studies were included in this systematic review if they met the following criteria:

- They used a randomised controlled trial (RCT) design as it is the design that provides the strongest evidence of effect (Cochrane Consumer Network, n.d.).
- The participants were primary school students in grades one to seven, ages six to 13. This age group falls under *elementary* or *middle* school in some of the literature and studies using this alternate terminology were included.
- Studies on interventions in kindergarten, primary and high schools were included if the results were differentiated by grade or age, so that the results for primary schools were clear.
- Interventions measured violence as an outcome variable. Studies on interventions using other terminology for violence, such as “aggression”, “bullying” and “externalizing behaviour” were also included.

- Studies that measure outcome variables such as attitudes towards violence were not included, as attitudes are not strong predictors of behaviour (Snyder & Kendzierski, 1982).
- Studies that used medication as an intervention for violence were excluded.
- Interventions adopting universal, selective, indicated, whole-school, discrete, comprehensive and specific approaches (Gevers & Flisher, 2012; Mrazek & Haggerty, 1994).
    - Universal approaches are aimed at everyone in the suitable population. Selective approaches are aimed at individuals in certain subgroups of the population who are at a higher than average risk of engaging in a particular behaviour. Lastly, indicated approaches are aimed at individuals who have exhibited risk factors for a particular behaviour and are therefore at an increased risk for developing that behaviour in the future (Mrazek & Haggerty, 1994).
    - Whole-school approaches involve all facets of the school whereas discrete approaches target specific facets of the school (Gevers & Flisher, 2012).
    - Comprehensive interventions cover many risk behaviours whereas specific interventions are focused on particular risk behaviours (Gevers & Flisher, 2012).
- Interventions which aimed to prevent corporal punishment, cyber bullying, dating violence or other forms of violence that do not occur on school premises or during school related events were excluded as they were beyond the scope of this study.
- Studies must have been published between 2005 and 2017.
- Searches were limited to peer-reviewed papers. No grey literature was included.
- Only papers published in English were included.

- The search was not restricted by geography, publication status or other study characteristics.

**Search Strategy for Finding Eligible Studies**

This review is building on previous work conducted by two pairs of researchers from the University of Cape Town on the broad topic of school violence. These teams conducted literature searches for the years 2005-2010 and 2011-2015 respectively. Searches had been conducted in multiple databases and were limited to searching within abstracts using the search terms, *school AND (violen* OR aggress* OR bully* OR bulli*)* for the period 2005 to 2015. Hand searches were also conducted in relevant journals. Each researcher had conducted his/her own searches independently and the results from these databases and hand searches were saved. No further work was done once the abstracts had been downloaded.

For the current review, using the same search string as the previous teams, databases and hand searched journals were updated. Independently each of us updated the searches for the period of October 2015 to 2017, as the previous teams finished their searches in September 2015. These teams also conducted searches within grey literature; however, this literature was excluded in this review (see Appendix A).

**Search Terms and Keywords**

Each of us screened the previous teams' and updated search results independently. To refine the searches to fit our current topic, the following process was conducted within each library:

1. The terms "intervention" or "prevention" were searched. Results were saved in a separate folder.
2. Within this new folder, the terms "primary" or "middle" or "elementary" were searched. The results from this search were saved in a second folder.

3. Within the second folder, the terms “randomised” or “randomized” or “RCT” were searched and results saved in a final folder.

The limiters were set to “any field” and “contains” so that any study containing the abovementioned search terms in any section of the paper would be found. After each individual search, the number of results were recorded.

**Data Collection and Analysis**

**Selection of studies**. When selecting data for inclusion the following steps were taken:

1. We searched all libraries from previous studies and all updated searches independently. From the narrowed down results, we reviewed the abstracts and titles independently to make decisions on inclusion and exclusion.
2. Screened abstracts were compared by both reviewers and consensus was reached regarding relevant abstracts.
3. From the final list of abstracts, full-texts were downloaded independently and screened for inclusion (see Appendix B). If information was missing or unclear, we contacted the author when possible.
4. Once completed, we met to agree on a final list of included studies.
5. After each step, we recorded the number of included and excluded studies in the PRISMA flow diagram (see Figure 1; Moher, Liberati, Tetzlaff, Altman, & The PRISMA Group, 2009).
6. From the final list of included studies, all relevant data was extracted as described below.

**Data extraction and management.** The data from the final list of full-text studies was independently extracted by the reviewers using the data coding form (Appendix C). The first 11 were extracted by both reviewers to compare consistency of data extraction, which was achieved. The remaining studies were split between the two reviewers. This form included

information about the intervention approach, grades involved, implementer, study and intervention duration, programme content, type of violence assessed, items used to measure violence, WHO region, country income group, data for transportability and study results. In terms of coding the country's income group, categories of low-, lower middle-, upper middle- and high-income were used (The World Bank Group, 2017). For measuring transportability, place of origin, place to which transported, and results were reported. If we could not find any evidence that interventions had been transported, we assumed that they were not transported. The Cochrane handbook recommends the use of the PROGRESS characteristics which stands for Place, Race, Occupation, Gender, Religion, Education, Socioeconomic status, Social status ("National Collaborating Centre for Methods and Tools", 2015). We recognise that the effects of interventions may be moderated by these factors. We collected data for all of these characteristics except Occupation, Religion, Education and Social status as these would play a very little role in the lives of learners.

**Assessment of risk of bias in included studies.** We each assessed the risk of bias in the studies using the Downs and Black (1998) checklist to assess the methodological quality of RCTs (Appendix D). This assessment included various domains of reporting, validity, and power to assess the risk of bias. Each bias was coded as yes, no or unable to determine. At the end, numbers of yes, no and unable to determine were tallied and each study was assessed accordingly. From this, each study was coded as either having an "excellent", "good", "fair" or "poor" risk of bias (Downs & Black, 1998). We used this to identify possible limitations of the studies and the effects of the bias when interpreting the results.

**Measures of treatment effect.** If the intervention effect size was reported, it was identified to assess the size of the treatment effect, if any. We included standardised effect sizes such as Cohen's *d*, $R^2$, and odds ratio.

**Unit of analysis issues.** We examined whether the data that was analysed in each study was appropriate for the design.

## Results

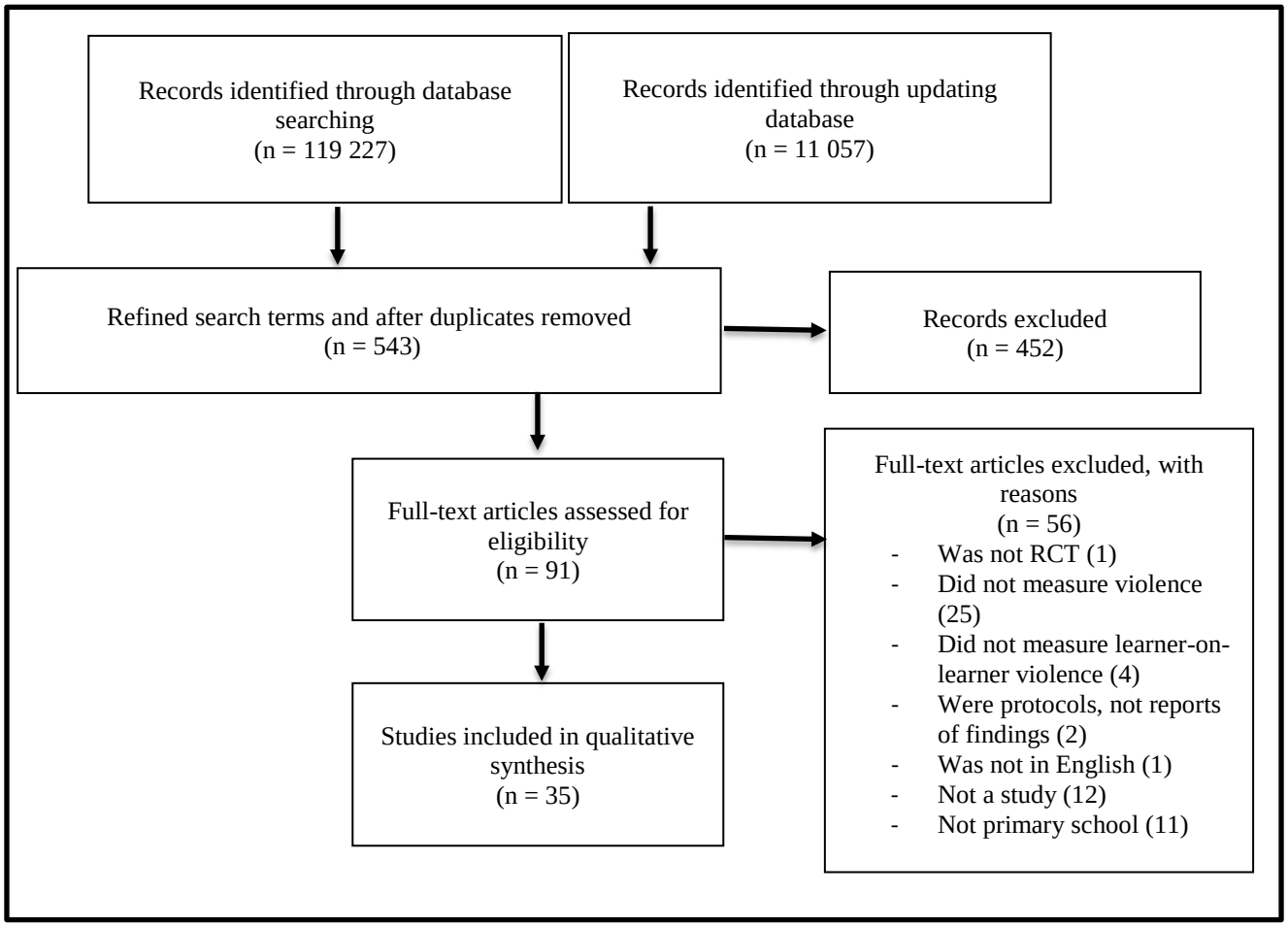


Figure 1: PRISMA diagram

The electronic library search of previous teams and updated database searches initially returned 119,227 abstracts. After applying refined search terms, 543 potential articles were identified. After assessing the full-texts, the final number of studies included in the qualitative analysis was 35.

Table 1
*School Violence Prevention Programmes*

| Programme Name | Target population | Implementer & amount of training | Number & duration of session(s) | Programme content |
|---|---|---|---|---|
| Universal, whole-school, & comprehensive programmes | | | | |
| 1. Postive Action (PA) Program[a] (Duncan et al., 2017; Lewis et al., 2013; Li et al., 2011; Snyder et al., 2013) | Grades K-12 | Teachers 4-hour training in the first year and 2 hours in subsequent years. | 15-20-minute sessions (140 lessons per year for grades K-6, 70 lessons for grades 7 & up) | Sessions follow a sequence organized into 6 units by grade level: 1. Self-concept; 2. Positive actions for your mind & body; 3. Managing yourself responsibly; 4. Treating others the way you like to be treated; 5. Telling yourself the truth; and 6. Improving yourself continually (Positive Action, n.d.) |
| 2. Steps to Respect (STR)[a] (Brown, Low, Smith, & Haggerty, 2011; Low, Van Ryzin, Brown, Smith, & Haggerty, 2013) | K- grade 5 | Teachers 1-day training | 11 weekly 1-hour lessons (45-minute skill lesson and 15-minute follow-up booster are taught weekly) | Creating positive peer relationships; emotion regulation; and recognizing, refusing, and reporting acts of bullying |
| 3. Stop Now and Plan (SNAP)[b] (Burke & Loeber, 2016) | Initially for boys under 12 years. Today, there are gender specific programmes for children ages 6-11 years & ages 13-17 years (Child Development Institute, 2016) | Experienced and highly-trained SNAP staff (Child Development Institute, n.d.) | 12 weeks | Each group session moves through various exercises, and addresses 1 topic per week: including stealing, anger management, and managing group pressure. Children are taught cognitive and behavioural skills and are placed in practical situations. They also observe others and apply these skills to specific circumstances. Each session uses role-play, problem solving and feedback from peers to assess solutions |

| Programme Name | Target population | Implementer & amount of training | Number & duration of session(s) | Programme content |
|---|---|---|---|---|
| 4. Shifting Boundaries[b] (Taylor, Mumford, Liu, & Stein, 2017) | Middle school students (Child Trends, 2015) | School counsellors; 1-day training | 6 sessions | Topics covered include:<br>The importance of constructing and expressing boundaries in relationships, repercussions of abuse and sexual harassment for perpetrators as well as legal penalties involved, and respectful relationships |
| 5. Aban Aya Youth Project (AAYP): Two interventions -Social Development intervention (SDC) - School/family/community (SC) intervention curriculum (Child Trends, 2012; Jagers, Morgan-Lopez, Flay, & Aban Aya investigators, 2009) | Grades 5-8 | Trained health educators employed by the project; 2 training sessions before each lesson was conducted | 16-21 lessons per year (SDC) | SDC sessions aimed to aid youth in avoiding violence, sexual behaviour, delinquency, drug use, and unsafe sexual behaviour. Sessions were described as culturally sensitive; African America values are included in the programme, such as self-determination and unity. Culturally relevant teaching strategies, such as using proverbs and telling stories, and literature and history were combined to encourage the development of the necessary cognitive-behavioural skills needed to achieve those aims. |
| Universal, discrete, & comprehensive programmes | | | | |

| Programme Name | Target population | Implementer & amount of training | Number & duration of session(s) | Programme content |
|---|---|---|---|---|
| 6. Second step[a] (Espelage, Low, Polanin, & Brown, 2013; Espelage, Low, Polanin, & Brown, 2015; Espelage, Low, Van Ryzin, & Polanin, 2015; Espelage, Rose, & Polanin, 2015; Sullivan, Sutherland, Farrell, & Taylor, 2015) | Grades 1-8 | Teachers who taught at least 1 core subject / study staff.<br>2-hour training | 15 or 30 sessions (one 50-minute or two 25-minute sessions per week). | Interpersonal conflicts & problem solving, empathy & perspective taking, anger management, and applying skills concerning raising a complaint, defusing fights, proceeding in bullying situations, & withstanding gang and peer pressure. |
| 7. Antibullying Program[c] (Fekkes, Pijpers, & Verloove-Vanhorick, 2006) | | Teachers<br>2-day training | 1 year, duration not specified | Developing a written anti-bullying school policy describing the activities that a school aims to implement during the school year and how to manage bullying occurrences. |
| Universal, discrete, & specific programmes | | | | |
| 8. Tools for Getting Along (TFGA) (Smith et al., 2016; Smith et al., 2014) | Upper elementary school | Teachers<br>10 hours of training over 2 days, at the beginning of each year | 26 sessions, once or twice a week (13-26 weeks);<br>Approximately 30 minutes per session, taught twice a week | 6 key problem solving-skills are taught,<br>5 role-play lessons are conducted to allow students to practice skills learnt, 6 review sessions are conducted in small groups which include role-playing & reviewing of skills taught |
| 9. Youth Matters (YM) (Jenson & Dieterich, 2007; Jenson, Dieterich, Brisson, | Grades 4 & 5 | Trained social workers and educators (not classroom educators)[1]<br>1 to 2 days training. | 40 sessions; duration not specified | The programme consists of a series of modules which end with class or school-wide projects that show the negative effects bullying and aggression have on students (for both the victims and bullies). |

[1] J. Jenson, personal communication, November 1, 2017

| Programme Name | Target population | Implementer & amount of training | Number & duration of session(s) | Programme content |
|---|---|---|---|---|
| Bender, & Powell, 2010) | | | | Modules include discussions about good friendships, bullying and teasing, and having empathy.<br>Children also learn ways to avoid trouble and antisocial behaviour. |
| 10. Coping Power Program (CPP) (Muratori et al., 2014) | Late elementary school and early middle school years (Coping Power, 2006) | CPP-certified trained psychologists and teachers<br>9 hours of training | 24 sessions once a week, 60-75 minutes | Session 1: Group setting and behavioral goal setting procedure; sessions 2–3: short- and long-term goal-setting; sessions 4–6: recognising emotions and physiological arousal related to anger; session 7: anger and self-control; session 8–10: using self-statements for anger coping; session 11: relaxation and overcoming difficulties to self-control; session 12–14: perspective taking; session 15: perspective taking and problem-solving; sessions 16–19: problem-solving in social setting; session 20–23: groups create problem-solving videos; session 24: evaluate and conclude the programme |
| 11. Guiding Responsibility and Expectations for Adolescents for Today and Tomorrow (GREAT) student curriculum & GREAT teacher program | Grade 6 | Graduate students and former trained teachers | Students<br>20 sessions | Topics included: Avoiding threatening situations, ignoring teasing, requesting help, discussing issues, defusing situations, and helping other students.<br><br>A combination of skill rehearsal, group activities, and observational learning was used to assist students in practicing the content covered during sessions. |
| GREAT teacher program (Simon et al., 2009) | Grade 6 teachers of main academic subjects | | Teachers<br>12-hour workshop done over 2 days and 10 consultations done every 2-3 weeks during the year. | Teachers: Received information about the GREAT student curriculum and were taught new skills to provide better support for the programme, engaged with one another and discussed solutions to common problems in the classroom and school-wide issues, discussed their role in reducing aggression and disruptive behaviour in their classes, were then given the chance to explore and practice the new skills learnt. |

| Programme Name | Target population | Implementer & amount of training | Number & duration of session(s) | Programme content |
|---|---|---|---|---|
| 12. Promoting Alternative Thinking Strategies (PATHS)[a] (Averdijk, Zirk-Sadowski, Ribeaud, & Eisner, 2016; Blueprints, 2017; Crean & Johnson, 2013) | K to grade 6 | Teachers<br>2 days of training | 131 sessions. 20-30 minutes 2 to 3 times per week | 6 volumes of lessons, pictures, photographs and other materials that cover identification of feelings. The topics covered are: self-control and readiness, emotions and relationships, and social problem solving<br><br>Homework and letters to parents are also included to ensure a universal approach. |
| Universal, whole-school, & specific programmes | | | | |
| 13. Fast track PATHS[a] (Bierman et al., 2010) | Grades 1 - 5 at high-risk schools | Teachers, with project staff support. | Grade 1: 57 sessions.<br>Grade 2: 46 sessions<br>Grade 3: 48 sessions<br><br>20-30-minute sessions taught twice or thrice a week for about 8 months | 40% of sessions covered skills on understanding and conveying emotions.<br>Sessions include:<br>Identifying feeling words and situations which evoke particular feelings and understanding others' feelings. Inappropriate and appropriate responses are identified.<br><br>30% of lessons cover positive social behavioural skills which include: making and maintaining friendships, switching and sharing games, resolving issues with friends, self-expression, and taking heed of others. |
| 14. Creating a Peaceful School Learning Environment (CAPSLE) (Fonagy et al., 2009) | Elementary school children (Child Trends, 2014) | Trained research assistants<br>1-day training at the beginning and half day training at beginning of second year | 9 sessions; 15-45 minutes | Creating awareness of subjective experiences of bullies, victims, and bystanders, teachers exploring thoughts and feelings associated with aggressive actions, a defensive martial arts program, peer or adult mentorship allowing for reflection on interpersonal interactions, and reflection time, where students can share their experiences with their class. |

| Programme Name | Target population | Implementer & amount of training | Number & duration of session(s) | Programme content |
|---|---|---|---|---|
| 15. Good Schools Toolkit (Devries et al., 2017) | Primary school children (Raising Voices, 2013) | 2 staff and 2 students | intervention schools completed the intervention during the 18-month implementation period | Step 1: create a Good School board; step 2: prepare for change by running activities to attract others; step 3: provide teachers with a sense of role, increased encouragement and methods for interacting positively with students; step 4: develop disciplinary strategies and a school culture; step 5: create a space of protection, respect and inclusion for students; step 6: evaluate the outcomes of the programme (Raising Voices, 2013) |
| 16. School-Wide Positive Behavioral Interventions and Supports (SWPBIS)[b] (Bradshaw, Waasdorp, & Leaf, 2012) | K to grade 5 (CrimeSolutions.gov, 2012) | Teachers and administrators 2-day training | Not specified | Schools create a set of school-wide expectations for student behavior, which are given to all students and staff. |

| Programme Name | Target population | Implementer & amount of training | Number & duration of session(s) | Programme content |
|---|---|---|---|---|
| 17. Kiusaamista Vastaan (KiVa) (Kärnä et al., 2013) | KiVa has three units. Unit 1 is designed for children ages 6 to 9, unit 2 for children ages 10 to 12 and unit 3 for after the middle school/lower secondary school transition, for students of around ages 13 to 16 (KiVa Program & University of Turku, n.d.) | Teachers<br>2 days training | 10 sessions, 1 year, 90 minutes | The goals of each lesson are to 1) recognise the role that the group plays in continuing bullying, 2) increase empathy toward victims, and 3) encourage children's methods of supporting the victim and thus their self- efficacy. Lessons involve short videos about bullying, group work, role-play activities and discussion. |
| 18. Take the Lead (TTL)[a] (Domino, 2013) | | Teachers<br>Trained by TTL trainers for a minimum of 6 hours | 16 sessions over 16 weeks. 45 minutes | Each lesson includes a knowledge, skill, and application component providing participants the opportunity to apply practiced behaviors to real-world situations. |

| Programme Name | Target population | Implementer & amount of training | Number & duration of session(s) | Programme content |
|---|---|---|---|---|
| 19. Friendly Schools Friendly Families[b] (Cross et al., 2012) | Grades 1 - 7 | 5 selected staff members including the school principal, and a parent<br>6 hours of training at the beginning of the first 2 years of the study | Teachers<br>2 hours per year<br><br>Family<br>Awareness raising items given to parents in the form of newsletter, a 25-page booklet, and songs. 3 and a half hours of parent engagement training. 2-hour workshop. 6 classroom-home activities | Whole-school level: Project team building, and positive relations between students, school personal, and parents are built. School policy is made to be effective in preventing, managing, and reducing bullying. The management and incidence of bullying was done by the modification of the social and physical school environment as well as with the inclusion of learners' families.<br>Classroom level: lessons addressed the relation between bystanders of bullying, bullies, and victims of bullying and their social setting. An understanding of the nature and effects of bullying is built as well as ways to discourage bullying. Empathy and social skills are taught. Teacher and pupil relations are built through these lessons and the use of role-playing and modelling, stories, observational learning and skills training.<br>Family level: activities aim to: raise parents' awareness; improve parents' attitudes and self-efficacy to assist their children in preventing or responding to bullying.<br>Individual level: support for bully victims, behaviour modification for bullying, staff training in problem-solving and bully prevention and management. |
| Selective, discrete, & specific programmes | | | | |
| 20. GREAT schools & family intervention (Simon et al., 2009; Henry, 2012) | High-risk students in grade 6 moving to middle school | Interventionists who held a master's degree in psychology, social work, or an associated field<br>36 hours of training | 15 weeks | Sessions focus on students' academics and behavioural objectives<br><br>Members of the family who play an important role in the child's life were invited to the sessions. Families were taught how to manage their children within their social conditions<br><br>Role-plays about real-life family situations are conducted between parents and students to develop interaction skills |

| Programme Name | Target population | Implementer & amount of training | Number & duration of session(s) | Programme content |
|---|---|---|---|---|
| 21. Stay Cool Kids (Stoltz et al., 2013) | Children who display a high-level of teacher-rated aggression | Professional mental health care workers; 3 trial training sessions before program implementation and two-weekly meetings once the intervention began | 8 weekly 45-minute sessions per year | Session 1 - introductory session<br>An individual intervention plan is created thereafter<br><br>Possible exercise topics for sessions include: self-perception, social cognitions, anger management, & aggressive behaviour |
| Indicated, discrete, & specific programmes | | | | |
| 22. Friend to Friend (F2F) (Leff et al., 2015) | Grade 3 to 5 girls | F2F clinician (trained graduate student) and a classroom teacher or teacher's assistant | 20 sessions (10 weeks)<br>40 minutes twice a week | Teaches girls to acknowledge different forms of aggression, improve problem-solving skills, and promote prosocial strategies for dealing with peer conflicts. |
| 23. The Thinking Group[d] (Abdulmalik, Ani, Ajuwon, & Omigbodun, 2016) | Grade 5 | Clinical Psychologist | 6 sessions twice weekly for 3 weeks, 40-minute sessions | Session 1: An introduction of the programme and encouraging strategies to aid engagement with the programme; session 2: calming techniques; session 3: problem-solving strategies; sessions 4-5: attributional retraining, teaching students how to distinguish between purposeful and accidental intent and recognize ambiguity in interpersonal interactions and session 6: recap the important aspects of previous sessions |

*Note.* K = Kindergarten
[a]Social and emotional learning (SEL) programmes. [b]Some characteristics of SEL programmes. [c]Programme is not named in the paper but is referred to as the Antibullying School Program. [d]Programme is not named in the paper but is referred to as the Thinking Group.

## Interventions

We identified 23 interventions within 35 studies (see Table 1). Of those interventions, 19 were universal and two were selective aimed at students who were at a greater risk of displaying high levels of aggression (Henry, 2012; Stoltz et al., 2013). Two were indicated interventions, one aimed at relationally aggressive girls, based on peer nominations, while in the other, class teachers rated aggressive behaviours and the top 20

highest scoring boys were targeted (Abdulmalik et al., 2016; Leff et al., 2015). One of the interventions, Kiusaamista Vastaan (KiVa), uses a universal approach, with the additional option of also using an indicated approach (Kärnä et al., 2013). The universal approach involves three different versions for different ages, aimed at grades one, four, and seven (Kärnä et al., 2013). In schools implementing the indicated KiVa approach, three school staff and the classroom teacher address bullying cases as they arise (Kärnä et al., 2013). Twelve interventions used a whole-school approach, while another 11 used a discrete approach. Lastly, 7 interventions were comprehensive and 16 were specific (see Table 2 below).

Table 2
*Intervention Approach Combination*

| | Whole-school | Discrete |
|---|---|---|
| | *n* | *n* |
| Comprehensive | 5 | 2 |
| Specific | 7 | 9 |

Most of the studies reported significant effects of the intervention (see Appendix E). Twenty-four studies yielded main intervention effects, while 10 yielded only subgroup effects, and one yielded no main or subgroup effects. From the 24 studies reporting main effects, 18 interventions were identified. Of those that yielded main intervention effects, where learners in the intervention programmes showed an improvement in behaviour compared to controls, 15 were universal interventions, one was a selective intervention, and two were indicated interventions. Eight used a whole-school approach, while nine used a discrete approach. And lastly, six interventions were comprehensive, and 11 were specific. There is some evidence of effectiveness for all programmes, but clearly the universal approach is more widely used. In terms of targeting all facets or specific facets of the school, the more effective interventions, based on significance and effect size, adopted either a whole-school or discrete approach equally. All the universal programmes seem to work, and three of them mentioned that high-risk learners benefitted more (Muratori et al., 2014; Simon et al., 2009; Smith et al., 2016). The

more effective interventions – based on main intervention effects - were also specific in nature. Therefore, the best combination of approaches appears to be universal and specific, for example, Tools for Getting Along and the Coping Power Program (Muratori et al., 2014; Smith et al., 2016).

Eleven interventions were implemented by school staff and eight were administered by individuals external to the schools, such as health professionals, psychologists, intervention clinicians and graduate students. Four interventions were implemented by both school staff and external administrators. Of the 17 interventions that yielded main effects, seven were implemented by internal school staff, seven by external programme staff or psychologists, while three were implemented by both internal and external parties. The number of sessions received ranged between six sessions to 140 sessions per year and there was no clear pattern for those yielding main effects as the number of sessions varied.

Two interventions targeted only boys; one only targeted girls, while the rest of the interventions targeted both boys and girls. Of the interventions targeting only boys, one used a universal approach, while the other used a selective approach. Both were comprehensive interventions. The intervention that only targeted girls, used an indicated and specific approach, targeting relational aggression. The reason that interventions aiming to reduce relational violence targeted only girls is due to relational violence being more common among girls (Menesini & Salmivalli, 2017). All three of these interventions significantly reduced aggression, but only two of them reported an effect size. The Thinking Group, targeting boys, yielded a large effect size, and Friend to Friend, targeting girls, yielded a small effect size.

Many of the interventions adopted a social and emotional learning (SEL) approach. SEL combines frameworks of youth development and proficiency promotion to decrease risk factors and adopt protective factors encouraging positive development (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). SEL is considered a process in which one learns

fundamental abilities to identify and manage emotions, create and reach goals, accept the viewpoint of others, create and uphold positive relationships, control situations beneficially and make reasonable decisions (Domitrovich, Durlak, Goren, & Weissberg, 2013; Durlak et al., 2011). Social and emotional abilities are important for academic outcomes, being an effective learner and a variety of dangerous behaviours, such as violence and bullying, can be reduced when social and emotional skills are implemented (Domitrovich et al., 2013). Domitrovich et al. (2013) acknowledged five interconnected sets of cognitive, affective, and behavioral abilities: self-awareness, self-management, social awareness, relationship skills and responsible decision-making. SEL programmes can teach and implement these abilities in various ways. Some programmes use them to address issues of substance abuse and violence prevention and health assistance whereas others have more particular modules that adopt safe, open and engaging learning spaces that creates enthusiasm to learn and to achieve (Domitrovich et al., 2013). Of the 23 interventions, four had some characteristics of SEL programmes, and six had all five characteristics (see table 1). Of the six SEL programmes five reported main effects in studies. Two of the programmes that possess some SEL characteristics reported main effects in the included studies. Social and emotional learning programmes include the theoretical change from valuing deficit-based behaviour change, such as preventing negative behaviours, to strength-based behaviour change such as developing social abilities (Domino, 2013).

**Studies**

We found two studies focusing on the broad category of externalizing behaviours, one focusing on proactive and reactive aggression, and the other on aggressive and non-aggressive behaviours (See Table 3 in Appendix E). Nineteen studies focused on a slightly narrower category of aggression, and 12 on bullying. Two studies were directed at both bullying and aggressive behaviours.

Thirty-three of the studies were conducted in high-income countries. Twenty-six of those were conducted in North America, including the US and Canada, 6 in the European WHO region, and 1 in the Western Pacific region. An additional study was conducted in a low-income country and another in a lower middle-income country. Both were from the African WHO region. The majority of studies were conducted in low-income schools. Using the PROGRESS framework, we aimed to compare these categories across studies. However, almost all the studies measured overall intervention effects rather than these moderator effects. A clear comparison within these categories could therefore not be made.

All the 35 studies reported a reduction in some form of violence. Thirteen of the studies did not report an effect size. However, of those that did, 16 were small, two studies reported a combination of small to medium effect sizes, and one had a large effect size. Three studies did not state the actual effect size statistic used. However, even though most of the studies reported a small effect size, it does not necessarily mean that the impact of the intervention is not effective. It is not merely the size of the effect that is vital, but the practical or clinical value of the results (Durlak, 2009). Furthermore, studies used different measures to assess the outcomes of violence which therefore limits comparison.

Using the Downs and Black checklist to assess the methodological quality of each study, scores ranged from 13 (poor) to 25 (excellent). One study was rated poor, 16 fair, 16 good, and 2 rated excellent. Overall, the methodological quality of the included studies was between fair and good. It should be noted that a disadvantage of using the Downs and Black checklist to assess the methodological quality of these studies was that in studies of interventions such as these, it is impossible to blind study participants to intervention groups and those measuring the outcomes. This is because the intent of violence prevention programmes cannot be hidden. Based on the Downs and Black (1998) results, research on interventions could improve their methodological quality by clearly describing the distribution

of principle confounders in each study group, reporting the adverse events that could be consequences of the interventions and by recruiting participants who are representative of the target population.

**Transportability**

Of the 23 interventions, 11 of the interventions had been transported from one location to another (see Table 4). These were initially tested in high-income countries. Of the 11 interventions, 10 were transported to high-income countries, and one to a lower middle-income country. All the transported studies were effective.

Only one intervention originated in Africa, the Good Schools Toolkit, which was developed and tested in Uganda. This was the only intervention that originated in a low-income country. However, no evidence was found that the Good Schools Toolkit has been transported to any other context. We are therefore unable to conclude whether it would be effective in other African or South African contexts.

The rest of the interventions originated in high-income countries, 17 of which were from the US. Of those 10 were transported, seven were transported to other countries, while the rest were transported within North American States, including the US and Canada. Only one of the seven was transported to a lower middle-income country, Africa (Nigeria). This was the Thinking Group. When initially implemented in the US, as the Brain Power programme, the intervention significantly reduced aggression among boys. Similarly, when transported to Africa, it resulted in a reduction in student self- and teacher-reported learner-on-learner aggression, yielding a large effect size of 1.2 and 0.9 respectively. It should be noted that since this intervention only targets boys, this review provides limited information about interventions implemented in an African context targeting both genders.

Three interventions originated in Europe (Finland and the Netherlands). Only one was transported. This was KiVa, which has been transported to many contexts, including South

Africa. However, results of studies in South Africa are not yet available as it is currently being evaluated. One of the interventions originated in Australia, but was not transported elsewhere. All of the transported interventions yielded a significant reduction in violent behaviours at the place to which they were transported. The effect sizes that were reported ranged between small to large, with most interventions yielding a small effect size when transported, and only one yielding a large effect size. Drawing conclusions on whether transported studies were as effective as original studies was not always possible as many original studies did not report any effect size. One study was transported to an upper middle-income country, and one to a lower middle-income country: both interventions originated in high-income countries. Information was only available for one of these transported interventions. The rest of the interventions were transported within high-income countries. There is therefore limited information about whether interventions that have been transported from higher- to lower-income countries would always be effective.

Table 4
*Transportability information*

| Programme name | Original place developed: | Context to which transported | Original & transported studies results |
|---|---|---|---|
| 1. PA Program | Nashville, Tennessee US<br>(Allred, 1998) | Alabama/Utah/Chicago/Hawaii | Original:<br>Decrease in fights among learners by 76%.<br>ES: Not reported (Allred, 1998)<br><br>Transported:<br>Alabama: Reduced gang activity<br>Chicago: See Table 3 (Duncan et al., 2017; Lewis et al., 2013; Li et al., 2011)<br>Hawaii: See Table 3 (Snyder et al., 2013) |

| Programme name | Original place developed: | Context to which transported | Original & transported studies results |
|---|---|---|---|
| 2. STR | Seattle, Washington US (School of Social Work, 2017) | Pacific Northwest (Frey et al., 2005) | Original:<br>Not found<br><br>Transported:<br>A significant main effect for change in bullying was qualified by a near- significant interaction of group and pre-test occurrence, $F$ (1, 541) = 3.20, $p$ = .10.<br>ES: Not reported |
| 3. SNAP | Toronto, Canada US | Florida/Georgia/Pennsylvania/UK/Germany/Norway (Child Development Institute, 2016) | Original:<br>After 3 months, *ES* = 0.79, 6 months, *ES* = 0.93, 12 months *ES* = 0.56, 18 months, *ES* = 1.19 (Augimeri, Farrington, Koegl, & Day, 2007)<br><br>Transported:<br>No studies found |
| 4. Shifting boundaries | New York US | -- | Original:<br>Personal experience of sexual victimization by another student was less for the intervention group compared to controls at 6-month follow-up, *OR* = .659, $p$ = .011. Sexual violence perpetration was also significantly less at 6-month follow-up for intervention group compared to controls.<br>(Taylor & Woods, 2011) |
| 5. AAYP: SDC & SC intervention curriculum | Chicago US | -- | Original:<br>The rate in increase of violent behaviour among boys in the intervention groups was significantly less, 35% and 47% for SDC and SC, respectively, compared to the controls. The effects of the programme were not significant for girls.<br>ES: The effect size for boys in the intervention groups (SDC and SC) ranged between 0.29 to 0.66, when compared to controls<br>(ES was calculated by subtracting the between group growth and diving it by the pooled growth standard deviation; Flay, Graumlich, Segawa, Burns, & Holliday, 2004) |

| Programme name | Original place developed: | Context to which transported | Original & transported studies results |
|---|---|---|---|
| 6. Second Step | Washington, US (Holsen, Smith, & Frey, 2008) | Australia/New Zealand<br>Europe:<br>Sweden/Denmark/Iceland/Norway/UK/Germany (Weare & Nind, 2010)<br>The Faustlos curriculum is the German adaptation of the Second Step programme.<br>Known as *Steg for Steg* in Norway (Holsen et al., 2008) | Original:<br>Significant decrease in physical aggression 2 weeks post-intervention, $p = .03$<br>ES: Not reported (Frey, Hirschstein, & Guzzo, 2000; Frey & Sylvester, 1997; Grossman et al., 1997)<br><br>Transported:<br>Germany: Externalising behavior significantly reduced among girls in intervention group compared to girls in the control ($\eta^2 = .15$). This was not found among boys (Schick & Cierpka, 2005)<br>Norway: Significantly lower levels of externalizing behaviour for boys in the intervention group compared to controls at post-test, *ES* = 0.27 (Holsen et al., 2008) |
| 7. Antibullying Program[b] | Netherlands | -- | Original:<br>See table 3, Fekkes et al. (2006) |
| 8. TFGA | Florida<br>US | -- | Original:<br>Reactive and proactive aggression decreased in intervention group, *ES* = 0.17 and 0.35 respectively<br>(ES based on the between-group variance; Daunic, Smith, Brank, & Penfield, 2006) |
| 9. YM | Denver<br>US | -- | Original:<br>See table 3, Jenson & Dieterich (2007) |

| Programme name | Original place developed: | Context to which transported | Original & transported studies results |
|---|---|---|---|
| 10. CPP | Derived from Anger Coping Program in North Carolina<br>US<br>(Lochman, Wells, & Lenhart, 2008) | Italy/Netherlands | Original:<br>Reductions in self-reported delinquent behaviour and parent and teacher-reported aggressive behaviours<br>ES: Not reported<br><br>Transported:<br>Significant reductions in aggression<br>ES: Not reported |
| 11. GREAT student curriculum and teacher program | Chicago/ Virginia/ Georgia<br>US | -- | Original:<br>Not found |
| 12. PATHS | US | Germany/Switzerland/UK (Northern Ireland & Wales)/Netherlands/Croatia (Curtis & Norgate, 2007; Weare & Nind, 2010) | Original:<br>Not found<br>US[a]: Based on teacher reports there was a significant reduction in externalizing behaviour among intervention groups compared to controls, $p < .05$, Cohen's $d = 0.18$ (small). Note that externalizing behaviour was not operationalised in the study and therefore may include disruptive behaviour, not only physical aggression (Kam, Greenberg, & Kusché, 2004)<br><br>Transported:<br>Switzerland: Parent rated externalizing behaviour, Cohen's $d = 0.26$ (small). Teacher ratings of aggression, Cohen's $d = 0.42$ (Moderate; Malti, Ribeaud, & Eisner, 2011) |

| Programme name | Original place developed: | Context to which transported | Original & transported studies results |
|---|---|---|---|
| 13. Fast Track PATHS | Durham/Nashville/Pennsylvania/Seattle US | Manchester | Original:<br>Learners in the intervention group compared to controls displayed lower levels of aggression at home and at school (Greenberg, 1998)<br>ES: Not reported<br><br>Transported:<br>Manchester: Intervention effects on aggressive behaviour not reported (Winn, Newall, Coie, & Conduct Problems Prevention Research Group, 2007)<br>ES: Not reported |
| 14. CAPSLE | Massachusetts, US | Hungary | Original:<br>Dramatic reduction in disciplinary referrals. Physically aggressive behaviours decreased from 74 in 1994 to 1995 to 34 in 1995 to 1996. Suspension rates was significantly lower for the intervention group (Twemlow et al., 2001)<br>ES: Not reported<br><br>Transported:<br>No results presented because teacher adherence was too low |
| 15. Good Schools Toolkit | Uganda | -- | Original:<br>Students in intervention schools reported lower levels of past term violence<br>Male students *OR* = 0.34, female students *OR* = 0.46.<br>Student self-reported past week physical violence at school: *OR* = 0.40<br>Student self-reported past term physical violence at school: *OR* = 0.32 (small)<br>(Devries et al., 2015) |

| Programme name | Original place developed: | Context to which transported | Original & transported studies results |
|---|---|---|---|
| 16. SWPBIS | US | Maryland/Connecticut/Wisconsin | Original:<br>Not found<br><br>Transported:<br>Maryland: High-risk learners: SWPBIS schools were less likely than the comparison schools to receive an Office disciplinary referral (69.9% vs. 78.2%, *d* = 0.23). Children in the at-risk class (25% vs. 30.2%, *d* = 0.14) in the SWPBIS schools were less likely to receive counseling for inappropriate behavior than their at-risk peers in the comparison schools (Bradshaw, Waasdorp, & Leaf, 2015)<br>Connecticut/Wisconsin: Office disciplinary referrals has decreased significantly (State Education Resource Center, 2009; Wisconsin RtI Center, n.d.) |

| Programme name | Original place developed: | Context to which transported | Original & transported studies results |
|---|---|---|---|
| 17. KiVa | Finland | Belgium/Chile/Estonia/Hungary/Italy/UK/Netherlands/ New Zealand/Sweden/Spain/Argentina/Columbia/South Africa/Greece/US (KiVa Program & University of Turku, n.d.) | Original:<br>A substantial decrease was found in the mean of self-reported victimization in the intervention group (from 0.741 to 0.485)<br>At wave 2, students in KiVa schools had a lower level of peer-reported victimization ($b$ = 0.167, $p$ < .008). At Wave 3, positive intervention effects emerged for self-reported victimization ($b$ = 0.154, $p$ < .001) and for self- reported bullying ($b$ = 0.085, $p$ = .012), as well as for peer-reported victimization ($b$ = 0.309, $p$ < .001)<br>Cohen's $d$ at last wave: self-reported victimization = 0.17, self-report bullying = 0.1, peer-reported victimization = 0.33, peer-reported bullying overall = 0.14, peer-reported assisting bystanding = 0.14, peer-reported reinforcing bystanding = 0.17, peer-reported defending bystanding = 0.08 (small)<br><br>Transported:<br>Wales: results from pre- to post-test for the overall sample showed significant reductions both in victimization, $p$ = 0.027 and in bullying $p$ = 0.008 (Hutchings & Clarkson, 2015)<br>Italy: Primary school victimisation and bullying, Cohen's $d$ = 0.38 and, $d$ = 0.24, respectively. Middle school victimisation and bullying, $d$ = 0.23 and, $d$ = 0.21, respectively (small; Nocentini & Menesini, 2016) |
| 18. TTL | Southwestern Connecticut US | -- | Original:<br>See table 3, Domino (2013) |

| Programme name | Original place developed: | Context to which transported | Original & transported studies results |
|---|---|---|---|
| 19. Friendly Schools Friendly Families | Australia | -- | Original:<br>ES: At post-test, compared to pre-test rates, the intervention group was 16% less likely than the control group to be a victim of bullying. ES "calculated as the difference in rates in the intervention and comparison<br>groups at the post-test measurement expressed as a percentage of the average of the two groups' pre-test rates" (Cross et al., 2011, p. 115)<br>Control groups were more likely to report having seen another student being bullied at school<br>ES: Follow-up, *OR* = 1.7 (small) |
| 20. GREAT schools and family intervention | Chicago/ Virginia/ Georgia<br>US | -- | Original:<br>Not found |
| 21. Stay Cool Kids | Netherlands | -- | Original:<br>See table 3, Stoltz et al. (2013) |
| 22. F2F | Philadelphia<br>US | -- | Original:<br>ES from pre-test to post-test for intervention group compared to controls: Teacher reported relational aggression = 0.64 and physical aggression = 0.38. Less hostile attributional bias in provocative social situations = 0.58.<br>(ES statistic not defined) |

| Programme name | Original place developed: | Context to which transported | Original & transported studies results |
|---|---|---|---|
| 23. The Thinking Group[c] | The thinking group is an adaptation of the Brain Power Program, also known as the Attributional Intervention, which originated in California US | Adapted for use in Nigeria | Original (Brain Power Program):<br>Not found<br>Los Angeles[a]: Significantly less aggression in boys in intervention group compared to controls (Hudley & Graham, 1993).<br>ES: Not reported<br><br>Transported:<br>For peer violence: Teacher rated aggression: Cohen's *d* = 1.2 (large), self-rated aggression, Cohen's *d* = 0.9 (large) |

*Note*. -- = no evidence found of study having been transported; US = United States; OR = odds ratio; ES = Effect size.
[a]Study conducted in the same context as original study. [b]Programme is not named in the paper but is referred to as the Antibullying School Program. [c]Programme is not named in the paper but is referred to as the Thinking Group.

## Discussion

### Summary and integration of results

While almost all of the studies reviewed were conducted in high-income countries, they were mostly conducted in low-income SES communities. Although South Africa is an upper middle-income country, rather than a high-income country, we cannot draw conclusions on whether the interventions reviewed would yield similar results in South African primary schools, due to cultural differences in communities. Programmes that have been culturally adapted have been shown to benefit the population for which it has been revised for (Parra-Cardona et al., 2017). The KiVa intervention has been implemented in South Africa, however, no results on its effectiveness is available yet (see Table 4). Further research is needed on interventions based in upper middle-income countries in contexts similar to South Africa's.

Research on SEL including school children has shown that possessing social and emotional abilities is related to remarkable developments in interpersonal relationships, behavioural difficulties, social skills, emotional discomfort, aggression and substance abuse (Domino, 2013). SEL provides a basis for better adaptation and academic outcomes seen in more positive relationships with peers, fewer behavioural problems, decreased emotional distress and greater academic performance (Durlak et al., 2011). Considering this, good programmes will no doubt include SEL topics as a key area.

According to Nation et al. (2003) there are nine characteristics related to effective prevention programmes. These include: comprehensiveness, varied methods of teaching, adequate intervention dosage, being theory driven, promoting positive relationships, timing of intervention, sociocultural relevance, outcome evaluation, and well-trained staff (Nation et al., 2003). In terms of comprehensiveness, half of the interventions that yielded main effects adopted a whole-school approach. Secondly, the use of varied methods of teaching was evident in many interventions as they involved both teaching learners and active learner participation. This allows children to learn specific skills through interactive role-play and apply them in real world settings (Nation et al., 2003). Thirdly, sufficient dosage of the intervention is needed to ensure that the intervention can have an effect. The intensity, duration and number of sessions varied among interventions. A clear distinction between dosage and effectiveness was thus not evident. Fourth, all the interventions reviewed were developed and based on theory that has been empirically tested in previous studies (Nation et al., 2003). Fifth, interventions that promote positive relationships between children and influential networks in their lives allow for positive programme results (Nation et al., 2003). This further supports the notion that whole-school approaches are important, however this review found equal success in studies adopting whole-school and discrete approaches (Durlak et al., 2011; Stoltz, 2012). In terms of timing, all interventions were implemented in primary schools, grades one to seven. This

timing for intervention is suitable for the developmental requirements of this target population. Interventions are more effective if they are implemented at an earlier age (Dymnicki et al., 2011; Nation et al., 2003). Programmes that are relevant to the norms of the community and culture of the target population are also more effective (Nation et al., 2003). However, we found that studies transported to other contexts with different cultures were also effective. In terms of outcome evaluation, all the interventions reviewed were clearly aimed at reducing learner-on-learner violence and studies assessing their effectiveness documented outcomes in relation to this aim. Lastly, the competency of the intervention staff plays a vital role in the success of a programme (Nation et al., 2003). All implementers received some form of training on the program prior to implementation. According to Stoltz et al. (2013), effective interventions are implemented by trained intervention staff rather than teachers. However, results from this review yielded different findings. Although they were near-equal, among interventions yielding main effects, those implemented by teachers were more than those delivered by trained intervention staff.

Three of the interventions had been implemented in the African context. Results were available for only two of them, and of those, one targeted only boys. KiVa, transported to South Africa, has not yet been studied. There is therefore limited information regarding the effectiveness of interventions in the African context, especially South Africa.

Duplicating interventions strengthens the programme and its effects by showing that it can be implemented in other contexts (Mihalic, Irwin, Elliott, Fagan, & Hansen, 2004). Interventions that have shown success in other settings produce greater assurance that they can be transported (Mihalic et al., 2004). As only a few of the studies in this review were duplicated, and even fewer were transported, the effectiveness of the transportability of the included studies are unclear. Since we based effectiveness and transportability on effect size, there was some difficulty experienced. This is because some studies failed to report which effect statistic

was used. Additionally, different violence measurements and effect size statistics are used across studies. Confidence intervals also varied, which results in studies reporting significance differently. Therefore, a true comparison of the results between the studies and their contexts could not be made.

**Implications**

The studies in this review support the notion of early interventions being effective as long-term results show a reduction in the likelihood of violent behaviour among students who have been exposed to early violence prevention interventions (Yerger & Gehret, 2011). RCTs with longer follow-up periods are needed to identify which interventions have long-term effects. More studies that have high methodological quality are needed to understand how effective interventions work to reduce or prevent violence.

A bias in the literature is that research conducted on the effectiveness of violence prevention interventions was nearly entirely conducted in high-income countries, predominantly in the US. As school violence is a major problem globally this is problematic (see, for instance; Burton, 2008c; Ez-Elarab et al., 2007; Yerger & Gehret, 2011). Although many of the effect sizes reported in the studies were small, all the included interventions were effective, indicating a possible reporting bias.

Dymnicki et al. (2011) suggest that whether interventions are effective in various settings depends on mediating factors, namely social-cognitive functions, skill acquisition and classroom features; and that, if these are targeted, they can reduce negative behaviours. Of the 18 interventions reporting main effects, three addressed social-cognitive functions, 13 skill acquisition, and three classroom features. None targeted all three.

Further moderating factors includes the PROGRESS characteristics. Gender and ethnicity can be moderating factors on the effects of interventions (Stoltz, 2012). Since there are differences in the prevalence and manifestation of aggression between boys and girls, their

responsiveness to interventions may differ (Stoltz, 2012). Different ethnic backgrounds results in different: parental practices, cultural beliefs, traditions, and experiences of discrimination. The PROGRESS categories were included in this review to assess the impact of these moderating variables, but were not explicitly explored as moderators in most of the studies. Intervention developers and implementers should therefore be mindful of these factors when deciding on which type of intervention would work best for a specific population.

Although most of the interventions originated in, and were transported to, higher income countries, there is a lacuna in the literature regarding studies that have been implemented in lower-income regions. Furthermore, although most of the studies were conducted among low socioeconomic communities in high-income countries, these settings cannot be equated to the low-income communities in South Africa. This is because, although South Africa is regarded as an upper middle-income country (The World Bank Group, 2017), that categorisation is not representative of the entire country. In the 2011 census conducted in South Africa, the percentage of households in the upper-income bracket was only 7.3% of the population, whereas the low- and middle income was 29% and 48.3%, respectively (Statistics South Africa, 2015). Although this value is small, the wealth of this percentage of households is what makes South Africa an upper middle-income country. This stresses the divide between the rich and the poor as the majority of the population of the country is in the low- to middle-income bracket (Statistics South Africa, 2015). When examining the distribution across provinces, KwaZulu-Natal and Gauteng had the highest percentage of low-income households (Monson, Hall, Smith, & Shung-King, 2006; Statistics South Africa, 2015). Gauteng also had the highest percentage of households in the middle- and upper-income bracket. Children are particularly vulnerable to the burden of poverty and violence (Hall, Woolard, Lake, & Smith, 2012). Their well-being is associated to the income inequality level of a country and to the proportion of children living in poverty (Hall et al., 2012). South Africa has extreme levels of

poverty and to address this issue, both poverty and the divide between the rich and the poor needs to be addressed (Hall et al., 2012). In 2010, just fewer than 60% of children were living in households below the lower-bound poverty line (R575 per month; Hall et al., 2012). Over half of these children are of the African race contrasting starkly to white children (Hall et al., 2012). The apartheid legacy is one of the main reasons for this contrast which demonstrates that it continues to have adverse effects on children's lives (Monson et al., 2006).

As this is the case, interventions from low-income contexts may work very well in the upper middle-income context of South Africa – but there is almost no evidence for this assertion yet, as it is not the usual direction of transportation. The Good Schools Toolkit is yet to be evaluated in South Africa. Studies of interventions in low-income contexts in the global South are urgently needed, to extend the literature in this area.

## Limitations

There are a couple of limitations to this systematic review. Firstly, we included only RCTs, peer-reviewed studies reported in English and no grey literature was included. Due to these strict inclusion criteria, our results on effectiveness of interventions do not reflect the findings of other studies on the topic published in other languages and using different study designs. Secondly, since the aim of this review was to assess whether interventions would be effective in the South African context, data on cost-effectiveness of interventions should have been extracted. This is a limitation of the field too, as more research is needed on this.

## Future directions

Despite these limitations, there is clear evidence of violence prevention interventions being successful in primary schools. A handful of effective interventions to prevent violence between learners could be identified. Universal and selective approaches, as well as SEL programmes have shown to effectively reduce learner-on-learner violence, albeit mainly in high-income countries. Future programmes should analyse moderator effects, as from this

review, high-risk learners have shown to benefit from the interventions more than low-risk learners. Additionally, future studies should develop standardised agreed upon measures for violence in order for outcomes to be more comparable.

The existing literature provides information on prevention interventions and guidelines, but not cultural adaptations and other factors needed to be considered for transportability to other contexts. While research in upper middle-income countries such as South Africa needs to be conducted, the existing literature does offer us a good variety of ways to consider for addressing the problem of violence between primary school learners.

## References

Abdulmalik, J., Ani, C., Ajuwon, A. J., & Omigbodun, O. (2016). Effects of problem-solving interventions on aggressive behaviours among primary school pupils in Ibadan, Nigeria. *Child and Adolescent Psychiatry and Mental Health, 10*(31), 1-10. doi: 10.1186/s13034-016-0116-5

Allred, C. G. (1998). The Positive Action [R] model for comprehensive school reform: An agent for whole-school change and parent & community involvement.

Augimeri, L. K., Farrington, D. P., Koegl, C. J., & Day, D. M. (2007). The SNAP under 12 outreach project: Effects of a community based program for children with conduct problems. *Journal of Child and Family Studies, 16*(6), 799-807. doi: 10.1007/s10826-006-9126-x

Averdijk, M., Zirk-Sadowski, J., Ribeaud, D., & Eisner, M. (2016). Long-term effects of two childhood psychosocial interventions on adolescent delinquency, substance use, and antisocial behaviour: A cluster randomized trial. *Journal of Experimental Criminology, 12*(1), 21-47. doi: 10.1007/s11292-015-9249-4

Beets, M. W., Flay, B. R., Vuchinich, S., Snyder, F. J., Acock, A., Li, K. K., ... & Durlak, J. (2009). Use of a social and character development program to prevent substance use, violent behaviors, and sexual activity among elementary-school students in Hawaii. *American journal of public health, 99*(8), 1438-1445. doi: 10.2105/ajph.2008.142919

Bierman, K. L., Coie, J. D., Dodge, K. A., Greenberg, M. T., Lochman, J. E., McMahon, R. J., & Pinderhughes, E. (2010). The effects of a multiyear universal social–emotional learning program: The role of student and school characteristics. *Journal of Consulting and Clinical Psychology, 78*, 156-168. doi: 10.1037/a0018607

Blueprints. (2017). *Promoting Alternative Thinking Strategies (PATHS)*. Retrieved from http://www.blueprintsprograms.com/factsheet/promoting-alternative-thinking-strategies-paths

Bradshaw, C. P., Waasdorp, T. E., & Leaf, P. J. (2012). Effects of School-Wide Positive Behavioral Interventions and Supports on child behavior problems. *Pediatrics, 130*(5), 1136-1145. doi: 10.1542/peds.2012-0243

Bradshaw, C. P., Waasdorp, T. E., & Leaf, P. J. (2015). Examining variation in the impact of School-Wide Positive Behavioral Interventions and Supports: Findings from a randomized controlled effectiveness trial. *Journal of Educational Psychology, 107*(2), 546-547. doi: 10.1037/a0037630

Brown, E. C., Low, S., Smith, B. H., & Haggerty, K. P. (2011). Outcomes from a school-randomized controlled trial of Steps to Respect: A bullying prevention program. *School Psychology Review, 40*(3), 423-443.

Burke, J. D., & Loeber, R. (2016). Mechanisms of behavioural and affective treatment outcomes in a cognitive behvaioral intervention for boys. *Journal of Abnormal Child Psychology, 44*(1), 179-189. doi: 10.1007/s10802-015-9975-0

Burton, P. (2008a). Dealing with school violence in South Africa. *Centre for Justice and Crime Prevention (CJCP), 4*, 1-16.

Burton, P. (2008b). Snapshot results of the CJCP national schools violence study. *Centre for Justice and Crime Prevention Research Bulletin, 2*.

Burton, P. (2008c). Merchants, skollies and stones. *Experiences of school violence in South Africa. Centre for Justice and Crime Prevention. Monograph Series*, (4).

Burton, P., Leoschut, L., & Popovac, M. (2011). *Protecting the Flame: Overcoming Violence*

*as a Barrier to Education in Namibia*. Retrieved from http://www.cjcp.org.za/uploads/2/7/8/4/27845461/monograph_8_-_protecting_the_flame_namibia.pdf

Child Development Institute. (n.d.). *SNAP Boys.* Retrieved from https://www.childdevelop.ca/programs/snap/snap-programs

Child Development Institute. (2016). *SNAP Affiliate Locations.* Retrieved from https://childdevelop.ca/snap/about-snap

Child Trends. (2012). *Aban Aya Youth Project*. Retrieved from https://www.childtrends.org/programs/aban-aya-youth-project/

Child Trends. (2014). *Creating a Peaceful School Learning Environment (CAPSLE).* Retrieved from https://www.childtrends.org/programs/capsle

Child Trends. (2015). *Shifting Boundaries*. Retrieved from https://www.childtrends.org/programs/shifting-boundaries/

Cochrane Consumer Network. (n.d.). Retrieved May 19, 2017, from: http://consumers.cochrane.org/levels-evidence

Coping Power. (2006). *Target Population.* Retrieved from http://www.copingpower.com/TargetAudience.aspx

Crean, H. F., & Johnson, D. B. (2013). Promoting Alternative Thinking Strategies (PATHS) and elementary school aged children's aggression: Results from a cluster randomized trial. *American Journal of Community Psychology*, *52*(1-2), 56-72. doi: 10.1007/s10464-013-9576-4

CrimeSolutions.gov. (2012). Program profile: Shifting Boundaries. Retrieved from https://www.crimesolutions.gov/ProgramDetails.aspx?ID=385

Cross, D., Monks, H., Hall, M., Shaw, T., Pintabona, Y., Erceg, E., ... & Lester, L. (2011). Three-year results of the Friendly Schools whole-of-school intervention on children's

bullying behaviour. *British Educational Research Journal*, *37*(1), 105-129. doi: 10.1080/01411920903420024

Cross, D., Waters, S., Pearce, N., Shaw, T., Hall, M., Erceg, E., ... & Hamilton, G. (2012). The Friendly Schools Friendly Families programme: Three-year bullying behaviour outcomes in primary school children. *International Journal of Educational Research*, *53*, 394-406. doi: 10.1016/j.ijer.2012.05.004

Curtis, C., & Norgate, R. (2007). An Evaluation of the Promoting Alternative Thinking Strategies Curriculum at Key Stage 1. *Educational Psychology in Practice*, 23(1), 33-44. doi: 10.1080/02667360601154717

Daunic, A. P., Smith, S. W., Brank, E. M., & Penfield, R. D. (2006). Classroom-based cognitive–behavioral intervention to prevent aggression: Efficacy and social validity. *Journal of School psychology*, *44*(2), 123-139. doi: 10.1016/j.jsp.2006.01.005

Daunic, A. P., Smith, S. W., Garvan, C. W., Barber, B. R., Becker, M. K., Peters, C. D., ... & Naranjo, A. H. (2012). Reducing developmental risk for emotional/behavioral problems: A randomized controlled trial examining the Tools for Getting Along curriculum. *Journal of school psychology*, *50*(2), 149-166

Devries, K. M., Knight, L., Allen, E., Parkes, J., Kyegombe, N., & Naker, D. (2017). Does the Good Schools Toolkit reduce physical, sexual and emotional violence, and injuries, in girls and boys equally? A cluster-randomised controlled trial. *Prevention Science, 18*(7), 839-853. doi: 10.1007/s11121-017-0775-3

Devries, K. M., Knight, L., Child, J. C., Mirembe, A., Nakuti, J., Jones, R., … Naker, D. (2015). The Good School Toolkit for reducing physical violence from school staff to primary school students: a cluster-randomised controlled trial in Uganda. The Lancet Global Health, 3(7), e378–e386. doi:10.1016/s2214-109x(15)00060-1

De Wet, C. (2003). Eastern Cape educators' perceptions of the causes and the scope of school violence. *Acta Criminologica, 16,* 89-106.

Domino, M. (2013). Measuring the impact of an alternative approach to school bullying. *Journal of School Health, 83*(6), 430-437. doi: 10.1111/josh.12047

Domitrovich, C., Durlak, J., Goren, P., & Weissberg, R. (2013*).* Effective social and emotional learning programs: Preschool and elementary school edition. *2013 CASEL Guide.*

Downs, S. H., & Black, N. (1998). The feasibility of creating a checklist for the assessment of the methodological quality both of randomised and non-randomised studies of health care interventions. *Journal of epidemiology and community health, 52*(6), 377-384.

Duncan, R., Washburn, I. J., Lewis, K. M., Bavarian, N., DuBois, D. L., Acock, A. C., ... & Flay, B. R. (2017). Can universal SEL programs benefit universally? Effects of the positive action program on multiple trajectories of social-emotional and misconduct behaviors. *Prevention science*, *18*(2), 214-224. doi:10.1007/s11121-016-0745-1

Durlak, J. A. (2009). How to Select, Calculate, and Interpret Effect Sizes. *Journal of Pediatric Psychology, 34*(9), 917–928. doi:10.1093/jpepsy/jsp004

Durlak, J. A., Weissberg, R. P., Dymnicki, A. B., Taylor, R. D., & Schellinger, K. B. (2011). The impact of enhancing students' social and emotional learning: A meta-analysis of school-based universal interventions. *Child Development*, *82*(1), 405-432. doi: 10.1111/j.1467-8624.2010.01564.x

Dymnicki, A. B., Weissberg, R. P., & Henry, D. B. (2011). Understanding how programs work to prevent overt aggressive behaviors: A meta-analysis of mediators of elementary school–based programs. *Journal of School Violence*, *10*(4), 315-337. doi: 10.1080/15388220.2011.602599

Eisenbraun, K. D. (2007). Violence in schools: Prevalence, prediction, and prevention. *Aggression and Violent Behavior, 12*(4), 459-469. doi:10.1016/j.avb.2006.09.008

Espelage, D. L., Low, S., Polanin, J. R., & Brown, E. C. (2013). The Impact of a Middle School Program to Reduce Aggression, Victimization, and Sexual Violence. *Journal of Adolescent Health, 53,* 180-186. doi: 10.1016/j.jadohealth.2013.02.021

Espelage, D. L., Low, S., Polanin, J. R., & Brown, E. C. (2015). Clinical trial of Second Step© middle-school program: Impact on aggression & victimization. *Journal of Applied Developmental Psychology, 37,* 52-63. doi: 10.1016/j.appdev.2014.11.007

Espelage, D. L., Low, S., Van Ryzin, M. J., & Polanin, J. R. (2015). Clinical trial of Second Step middle school program: Impact on bullying, cyberbullying, homophobic teasing, and sexual harassment perpetration. *School Psychology Review, 44*(4), 464-479. doi:10.17105/spr-15-0052.1

Espelage, D. L., Rose, C. A., & Polanin, J. R. (2015). Social-emotional learning program to reduce bullying, fighting, and victimization among middle school students with disabilities. *Remedial and special education*, *36*(5), 299-311. doi: 10.1177/0741932514564564

Ez-Elarab, H. S., Sabbour, S. M., Gadallah, M. A., & Asaad, T. A. (2007). Prevalence and risk factors of violence among elementary school children in Cairo. *Journal of Egyptian Public Health Association*, *82*(1-2), 127-146.

Fekkes, M., Pijpers, F. I. M., Verloove-Vanhorick, S. P. (2006). Effects of antibullying school program on bullying and health complaints. *Archives of Pediatrics and Adolescent Medicine, 160*(6), 638-644. doi: 10.1001/archpedi.160.6.638

Flay, B. R., Graumlich, S., Segawa, E., Burns, J. L., & Holliday, M. Y. (2004). Effects of 2 prevention programs on high-risk behaviors among African American youth: A

randomized trial. *Archives of pediatrics & adolescent medicine, 158*(4), 377-384. doi: 10.1001/archpedi.158.4.377

Fonagy, P., Twemlow, S. W., Vernberg, E. M., Nelson, J. M., Dill, E. J., Little, T. D., & Sargent, J. A. (2009). A cluster randomized controlled trial of child-focused psychiatric consultation and a school systems-focused intervention to reduce aggression. *Journal of Child Psychology and Psychiatry, 50*(5), 607-616. doi: 10.1111/j.1469-7610.2008.02025.x

Frey, K. S., Hirschstein, M. K., & Guzzo, B. A. (2000). Second Step: Preventing aggression by promoting social competence. *Journal of Emotional and Behavioral Disorders, 8*(2), 102-112. doi: 10.1177/106342660000800206

Frey, K. S., Hirschstein, M. K., Snell, J. L., Van Schoiack Edstrom, L., MacKenzie, E. P., & Broderick, C. J. (2005). Reducing playground bullying and supporting beliefs: An experimental trial of the Steps to Respect program. *Developmetnal Psychology, 41*(3), 479-491. doi: 10.1037/0012-1649.41.3.479

Frey, K. S., & Sylvester, L. (1997). Research on the Second Step Program: Do student behaviors and attitudes improve? What do teachers think about the program?

Gavine, A. J., Donnelly, P. D., & Williams, D. J. (2016). Effectiveness of universal school-based programs for prevention of violence in adolescents. *Psychology of Violence, 6*(3), 390-399. doi: 10.1037/vio0000052

Gevers, A., & Flisher, A. J. (2012). School-based youth violence prevention interventions. In C. L. Ward, A. van der Merwe, & A. Dawes (Eds.), *Youth violence: Sources and solutions in South Africa* (pp. 176-212). Cape Town: UCT Press.

Greenberg, M. T. (1998). Testing developmental theory of antisocial behavior with outcomes from the Fast Track Prevention Project. *American Psychological Association, Chicago, IL.*

Grossman, D. C., Neckerman, H. J., Koepsell, T. D., Liu, P. Y., Asher, K. N., Beland, K., ... & Rivara, F. P. (1997). Effectiveness of a violence prevention curriculum among children in elementary school: A randomized controlled trial. *Jama*, *277*(20), 1605-1611.

Hall, K., Woolard, I., Lake, L., & Smith, C. (Eds.). (2012). *Child Gauge 2012*. Cape Town: Children's Institute, University of Cape Town.

Henry, D. B. (2012). Mediators of effects of a selective family-focused violence prevention approach for middle school students. *Prevention Science, 13*(1), 1-14. doi: 10.1007/s11121-011-0245-2

Holsen, I., Smith, B. H., & Frey, K. S. (2008). Outcomes of the social competence program Second Step in Norwegian elementary schools. *School Psychology International*, *29*(1), 71-88. doi: 10.1177/0143034307088504

Hudley, C., & Graham, S. (1993). An attributional intervention to reduce peer-directed aggression among African-America boys. *Child Development, 64,* 124-138. doi: 10.2307/1131441

Hutchings, J., & Clarkson, S. (2015). Introducing and piloting the KiVa bullying prevention programme in the UK. *Educational & Child Psycholo*gy, *32*(1), 49-61.

Jagers, R. J., Morgan-Lopez, A. A., Flay, B. R., & Aban Aya Investigators. (2009). The impact of age and type of intervention on youth violent behaviors. *The journal of primary prevention*, *30*(6), 642-658. 642–658. doi:10.1007/s10935-009-0200-1

Jenson, J. M., & Dieterich, A. (2007). Effects of a Skills-based Prevention Program on Bullying and Bully Victimization among Elementary School Children. *Prev Sci, 8,* 285-296. doi: 10.1007/s11121-007-0076-3

Jenson, J. M., Dieterich, W. A., Brisson, D., Bender, K. A., & Powell, A. (2010). Preventing childhood bullying: Findings and lessons from the Denver public schools trial. *Research on Social Work Practice, 20,* 509-517. doi: 10.1177/1049731509359186

Johnson, S. L. (2009). Improving the school environment to reduce school violence: A review of the literature. *Journal of School Health, 79*(10), 451-465. doi:10.1111/j.1746-1561.2009.00435.x

Kam, C. M., Greenberg, M. T., & Kusché, C. A. (2004). Sustained effects of the PATHS curriculum on the social and psychological adjustment of children in special education. *Journal of emotional and behavioral disorders*, *12*(2), 66-78. doi: 10.1177/10634266040120020101

Kärnä, A., Voeten, M., Little, T. D., Alanen, E., Poskiparta, E., & Salmivalli, C. (2013). Effectiveness of the KiVa Antibullying Program: Grades 1–3 and 7–9. *Journal of Educational Psychology*, *105*(2), 535-551. doi: 10.1037/a0030417

KiVa Program & University of Turku. (n.d.). *KiVa globally.* Retrieved from http://www.kivaprogram.net/around-the-world

KiVa Program & University of Turku. (n.d.). *Welcome to KiVa school!*. Retrieved from http://www.kivaprogram.net/program

Krug, E. G., Dahlberg, L. L., Mercy, J. A., & Zwi, A. B., & Lozano, R. (Eds.). (2002). *World report on violence and health.* Geneva: World Health Organization.

Leff, S. S., Paskewich, B. S., Waasdorp, T. E., Waanders, C., Bevans, K. B., & Jawad, A. F. (2015). Friend to Friend: A randomized trial for urban African American relationally aggressive girls. *Psychology of Violence, 5*(4), 433-443. doi: 10.1037/a0039724

Leoschut, L. (2008). School violence: What makes learners vulnerable?. *CJCP*, 7.

Lester, S., Lawrence, C., & Ward, C. L. (2017) What do we know about preventing school

violence? A systematic review of systematic reviews. *Psychology, Health & Medicine*, 1-37. doi: 10.1080/13548506.2017.1282616

Lewis, K. M., Schure, M. B., Bavarian, N., DuBois, D. L., Day, J., Ji, P., ... & Flay, B. R. (2013). Problem behavior and urban, low-income youth: A randomized controlled t rial of Positive Action in Chicago. *American journal of preventive medicine*, *44*(6), 622-630.

Li, K., Washburn, I., DuBois, D. L., Vuchinich, P. J., Brechling, V., Day, J., … Flay, B. R. (2011) Effects of the Positive Action programme on problem behaviours in elementary schools tudents: A matched-pair randomised control trial in Chicago. *Psychology and Health, 26*(2), 187-204. doi: 10.1080/08870446.2011.531574

Liang, H., Flisher, A. J., & Lombard, C. J. (2007). Bullying, violence, and risk behavior in South African school students. *Child Abuse & Neglect, 31*(2), 161-171. doi:10.1016/j.chiabu.2006.08.007

Lochman, J. E., Wells, K. C., & Lenhart, L. A. (2008). *Coping Power: Child group facilitator's guide.* Oxford University Press.

Low, S., Van Ryzin, M. J., Brown, E. C., Smith, B. H., & Haggerty, K. P. (2013). Engagement matters: Lessons form assessing classroom implementation of Steps to Respect: A Bullying Prevention Program over a one-year period. *Prevention Science, 15*, 165-176. doi: 10.1007/s11121-012-0359-1

Makota, G., & Leoschut, L. (2016). The National School Safety Framework: A framework for preventing violence in South African schools. *African Safety Promotion, 14*, 18-23.

Malti, T., Ribeaud, D., & Eisner, M. P. (2011). The effectiveness of two universal preventive interventions in reducing children's externalizing behavior: a cluster randomized

controlled trial. *Journal of Clinical Child & Adolescent Psychology*, *40*(5), 677-692. doi: 10.1080/15374416.2011.597084

Menesini, E., & Salmivalli, C. (2017). Bullying in schools: the state of knowledge and effective interventions. *Psychology, Health & Medicine, 22*, 240-253. doi:10.1080/13548506.2017.1279740

Mihalic, S., Irwin, K., Elliott, D., Fagan, A., & Hansen, D. (2004). Blueprints for violence prevention. In *Center for the Study and Prevention of Violence, University of Colorado. National Scientific Council on the Developing Child*.

Moher, D., Liberati, A., Tetzlaff, J., Altman, D. G., & The Prisma Group. (2009). Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *PLoS med*, *6*(7). doi: 10.1371/journal.pmed1000097

Monson, J., Hall, K., Smith, C., & Shung-King, M. (Eds.). (2006). *Child Gauge 2006*. Cape Town: Children's Institute, University of Cape Town.

Mrazek, P. J., & Haggerty, R. J. (Eds.). (1994). *Reducing Risks for Mental Disorders: Frontiers for Preventive Intervention Research*. Washington, D.C.: National Academies Press.

Muratori, P., Bertacchi, I., Giuli, C., Lombardi, L., Bonetti, S., Nocentini, A., … Lochman, J. E. (2014). First adaptation of Coping Power Program as a classroom-based prevention intervention on aggressive behaviors among elementary school children. *Prevention Science, 16*, 432-439. doi: 10.1007/s11121-014-0501-3

Nation, M., Crusto, C., Wandersman, A., Kumpfer, K. L., Seybolt, D., Morrissey-Kane, E., & Davino, K. (2003). What works in prevention: Principles of effective prevention programs. *American Psychologist*, *58*(6-7), 449-456. doi: 10.1037/0003-066X.58.6-7.449

National Collaborating Centre for Methods and Tools (2015). *PROGRESS Framework:*

*Applying an equity lens to interventions*. Hamilton, ON: McMaster University. Retrieved May 23, 2017, from: http://www.nccmt.ca/resources/search/234

Nocentini, A., & Menesini, E. (2016). KiVa Anti-Bullying Program in Italy: Evidence of effectiveness in a randomized control trial. *Prevention Science, 17*, 1012-1023. doi: 10.1007/s11121-016-0690-z

Olweus, D. (1997). Bully/victim problems in school: Facts and intervention. *European Journal of Psychology of Education, 12*(4), 495-510. doi:10.1007/bf03172807

Olweus, D., & Limber, S. P. (2010). Bullying in school: evaluation and dissemination of the Olweus Bullying Prevention Program. *American Journal of Orthopsychiatry*, *80*(1), 124-134. doi: 10.1111/j.1939-0025.2010.01015.x

Parra-Cardona, J. R., Bybee, D., Sullivan, C. M., Rodríguez, M. M. D., Tams, L., & Bernal, G. (2017). Examining the impact of differential cultural adaptation with Latina/o immigrants exposed to adapted parent training interventions. *Journal of consulting and clinical psychology*, *85*(1), 58-71. doi: 10.1037/ccp0000160

Piotrowski, D., & Hoot, J. (2008). Bullying and violence in schools: What teachers should know and do. *Childhood Education*, *84*(6), 357-363. doi:10.1080/00094056.2008.10523043

Positive Action. (n.d.). Retrieved from //www.positiveaction.net/planning/grant-writing/program-descriptions

Raising Voices. (2013). *Good School Toolkit.* Retrieved from http://raisingvoices.org/good-school/

Raudenbush, S. W., & Xiao-Feng, L. (2001). Effects of study duration, frequency of observation, and sample size on power in studies of group differences in polynomial change. *Psychological Methods, 6*(4), 387-401. doi: 10.1037/1082-989x.6.4.387

Schick, A., & Cierpka, M. (2005). Faustlos: Evaluation of a curriculum to prevent violence in elementary schools. *Applied and Preventive Psychology, 11*, 157-165. doi: 10.1016/j.appsy.2005.05.001

School of Social Work. (2017). *Steps to Respect: A bullying prevention program*. Retrieved from https://socialwork.uw.edu/research-project/steps-respect-bullying-prevention-program

Shields, N., Nadasen, K., & Pierce, L. (2008). The effects of community violence on children in Cape Town, South Africa. *Child Abuse & Neglect, 32*, 589-601. doi:10.1016/j.chiabu.2007.07.010

Simon, T. R., Ikeda, R. M., Smith, E. P., Reese, L. R. E., Rabiner, D. L., Miller, S., ... & Orpinas, P. (2009). The ecological effects of universal and selective violence prevention programs for middle school students: A randomized trial. *Journal of consulting and clinical psychology*, *77*, 526-542. doi: 10.1037/a0014395

Smith, S. W., Daunic, A. P., Aydin, B., Van Loan, C. L., Barber, B. R., & Taylor, G. G. (2016). Effect of tools for getting along on student risk for emotional and behavioral problems in upper elementary classrooms: a replication study. *School Psychology Review*, *45*(1), 73-92. doi: 10.17105/spr45-1.73-92

Smith, S. W., Daunic, A. P., Barber, B. R., Aydin, B., Van Loan, C. L., & Taylor, G. G. (2014). Preventing risk for significant behavior problems through a Cognitive-Behavioural intervention: Effects of the Tools for Fetting Along Curriculum at one-year follow-up. *Journal of Primary Prevention, 35*, 371-387. doi: 10.1007/s10935-014-0357-0

Snyder, F. J., Acock, A. C., Vuchinich, S., Beets, M. W., Washburn, I. J., & Flay, B. R. (2013). Preventing negative behaviors among elementary-school students through

enhancing students' social-emotional and character development. *American journal of health promotion, 28*(1), 50-58. doi: 10.4278/ajhp.120419-QUAN-207.2

Snyder, M., & Kendzierski, D. (1982). Acting on one's attitudes: Procedures for linking attitude and behavior. *Journal of Experimental Social Psychology, 18,* 165-183. doi:10.1016/0022-1031(82)90048-8

State Education Resource Center. (2009*).* Data Report and Summary: A look at Connecticut

Statistics South Africa. (2015). *Census 2011: Income dynamics and poverty status of households in South Africa.* Pretoria, South Africa: Statistics South Africa.

Stoltz, S. (2012). *Stay Cool Kids?! Effectiveness, Moderation and Mediation of a Preventive Intervention for Externalizing Behavior* (Doctoral dissertation, Ultrecht University).

Stoltz, S., van Londen, M., Deković, M., de Castro, B. O., Prinzie, P., & Lochman, J. E. (2013). Effectiveness of an individual school-based intervention for children with aggressive behaviour: A randomized controlled trial. *Behavioural and Cognitive Psychotherapy, 41,* 525-548. doi: 10.1017/S1352465812000525

Sullivan, T. N., Sutherland, K. S., Farrell, A. D., & Taylor, K. A. (2015). An evaluation of Second Step: What are the benefits for youth with or without disabilities? *Remedial and Special Education, 36*(5), 286-298. doi: 10.1177/0741932515575616

Taylor, B. G., Mumford, E. A., Liu, W., & Stein, N. D. (2017). The effects of different saturation levels of the Shifting Boundaries intervention on preventing adolescent relationship abuse and sexual harassment. *Journal of Experimental Criminology, 13*(1), 79-100. doi:10.1007/s11292-016-9277-8

Taylor, B. G., & Woods, D. (2011). Shifting boundaries: Final report on an experimental evaluation of a youth dating violence prevention program in New York City middle schools. Police Executive Research Forum.

Twemlow, S. W., Fonagy, P., Sacco, F. C., Gies, M. L., Evans, R., & Ewbank, R. (2001). Creating a peaceful learning environment: A controlled study of an elementary school intervention to reduce violence. *American Journal of Psychiatry, 158*(5), 808-810. doi: 10.1176/appi.ajp.158.5.808

Ward, C. L., Artz, L., Berg, J., Boonzaier, F., Crawford-Browne, S., Dawes, A., ... & van der Spuy, E. (2012). Violence, violence prevention, and safety: A research agenda for South Africa. *SAMJ: South African Medical Journal*, *102*(4), 215-218.

Weare, K., & Nind, M. (2010). Identifying evidence-based work on mental health promotion in schools in Europe: An interim report on the DataPrev project. *Advances in School Mental Health Promotion*, *3*(2), 37-45. doi: 10.1080/1754730x.2010.9715679

Winn, D. M. C., Newall, E., Coie, J., & Conduct Problems Prevention Research Group. (2007). Fast Track Morphs into On Track: The Dissemination of a Conduct Prevention Program in Manchester England. *Child and family policy and practice review*, *3*(1), 7-10.

Wisconsin RtI Center. (n.d.). *Annual report 2014-15.* Retrieved from https://www.pbis.org/Common/Cms/files/pbisresources/WI_AnnualReport_14-15.pdf

The World Bank Group. (2017). World Bank Country and Lending Group. Retrieved from https://datahelpdesk.worldbank.org/knowledgebase/articles/906519-world-bank-country-and-lending-groups

World Health Organization, United Nations Office on Drugs and Crime, & United Nations Development Programme. (2014). *Global status report on violence prevention*. Retrieved from http://www.who.int/violence_injury_prevention/violence/status_report/2014/en/

Yerger, W., & Gehret, C. (2011). Understanding and dealing with bullying in schools. *The*

*Educational Forum*, *75*(4), 315-326. doi:10.1080/00131725.2011.602468

# Appendix A

## List of databases and e-journals

### Included databases

| EBSCOHost databases |
|---|
| Academic Search Premier |
| Business Source Premier |
| AHFS Consumer Medication Information |
| ATLA Religion Database with ATLASerials |
| CINAHL |
| Communication & Mass Media Complete |
| ERIC |
| Health Source: Nursing/Academic Edition |
| Humanities International Complete |
| International Bibliography of Theatre & Dance with Full Text |
| Library, Information Science & Technology Abstracts |
| MasterFILE Premier |
| MEDLINE |
| Philosopher's Index |
| PsycARTICLES |
| PsycINFO |
| SocINDEX with Full Text |
| ProQuest databases: |
| Environment Abstracts |
| ERIC |
| International Bibliography of the Social Sciences (IBSS) |
| International Index to Performing Arts Full Text |

| |
|---|
| Library and information Science Abstracts (LISA) |
| PAIS Internationaland PAIS archive |
| PILOTS: Published International Literature on Traumatic Stress |
| ProQuest Education Journal |
| Social Services Abstracts |
| Sociological Abstracts |
| OCLC FirstSearch |
| Medline |
| ERIC |
| PubMed |
| Medline |
| Wiley Online Library |
| Sage Journals Online – 2014 Premier Package |
| Web of Science |
| Africa Bibliography |
| British Education Index- the free collections |
| ERIC (directly at eric.ed.gov) |
| Cochrane Library |
| Campbell Collaboration Libraries (http://www.campbellcollaboration.org/lib/) |

**E-journals**

| Hand Search Journals |
|---|
| Aggression and Violent Behavior |
| International Journal of Violence and schools |
| Journal of School Violence |

| |
|---|
| Journal of Injury and Violence Research |
| Youth Violence and Juvenile Justice |
| Violence and Victims |
| Journal of Aggression, Maltreatment and Trauma |
| The School Community Journal |
| Journal of School Health |
| Journal of Interpersonal Violence |
| Journal of School Psychology |
| Journal of Educational Psychology |
| School Psychology Quarterly |
| Journal of Applied School Psychology |
| Contemporary School Psychology |
| Psychology in the Schools |
| British Journal of Educational Psychology |
| School Psychology International |
| School Psychology Review |
| Educational Psychology |

**Excluded databases (grey literature)**

| |
|---|
| Africa-Wide Information |
| BDENF |
| Global Health |
| HISA |
| LILACS |
| MedCarib |
| Open Grey |

| |
|---|
| PsychCritiques |
| PsychTests |
| Teacher Reference Center |
| Trial registries:<br>www.clinicaltrials.gov<br>The Pan-African Clinical Trials Registry: http://www.pactr.org/<br>The WHO violence prevention trials registry: http://www.preventviolence.info/Trials |
| WPRIM |

## Appendix B

## Screening Form

1. Study ID#:
2. Date of Screening:
3. Reference in APA format:
4. Is this study a RCT?

    Yes

    No

    If no, then stop

5. Is this a study of a school-based intervention for children (ages 6-13, Grades 1-7) or does it include these ages and grades if based on primary and high schools?

    Yes

    No

    Unsure

    If no, then stop

6. Is this study examining effects of a violence prevention intervention as defined in the protocol? The interventions that will be included are those aimed at preventing violence in primary schools, specifically between learners. Studies on interventions using other terminology such as “aggression”, “acting out”, “bullying”, “hitting”, “attacking”, “externalizing behaviour” and “problem behaviour” will also be included

    No- STOP

    Yes

    Unsure

7. Does this study measure rates of violent behavior (or synonyms) among primary school children?

    No- STOP

    Yes

8. Is this study eligible for the review?

    No:

    Yes

    Need more information to make decision

9. Notes/Comments

## Appendix C

## Data Coding Form

Study ID#: _____ Coder: _____ Date of coding: _____

1. **Name of intervention:**
2. **Brief description of the intervention:**
3. **Intervention approach:**

   Universal

   Selective

   Indicated

   Whole-school

   Discrete

   Comprehensive

   Specific

   Not specified
4. **Grades involved:**

   1 2 3 4 5 6 7
5. **Duration of study**

   Pretest

   Posttest (immediately after)

   Duration of follow-up:
6. **Intervention:**

   Who administered intervention:

   Targets of intervention:

   Duration of intervention:

   Duration of sessions:

   Programme content:
7. **Type of violence addressed (Outcome variables)**

   Aggression

   Bullying

   Attacking

   Externalizing behaviour

Hitting

Problem behavior

Sexual harassment

8. **Items used to measure violence**
9. **PROGRESS**

   Place:

   Race:

   Gender:

   Socioeconomic status:

10. **WHO region**

    Africa

    South-East Asia

    Eastern Mediterranean

    Americas

    European

    Western Pacific

11. **Income group**

    Low income

    Lower middle income

    Upper middle income

    High income

12. **Data for transportability**

    Original place where intervention was developed:

    Context to which transported:

    Results:

13. **Unit of assignment to conditions**

    Individual participant

    Group/Cluster: specify

    Was the data analysed at the correct level

    Other:

    Not enough information to determine

14. **How random assignment was performed:**

    Independent

    Off site

Coin toss/dice/shuffling

Not reported

Unclear description

15. **What method was used to conceal allocation sequence?**

Sealed number/coded envelope

Other

No concealment

Not reported

Unclear description

N/A- No random assignment

16. **Study results**

# Appendix D

## Downs and Black checklist for the assessment of the methodological quality

**Item Criteria Possible Answers**

**Reporting**

1. *Is the hypothesis/aim/objective of the study clearly described?*

Yes = 1

No = 0

2. *Are the main outcomes to be measured clearly described in the Introduction or Methods section?* If the main outcomes are first mentioned in the Results section, the question should be answered no.

Yes = 1

No = 0

3. *Are the characteristics of the patients included in the study clearly described?* In cohort studies and trials, inclusion and/or exclusion criteria should be given. In case-control studies, a case-definition and the source for controls should be given.

Yes = 1

No = 0

4. *Are the interventions of interest clearly described?* Treatments and placebo (where relevant) that are to be compared should be clearly described.

Yes = 1

No = 0

5. *Are the distributions of principal confounders in each group of subjects to be compared clearly described?* A list of principal confounders is provided.

Yes = 1

Partially = 2

No = 0

6. *Are the main findings of the study clearly described?* Simple outcome data (including denominators and numerators) should be reported for all major findings so that the reader can check the major analyses and conclusions. (This question does not cover statistical tests which are considered below).

Yes = 1

No = 0

7. *Does the study provide estimates of the random variability in the data for the main outcomes?* In non-normally distributed data the interquartile range of results should be reported. In normally distributed data the standard error,

standard deviation or confidence intervals should be reported. If the distribution of the data is not described, it must be assumed that the estimates used were appropriate and the question should be answered yes.

Yes = 1

No = 0

8. *Have all important adverse events that may be a consequence of the intervention been reported?* This should be answered yes if the study demonstrates that there was a comprehensive attempt to measure adverse events. (A list of possible adverse events is provided).

Yes = 1

No = 0

9. *Have the characteristics of patients lost to follow-up been described?* This should be answered yes where there were no losses to follow-up or where losses to follow-up were so small that findings would be unaffected by their inclusion. This should be answered no where a study does not report the number of patients lost to follow-up.

Yes = 1

No = 0

10. *Have actual probability values been reported (e.g. 0.035 rather than <0.05) for the main outcomes except where the probability value is less than 0.001?*

Yes = 1

No = 0

**External validity**

11. *Were the subjects asked to participate in the study representative of the entire population from which they were recruited?* The study must identify the source population for patients and describe how the patients were selected. Patients would be representative if they comprised the entire source population, an unselected sample of consecutive patients, or a random sample. Random sampling is only feasible where a list of all members of the relevant population exists. Where a study does not report the proportion of the source population from which the patients are derived, the question should be answered as unable to determine.

Yes = 1

No = 0

Unable to determine = 0

12. *Were those subjects who were prepared to participate representative of the entire population from which they were recruited*? The proportion of those

asked who agreed should be stated. Validation that the sample was representative would include demonstrating that the distribution of the main confounding factors was the same in the study sample and the source population.

Yes = 1

No = 0

Unable to determine = 0

13. *Were the staff, places, and facilities where the patients were treated, representative of the treatment the majority of patients receive*? For the question to be answered yes the study should demonstrate that the intervention was representative of that in use in the source population. The question should be answered no if, for example, the intervention was undertaken in a specialist centre unrepresentative of the hospitals most of the source population would attend.

Yes = 1

No = 0

Unable to determine = 0

**Internal validity - bias**

14. *Was an attempt made to blind study subjects to the intervention they have received*? For studies where the patients would have no way of knowing which intervention they received, this should be answered yes.

Yes = 1

No = 0

Unable to determine = 0

15. *Was an attempt made to blind those measuring the main outcomes of the intervention*?

Yes = 1

No = 0

Unable to determine = 0

16. *If any of the results of the study were based on "data dredging", was this made clear*? Any analyses that had not been planned at the outset of the study should be clearly indicated. If no retrospective unplanned subgroup analyses were reported, then answer yes.

Yes = 1

No = 0

Unable to determine = 0

17. *In trials and cohort studies, do the analyses adjust for different lengths of*

*follow-up of patients, or in case-control studies, is the time period between the intervention and outcome the same for cases and controls*? Where follow-up was the same for all study patients the answer should be yes. If different lengths of follow-up were adjusted for by, for example, survival analysis the answer should be yes. Studies where differences in follow-up are ignored should be answered no.

Yes = 1

No = 0

Unable to determine = 0

18. *Were the statistical tests used to assess the main outcomes appropriate*? The statistical techniques used must be appropriate to the data. For example nonparametric methods should be used for small sample sizes. Where little statistical analysis has been undertaken but where there is no evidence of bias, the question should be answered yes. If the distribution of the data (normal or not) is not described it must be assumed that the estimates used were appropriate and the question should be answered yes.

Yes = 1

No = 0

Unable to determine = 0

19. *Was compliance with the intervention/s reliable*? Where there was noncompliance with the allocated treatment or where there was contamination of one group, the question should be answered no. For studies where the effect of any misclassification was likely to bias any association to the null, the question should be answered yes.

Yes = 1

No = 0

Unable to determine = 0

20. *Were the main outcome measures used accurate (valid and reliable*)? For studies where the outcome measures are clearly described, the question should be answered yes. For studies which refer to other work or that demonstrates the outcome measures are accurate, the question should be answered as yes.

Yes = 1

No = 0

Unable to determine = 0

**Internal validity - confounding (selection bias)**

21. *Were the patients in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited from the same*

*population*? For example, patients for all comparison groups should be selected from the same hospital. The question should be answered unable to determine for cohort and case-control studies where there is no information

Yes = 1

No = 0

Unable to determine = 0

22. *Were study subjects in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited over the same period of time*? For a study which does not specify the time period over which patients were recruited, the question should be answered as unable to determine.

Yes = 1

No = 0

Unable to determine = 0

23. *Were study subjects randomized to intervention groups*? Studies which state that subjects were randomized should be answered yes except where method of randomization would not ensure random allocation. For example alternate allocation would score no because it is predictable.

Yes = 1

No = 0

Unable to determine = 0

24. *Was the randomized intervention assignment concealed from both patients and health care staff until recruitment was complete and irrevocable*? All nonrandomized studies should be answered no. If assignment was concealed from patients but not from staff, it should be answered no.

Yes = 1

No = 0

Unable to determine = 0

25. *Was there adequate adjustment for confounding in the analyses from which the main findings were drawn*? This question should be answered no for trials if: the main conclusions of the study were based on analyses of treatment rather than intention to treat; the distribution of known confounders in the different treatment groups was not described; or the distribution of known confounders differed between the treatment groups but was not taken into account in the analyses. In non-randomized studies if the effect of the main confounders was not investigated or confounding was demonstrated but no adjustment was made in the final analyses the question should be answered as no.

Yes = 1

No = 0

Unable to determine = 0

26. *Were losses of patients to follow-up taken into account*? If the numbers of patients lost to follow-up are not reported, the question should be answered as unable to determine. If the proportion lost to follow-up was too small to affect the main findings, the question should be answered yes.

Yes = 1

No = 0

Unable to determine = 0

**Power**

27. *Did the study have sufficient power to detect a clinically important effect where the probability value for a difference being due to chance is less than 5%*? Sample sizes have been calculated to detect a difference of x% and y%.

Yes = 1

No = 0

Unable to determine = 0

# Appendix E

Table 3
*Effectiveness of School Violence Prevention Programmes*

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 1. PA Program (Duncan et al., 2017) | 6 years<br>Pre-test: Fall grade 3<br>Post-test: Spring grade 3, spring & fall grade 4, spring grade 5, spring & fall grade 7, spring grade 8<br><br>Follow-up: Not reported<br><br>Grade 3 | Aggression (includes misconduct, ranging from teasing to physically hitting another student, & delinquency | - Student self-report: Aggression scale & Frequency of Delinquent Behavior Scale | High income<br><br>Chicago (N Americas)<br><br>African American, Hispanic, & other<br><br>Both<br><br>SES not reported | 19 (Good) | Students in the PA schools had significantly lower misconduct scores, $p = .003$, compared to control group students.<br><br>ES: Not reported |
| PA Program (Li et al., 2011) | 3 years<br>Pre-test: Fall 2004<br>Post-test: Spring & Fall 2005, spring 2006, spring 2007 (end of grade 5)<br><br>Follow-up: Not reported<br><br>Grade 3 | Bullying | - Researcher-developed survey questions, Aggression Scale | High income<br><br>Chicago (N Americas)<br><br>Mostly African-American & Hispanic, 7% White non-Hispanic, 3% Asian, 17% other or mixed race<br><br>Only girls<br><br>Low SES | 16 (Fair) | Students in the PA programme had significantly positive results for violence-related behaviours and bullying behaviour. Between pre-test and follow-up, 36% fewer violence-related behaviours, $p = .02$, and 41% fewer bullying behaviours, $p = .03$-$.05$, were reported by PA students in comparison to controls<br><br>ES: Ranged: 0.27-0.41 (ES statistic not defined) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| PA Program<br>(Beets et al., 2009; Snyder et al., 2013) | 4 to 5 years<br>Grade 5 results (initial study - grades 1 & 2 - followed for 4 or 5 years)<br>Pre-test: Grades 1& 2<br>Post-test: Not reported<br><br>Follow-up: Grade 5<br><br>Grades 1 & 2 | Harassment<br>Bullying<br>Fighting | Self & teacher reports:<br>- 5 experimenter-developed items<br>- Survey questions adapted from monitoring the future & the Aban Aya Youth Project (5 items - substance abuse questions, 5 items - violent behaviours) | High income<br><br>Hawaii (N Americas)<br><br>Primarily Hawaiian, part Hawaiian or multiple ethnic backgrounds. White non-Hispanic, African American, Native American, Pacific Islander, Japanese, Asian, other or unknown<br><br>Both<br><br>Low SES | 21 (Good) | Significantly less violence reported by students in intervention schools, $p < .001$<br><br>ES: Not reported |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| PA Program (Lewis et al., 2013) | 6 years<br>Pre-test: Fall 2004<br>Post-test: Spring and Fall 2005, spring 2006, spring 2007, Fall 2008, spring 2009, and spring 2010 (end of grade 8)<br><br>Follow-up: Not reported<br><br>Grade 3 | Bullying | Youth report measures:<br>- Modified version of Orpinas & Frankowski's Aggression scale<br>Parent-report measures:<br>- Modified version of the Aggression & Conduct Problem Subscales of the Behaviour & Assessment System for Children (BASC) | High income<br><br>Chicago (N Americas)<br><br>African-American, Hispanic, & other (i.e., white or other minority)<br><br>Both<br><br>Low SES | 16 (Fair) | No significance values were reported however, students in intervention schools were reportedly less likely to engage in bullying.<br><br>ES: Cohen's *d* = -0.39 (small)<br><br>Parents also reported less bullying behaviours, incidence rate ratio, (*IRR)* = 0.93<br><br>ES: Cohen's *d* = -0.31 (small) |
| 2. STR (Low et al., 2013) | 1 year<br>Pre-test: Fall<br>Post-test: Spring<br><br>Follow-up: Not reported<br><br>Grades 3, 4 & 5 | Bullying | - Colorado Trust's Bullying Prevention Initiative Student Survey<br>- School Environment Survey (SES) | High income<br><br>California (N Americas)<br><br>White, African American, Asian American, other or mixed race<br><br>Both<br><br>SES not reported | 13 (Poor) | Bullying victimisation decreased significantly from pre-test to post-test in classes where students engaged more.<br><br>ES: Not reported |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| STR<br>(Brown et al., 2011) | 6 months<br>Pre-test: Fall<br>Post-test: Spring<br><br>Follow-up: Not reported<br><br>Grades 3, 4 & 5 | Bullying | - School Environment Survey (SES)<br>- Teacher Assessment of Student Behavior (TASB)<br>- Initiative Student Survey | High income<br><br>California (N Americas)<br><br>Mostly White, 7% African American, 6% Asian American, 35% other or mixed race<br><br>Both<br><br>SES not reported | 18 (Fair) | There was a larger decrease in school bullying-related problems, $p < .01$, for intervention schools relative to control schools. Although the prevalence of physical bullying perpetration increased during the school year in both control and intervention schools, the increase was smaller in intervention schools, $p < .01$<br><br>ES: Student bullying = 0.28 (small)<br>School bullying related problems (school environment survey measures) = -0.35 (small). Positive bystanding behavior (student survey measures) = 0.14 (small)<br>Adjusted odds ratio *(AOR)* = 0.61 (small) for physical bullying perpetration (teacher assessment of student behavior) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 3. SNAP (Burke & Loeber, 2016) | 1 year 3 months<br>Pre-test: Not reported<br>Post-test: 3, 9, & 15 months after pre-test<br><br>Follow-up: Not reported<br><br>Ages 6-11 years | Aggression | - Child Behavior Checklist (CBCL) | High income<br><br>Canada (N Americas)<br><br>African-American, White, and 10 % using more than one racial category<br><br>Only boys<br><br>SES not reported | 20 (Good) | Significantly lower levels of aggression in intervention group, compared to controls, $p = .008$<br><br>ES: Not reported |
| 4. Shifting Boundaries - classroom component and Shifting Boundaries Schoolwide (Taylor et al., 2017) | 2 years<br>Pre-test: Not reported<br>Post-test: Not reported<br><br>Follow-up: 6 Months<br><br>Grades 6 to 8 (either only grade 6, grades 6 & 7, or grades 6, 7 & 8) | Aggression - sexual harassment & physical violence | - 9-item scale adapted from other work (AAUW Educational Foundation 1993, 2001; Basile et al. 2009; Fineran and Bennett 1999)<br>- Prevalence and frequency survey on sexual- and physical-abuse victimization and perpetration | High income<br><br>New York (N Americas)<br><br>Hispanic, African American, Asian, White & other<br><br>Both<br><br>SES not reported | 24 (Excellent) | Results for group 2 (grades 6 and 7) and group 3 (grades 6, 7, and 8) were not statistically more significant than when the intervention was only implemented in grade 6 (group 1). However, sexual harassment victimization was significantly lower in group 2 compared to group 1, $p = 0.01$.<br><br>ES: Cohen's $d = .20$ (small) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 5. AAYP: SDC & SC intervention curriculum (Jagers et al., 2009) | 4 years<br>Pre-test: Grade 5<br>Post-test: End of grades 5 to 8<br><br>Follow-up: Not reported<br><br>Grade 5 | Aggression | - Eight questions adapted from the 1992 Youth Risk Behavior Surveillance Survey (YRBSS) | High income<br><br>Midwestern region of the United States (US) (N Americas)<br><br>Mostly African American, some Latino or Hispanic<br><br>Both<br><br>Low SES | 20 (Good) | There were no significant changes in violence over time. However, compared to the control group, the increase in violence was less steep in SDC and SC groups ($Y_{101}$ = -.159(.068), $t$ = -2.31, $p$ = .021, for SDC and $Y_{102}$ = -.155(.051), $t$ = -3.05, $p$ = .002, for SC)<br><br>ES: Not reported |
| 6. Second Step (Sullivan et al., 2015) | 1 ½ years<br>Pre-test: Fall 2008<br>Post-test: Spring 2009<br><br>Follow-up: Fall 2009, & spring 2010<br><br>Grade 6 | Aggression (relational & overt aggression) | Teacher ratings & student self-report measures:<br>- Three Problem Behavior Frequency Scales (PBFS)<br>- Overt & relational victimization scales<br>- Child Behavior Checklist (CBCL) | High income<br><br>Southeastern US (N Americas)<br><br>Mostly Black & White, 1% Hispanic/Latino, 11% - Multiracial, & 3% Other race/ethnicities<br><br>Both<br><br>83% & 22% low SES in urban and rural schools respectively | 18 (Fair) | There were no main intervention effects found. Students without disabilities reported significantly less overt aggression compared to controls between Wave 1 to 3, $p$ = .004<br>There was a significant decrease in relational victimization among disabled students in the intervention group, whereas there was an increase for students in the control group, $p$ = .025<br><br>ES: Student report of overt aggression, Cohen's $d$ = .33 (small), relational victimization, Cohen's $d$ = −0.58 (medium) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| Second Step (Espelage, Low,Van Ryzin et al., 2015) | 3 years<br>Pre-test: Fall 2010.<br>Post-test: Spring 2011, spring 2012, & spring 2013<br><br>Follow-up: Not reported<br><br>Grade 6 | Aggression, sexual harassment, homophobic name-calling | Student self-report:<br>- Illinois bully scale<br>- Illinois victimization scale<br>- University of Illinois fighting scale<br>- Homophobic content agent target scale<br>- Modified version of the American Association of University Women (AAUW) Sexual Harassment Survey | High income<br><br>Kansas & Illinois (N Americas)<br><br>White, African American, Hispanic, Biracial<br><br>Both<br><br>SES not reported | 19 (Good) | No significant direct effect was found. However, delinquency was seen as a mediating factor to aggression, so an indirect effect of aggression was found as there was a significant reduction in delinquency over time in the intervention group. Indirect effects for sexual harassment were not statistically significant<br><br>ES: Not reported |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| Second Step (Espelage, Low, Polanin et al., 2015) | 2 years<br>Pre-test: Wave 1<br>Post-test: Waves 2 & 3<br><br>Follow-up: Not reported<br><br>Grade 6 | Aggression | Student self-report:<br>- Illinois bully scale<br>- Sexual harassment/groping subscale<br>- Homophobic content agent target scale<br>- University of Illinois fighting scale | High income<br><br>Kansas & Illinois (N Americas)<br><br>Intervention (Illinois): Mostly White, African-American, & Hispanic,1.3% Asian, & 11% biracial/other.<br>Intervention (Kansas): Mostly White, Hispanic, & African American, 4% Asian, 13.3% other.<br><br>Both<br><br>SES not reported. | 18 (Fair) | In the model including both states, non-significant results were found for verbal/relational bullying perpetration and victimization, Homophobic name-calling perpetration and victimization. The Illinois only model yielded significant intervention effects for homophobic name-calling and sexual violence perpetration.<br><br>ES: Homophobic name calling, *OR* = 0.64 (small), sexual violence perpetration, *OR* = 0.72 (small) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| Second Step[a] (Espelage, Rose et al., 2015) | 3 years<br>Pre-test: Grade 6 (fall 2010)<br>Post-test: Spring 2011, spring 2012, and spring 2013<br><br>Follow-up: Not reported<br><br>Grade 6 | Bullying (perpetration, victimization, physical aggression) | Student self-reports:<br>- Illinois bully scale<br>- University of Illinois victimization scale<br>- University of Illinois fighting scale | High income<br><br>Unites States Midwestern regions (N Americas)<br><br>White, African-American, Hispanic, Biracial<br><br>Both<br><br>SES not reported | 19 (Good) | There was a significant intervention effect for bully perpetration, $p < .05$, but not for bully victimization or physical aggression.<br>For the intervention group, bully perpetration decreased significantly across the four waves<br><br>ES: $\delta = -0.20$<br>ES calculated according to Raudenbush and Xiao-Feng (2001) |
| Second Step (Espelage et al., 2013) | 1 year<br>(3-year study, but only year 1 results presented)<br>Pre-test: Fall<br>Post-test: Spring<br><br>Grade 6 | Bullying: Aggression, victimization & sexual violence (peer aggression, peer victimization, homophobic name calling, & sexual violence perpetration & victimization) | - University of Illinois bully scale<br>- University of Illinois victimization scale<br>- University of Illinois fighting scale<br>- Homophobic content agent target scale<br>- Modified version of the American Association of University Women Sexual Harassment Survey | High income<br><br>Illinois & Kansas (N Americas)<br><br>African-American, Hispanic, White/Caucasian, biracial/all other<br><br>Both<br><br>Low SES | 22 (Good) | Significant intervention effects were found for physical aggression. Self-reported physical aggression was 42% less likely to be reported by students in the intervention schools than those in control schools, $p < .05$<br>Verbal/relational bully perpetration, peer victimization, homophobic teasing, and sexual violence did not yield significant intervention effects<br><br>ES: *AOR* = .70 (small) for physical aggression |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 7. Antibullying School Program[b] (Fekkes et al., 2006) | 2 years<br>Pre-test: November 1999<br>Post-test: May 2000<br><br>Follow-up: 2 years<br><br>Three highest elementary grades, ages 9 to 12 | Bullying | - Dutch version of the Olweus Bully/Victim Questionnaire<br>- Short Depression Inventory for Children<br>- Dutch School Experience Questionnaire | High income<br><br>Netherlands (European)<br><br>Both<br><br>Race and SES not reported | 16 (Fair) | Being bullied decreased significantly from pre-test to end of first year, $p < .05$, and decreased from pre-test to end of second year by 3.7% in intervention group. In contrast it increased by 3.1% in control group. Active bullying increased from pre-test to end of second year by 1.5% in intervention group and increased by 2.2% in control group<br><br>ES: Not reported |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 8. TFGA (Smith et al., 2016) | 3 years<br>Pre-test & post-test: Not reported<br><br>Follow-up: 1 year<br><br>Grades 4 & 5 | Aggression | - The Reactive-Proactive Aggression Scale<br>- The Clinical Assessment of Behavior Teacher-rating form (CAB-T) | High income<br><br>North central Florida (Americas)<br><br>African-American; White or other<br><br>Both<br><br>Low SES | 18<br>(Fair) | There was a significant decrease in aggression for students in the TFGA group compared to controls, especially for students who had higher teacher-rated aggression at pre-test, however, the intervention was not seen as effective in significantly reducing self-reported aggression, especially for students at high-risk levels<br><br>ES: High-risk sample aggression, Hedge's $g$ = -0.05 (small) (Durlak, 2009)<br><br>There was a lower risk of post-test aggression for females, those who were White or other, those who did not receive FRL, and grade fives |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| TFGA Curriculum (Daunic et al., 2012; Smith et al., 2014) | 2 years<br>Pre-test & post-test: Not reported<br><br>Follow-up: 1 year<br><br>Grades 4 & 5 | Aggression | - Anger Expression Scale for Children (AESC)<br>- The Reactive-proactive scale<br>- Clinical Assessment of Behavior Teacher Rating Form (CAB-T) | High income<br><br>Florida (N Americas)<br><br>African American, remainder- Caucasian, Hispanic or other<br><br>Both<br><br>Low SES | 20 (Good) | Only marginally significant results were found for proactive aggression. No significant results were found for reactive aggression<br><br>ES: Not reported |
| 9. YM (Jenson & Dieterich, 2007) | 2 years<br>Pre-test & post-test: Not reported<br><br>Follow-up: 1 year<br><br>Grade 4 | Bullying perpetration & victimisation. | - Bully victim scale from the revised Olweus Bully/Victim Questionnaire<br>- Bullying other students scale from the Olweus questionnaire | High income<br><br>Denver (N Americas)<br><br>Majority Latino, the rest were African-American, American Indian, Asian American, mixed race or Caucasian<br><br>Both<br><br>SES not reported | 17 (Fair) | Continuous growth outcome models: The study concluded that the intervention group yielded significantly lower bully victimization scores compared to the control group. Despite having similar pre-test levels of bully victimization, the decline in bully victimization was significantly faster for African American students compared to Anglo students.<br>The binary outcome growth models did not find any significant main intervention effect on bully victimisation<br><br>ES: Bully victimization, *OR* = 1.12 (small) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| YM (Jenson et al., 2010) | 2 years<br>Pre-test: About 1 month after year started<br>Post-test: Twice a year<br><br>Follow-up: 1 year<br><br>Grades 4 & 5 (results from grade 6 follow-up reported) | Bullying | - Bully victim scale from the revised Olweus Bully/Victim Questionnaire.<br>- Bullying other students scale from the Olweus Questionnaire | High income<br><br>Denver (N Americas)<br><br>Latino/a, African American, Caucasian, or Other<br><br>Both<br><br>SES not reported | 16 (Fair) | Significantly lower rates of victimization in intervention groups compared to controls. However, rates of bullying were not significantly different between the two groups by the end of year 2<br><br>ES: Not reported |
| 10. CPP (Muratori et al., 2014) | 7 months<br>Pre-test: October<br>Post-test: May of following year<br><br>Follow-up: Not reported<br><br>Grades 1 & 2 | Aggression | - Italian Strengths and Difficulties Questionnaire (SDQ) | High income<br><br>Italy (European)<br><br>Race not reported<br><br>Both<br><br>SES not reported | 17 (Fair) | Significant reduction in aggression was found only for the high-risk, aggressive children. Behavioural difficulties did not significantly decrease in CPP sample<br><br>ES: Not reported |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 11. Two GREAT interventions implemented: GREAT student curriculum & GREAT teacher program and GREAT Families Program (Simon et al., 2009) | 1 year<br>Pre-test: Fall<br>Post-test: Spring<br><br>Follow-up: 2 years<br><br>Grade 6 | Aggression | - The Problem Behaviour Frequency Scale (PBFS)<br>- The behavioural Assessment System for Children (BASC)<br>- Physical aggression composite scale (comprised of four BASC & four PBFS items)<br>- Norms for Aggression and Alternatives scale | High income<br><br>Chicago, North Carolina, Georgia, & Virginia (N Americas)<br><br>Hispanic/Latino, Non-Hispanic Black<br><br>Both<br><br>Low SES | 19 (Good) | There was a significant decrease in relational victimization in the universal intervention group compared to controls, $p < .01$. However, this group did not yield any further significant intervention effects for aggression. Again, effects were better for high-risk students<br><br>There was a significant decrease in aggression and victimization for students in the selective intervention compared to controls. Results were more positive for high-risk students, with an increase in victimization and aggression at post-test for low-risk students<br><br>ES: Follow-up compared to pretest, relational victimization and aggression, Cohen's $d$ = -0.14 (small) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 12. PATHS (Averdijk et al., 2016) | 9 years – Triple P in year 1 & PATHS in year 2<br>Pre-test: 2004/2005<br>Post-test: Not reported<br><br>Follow-up: Waves 5 & 6 (2011 & 2013)<br><br>Grades 1 & 2 | Aggression | - Social Behavior Questionnaire (SBQ) | High income<br><br>Switzerland (European)<br><br>Race not reported<br><br>Both<br><br>High SES | 19 (Good) | At 13 years: Significantly lower prevalence of police contact in both PATHS and comparison group (Triple P) compared to control group. Youth in PATHS condition were less likely to report contact with police at 13 years than youth in control condition. Significantly greater reduction in competent conflict resolution skills in the intervention youth groups compared to the control group<br><br>ES: Cohen's *d* = -0.16 for prevalence of police contact, Cohen's *d* = -0.23 for reporting a police contact. Cohen's *d* = 0.12 for conflict resolution (small) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| PATHS (Crean & Johnson, 2013) | 3 years<br><br>Pre-test: Fall of grade 3<br>Post-test: Fall, winter, & spring each year (grades 3, 4, & 5)<br><br>Follow-up: Not reported<br><br>Grade 3 | Aggression | - Teacher Report on Students (TRS) rating scale<br>- The behavior assessment scale for children-2 (BASC-2) Aggression Subscale, teacher version - administered as part of the TRS<br>- The Acting Out subscale of the TCRS<br>- Child Report (CR)<br>- The What would I do? Self-report assessment, included eight hypothetical vignettes<br>- Adaptations from the Aggression scale<br>- The Victimization Scale | High income<br><br>Northeastern urban school district, Northeastern suburban school district, or Midwestern suburban school district (Americas)<br><br>White/Caucasian, African American, Other, Hispanic<br><br>Both<br><br>Low-middle SES | 18 (Fair) | Teacher reported measures yielded significant intervention effects<br><br>According to teacher rated outcomes, students in the PATHS group were less aggressive over time, $p = .12$. However, victimization over time was not lower according to student report measures in the PATHS group<br><br>ES: -0.20 (small)<br>(ES = mean difference divided by pooled pre-test standard deviation) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| PATHS (Malti et al., 2011) | 2 years- Triple-P implemented in year 1 & PATHS in year 2<br>Pre-test: Not reported<br>Post-test: 2004/2005, 2006/2007 (annually), & at end of intervention<br><br>Follow-up: 2 years (2008/2009)<br><br>Grade 1 | Externalizing behaviour - including aggression, nonaggressive externalizing behaviour, & impulsiveness | - Tremblay et al.'s (1991) Social Behaviour Questionnaire (SBQ) Incorporating pictures based on the Dominic interactive measure | High income<br><br>Switzerland (European)<br><br>Race not reported<br><br>Both<br><br>Low-high SES | 21 (Good) | According to teacher ratings, the decline in aggressive behaviour was significantly greater for students in the PATHS condition compared to the control group, $p < .05$. These results were only significant for students who had a high level of impulsivity or ADHD at pre-test. Parent ratings of externalizing behaviour also showed a significant decline in aggressiveness in PATHS students compared to controls, $p < .05$. Non-significant effects were found in the comparison group (Triple P) and PATHS and Triple P groups<br><br>ES: Teacher rated aggressive behaviour, Cohen's $d = 0.42$ (medium), Parent rated externalizing behaviour, Cohen's $d = .26$ (small) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 13. Fast Track PATHS (Bierman et al., 2010) | 3 years<br>Pre-test & post-test: Not reported<br><br>Follow-up: Not reported<br><br>Grades 1, 2, & 3 of the same cohort | Aggression | - Peer nominations of classmates who show aggressive, hyperactive-disruptive, and prosocial behaviour<br>- Teacher Observation of Classroom Adaptation-Revised (TOCA–R)<br>- Social Health Profile (SHP) | High income<br><br>Nashville- Tennessee, Seattle- Washington, & central Pennsylvania (PA) (N Americas)<br><br>Nashville: African American and European American. Seattle: Ethnically diverse. Central PA: Mostly European American<br><br>Both<br><br>Low-middle SES | 19<br>(Good) | There were significant main and moderation intervention effects based on the TOCA-SHP measure. Intervention effects were more significant for children with high aggression at pre-test<br>According to peer nominations boys in the control group were rated as being more aggressive than those in the intervention group, $p < .001$<br><br>ES: Boys' aggression, Cohen's $d$ = 0.20 (small) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 14. CAPSLE (Fonagy et al., 2009) | 3 years<br>Pre-test: Fall of year 1<br>Post-test: After 2 years<br><br>Follow-up: 1 year after post-test<br><br>Grades 3, 4, & 5 | Aggression, victimisation & bystanding behaviour | - The Peer Experiences Questionnaire<br>- Observations of classroom behavior | High income<br><br>Kansas (N Americas)<br><br>Race not reported<br><br>Gender not reported<br><br>Low SES | 18 (Fair) | Main effects: lower levels of self-reported aggression for both CAPSLE and comparison groups, School Psychiatric Counseling (SPC), $p < .05$. At follow-up: CAPSLE have significantly less victimization and peer-reported aggression, $p < .01$, and more helpful bystanding, $p < .05$, compared to comparison group<br><br>ES (at follow up): Peer reported aggression = 0.20, self-report aggression = 0.04, peer report victimisation = 0.20, self-report victimisation = 0.08, aggressive bystanding = 0.21, helpful bystanding = 0.17<br>(ES calculated by dividing the beta estimation by the square root of the variance estimation. These were conducted at every time point and averaged to find the overall ES) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 15. Good Schools Toolkit (Devries et al., 2017) | 2 years<br>Pre-test & post-test: Not reported<br><br>Follow-up: Not reported<br><br>Grades 5, 6, & 7 | Bullying | - Prevention of Child Abuse and Neglect Child Abuse Screening Tool-Child Institutional (ICAST-CI) | Low income<br><br>Uganda (Africa)<br><br>Race not reported<br><br>Both<br><br>SES not reported | 20 (Good) | There was a reduction in overall levels of violence from school staff and/or peers. Students in the Toolkit intervention schools displayed significantly less peer violence<br><br>ES: In the past week, *OR* = 0.70 (small) and past term, *OR* = 0.68 (small) |
| 16. SWPBIS (Bradshaw et al., 2012) | 4 years<br>Pre-test: Start of year 1<br>Post-test: Once a year, till end of year 4<br><br>Follow-up: Not reported<br><br>Kindergarten, grades 1 & 2 | Aggression | - Teacher Observation of Classroom Adaptation Checklist (TOCA-C) | High income<br><br>(N Americas)<br><br>African American, Asian/Pacific Islander, American Indian/Alaskan Native, white, Hispanic<br><br>Both<br><br>SES not reported | 21 (Good) | A significant positive intervention effect on disruptive behaviors was found, $p < .05$, such that children in SWPBIS schools had lower levels of aggressive and disruptive behaviors compared with those in the control schools. Students were less likely to receive office disciplinary referrals compared to controls<br><br>ES: *AOR* = 0.12 (small) for disruptive behaviours such as aggression. Office disciplinary referrals, *AOR* = 0.67 (small) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 17. KiVa (Kärnä et al., 2013) | 1 school year (nine months)<br>Pre-test: May 2008<br>Wave 2: December 2008 to February 2009<br>Wave 3: May 2009<br><br>Follow-up: Not reported<br><br>Grades 1 to 3, 4 to 6 & 7 to 9 | Bullying | - Web-based questionnaire | High income<br><br>Finland (European)<br><br>Race, gender, & SES not reported | 18 (Fair) | Compared with the control school students, second and third grade boys and girls in KiVa schools bullied less ($b$ = 0.36, $p$ = .036). Interactions between intervention x gender x time imply that the significant reduction of victimization associated with the intervention, was restricted to girls in classrooms with an average proportion (50%) of boys ($b$ = 0.49, $p$ < .001). This reduction became even stronger when the proportion of boys increased (with 65% boys, $b$ = 0.74, $p$ <.001). The reduction of victimization, however, was not significant for girls in classrooms with a low proportion (35%) of boys ($b$ = 0.23, $p$ <.179)<br><br>ES: Wave 2 victimisation, *OR* = 1.23, bullying, *OR* = 1.41. Wave 3 victimisation, *OR* = 1.63 (girls), *OR* = 1.04 (boys), bullying *OR* = 1.43 (small) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 18. TTL (Domino, 2013) | 1 ½ years<br>Pre-test: Beginning of fall 2009<br>Post-test: End of fall 2009<br><br>Follow-up: Spring 2010<br><br>Grade 7 | Bullying | - Peer Relations Questionnaire (PRQ) | High income<br><br>Southwestern Connecticut (N Americas)<br><br>Mostly White. 1% African American, 2% Latino/Hispanic, and 3% Asian<br><br>Both<br><br>SES not reported | 15 (Fair) | Significant intervention effect for bullying and victimisation from pre-test to post-test, $p < .001$ compared to control group<br><br>ES: not reported |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 19. Friendly Schools Friendly Families program (Cross et al., 2012) | 3 years<br>Pre-test: Not reported<br>Post-test: 3 in grade 4, 2 in grade 6<br><br>Follow-up: Not reported<br><br>Grades 4 & 6 | Bullying | - 2-items adapted from the revised Olweus Bully/Victim Questionnaire<br>- The Australian Peer Relations Assessment Questionnaire | High income<br><br>Australia (Western Pacific)<br><br>Race, Gender, & SES not reported | 25 (Excellent) | Significant positive effects were found when the intervention was implemented on high intensity for two to three years, but not less Students in the grade 4 medium and low intensity intervention groups were significantly more likely to bully others than those in the high intensity intervention group<br><br>ES: Medium and low intensity groups: Bullying, *ES* = 0.57 (medium) and *ES* = 0.31 (small) respectively<br>(*OR* converted to ES by dividing the natural *OR* logarithm by the standard deviation of the log distribution) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 20. GREAT Schools and Families (Henry, 2012) | 1 year<br>Pre-test: Fall<br>Post-test: Spring<br><br>Follow-up: 2-years<br><br>Grade 6 | Aggression | - Problem Behavior Frequency Scale<br>- Goals and Strategies Measure | High income<br><br>Chicago, Illinois; North Carolina; Georgia; and Virginia (N Americas) Mostly Black or African-American, 15% as non-Hispanic White, and 15% as Latino/Hispanic<br><br>Both<br><br>Low SES | 15 (Fair) | Students who received the selective intervention showed significantly lower adjusted aggression scores ($d = -0.16$, $p < .05$), and reported relatively less use of aggressive strategies ($d = -0.14$, $p < .05$) compared to controls<br><br>ES: Not reported |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 21. Stay Cool Kids (Stoltz et al., 2013) | 3 years<br>Pre-test: T1<br>Post-test: T2 - 11 weeks after intervention<br><br>Follow-up: Not reported<br><br>Grade 4 | Externalising behaviour - Including reactive and proactive aggression | - Teacher rating of aggression<br>- Externalizing scale<br>- Hostile intent attribution variable to assess hypothetical stories given<br>- Response evaluation of stories on a 10-point scale<br>- | High income<br><br>Netherlands (European)<br><br>Race not reported<br><br>Both<br><br>SES not reported | 21<br>(Good) | There was a significant intervention effect on proactive and reactive aggression.<br><br>Child reported reactive and proactive aggression showed a significant decrease at post-test, $F(2,263) = 4.06$, $p = .02$ and $F(2,263) = 8.02$, $p = .02$, respectively<br><br>Teacher reported proactive aggression also showed a significant intervention effect $F(2,263) = 3.81$, $p = .05$, but not proactive aggression<br><br>Significant intervention effects for proactive and reactive aggression were evident in mother reports too, while father reports only yielded significant effects for proactive aggression<br><br>ES: Not reported |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 22. F2F (Leff et al., 2015) | 1 year<br>Post-test: 10 weeks after pre-test<br><br>Follow-up: 1 year<br><br>Grades 3, 4 & 5 | Aggression | - Children's Social Behavior Questionnaire<br>- Knowledge of Anger Problem-Solving<br>- Cartoon-Based Hostile Attributional Bias (HAB)<br>- Social Cognitive Assessment Profile (SCAP)<br>- Knowledge of Anger Problem-Solving (KAPS) | High income<br><br>Philadelphia (N Americas)<br><br>African American<br><br>Only girls<br><br>Low SES | 21 (Good) | Girls with high levels of relational aggression in intervention group had significantly lower levels of teacher-reported relational aggression following treatment, as compared to control group<br><br>ES: Cohen's *d* = -0.37 (small) |

| Programme name | Duration of study & grades involved | Assessment of violence | Measures used: | Country level income group & PROGRESS: Place (WHO region), Race, Gender & SES | Downs and Black quality score (x/28): | Results |
|---|---|---|---|---|---|---|
| 23. The Thinking Group[c] (Abdukmalik et al., 2016) | 3 weeks<br>Post-test: 1-week post intervention<br><br>Follow-up: Not reported<br><br>Grade 5 | Aggression | - Teacher Rating of Students' Aggressive Behaviors (TRAB)<br>- Teacher rated Strengths and Difficulties Questionnaire (SDQ)<br>- Self-Rated Aggression Scale (SRAS)<br>- Attitude Towards Aggression Questionnaire (ATAQ)<br>- Social Cognition and Attribution Scale (SCAS) | Lower middle income<br><br>Nigeria (Africa)<br><br>Race not reported<br><br>Only boys<br><br>Low SES | 18 (fair) | Teacher rating of aggressive behaviours decreased significantly by 27,14% between pre- and post-tests. Self-reports of aggression decreased significantly by 18,57% between pre- and post-tests. Both had significantly lower scores compared to control groups<br><br>ES: teacher rated: Cohen's *d* = 1.2 (large), self-reported: Cohen's *d* = 0.9 (large) |

*Note*. N = North; Both = boys and girls; ES = effect size; OR = odds ratio; AOR = adjusted odds ratio; SES = socioeconomic status.
[a]Intervention aimed at disabled students in this study. [b]Programme is not named in the paper but is referred to as the Antibullying School Program. [c]Programme is not named in the paper but is referred to as the Thinking Group.