Do school-based violence interventions improve educational outcomes? A systematic review

Karen Devries

karen.devries@lshtm.ac.uk

London School of Hygiene & Tropical Medicine

Emily Eldred

London School of Hygiene & Tropical Medicine

Jodie Pearlman

London School of Hygiene & Tropical Medicine

Charles Opondo

London School of Hygiene & Tropical Medicine

Anja Zinke-Allmang

University of Oxford

Mathew Amollo

London School of Hygiene & Tropical Medicine

Sophie Norman

London School of Hygiene & Tropical Medicine

Shanaaz Mathews

University of Cape Town

Dipak Naker

Good Schools Coalition

Amiya Bhatia

University of Oxford

Systematic Review

Keywords: systematic review, randomised controlled trials, education, violence prevention

Posted Date: December 2nd, 2025

DOI: https://doi.org/10.21203/rs.3.rs-8165658/v1

Additional Declarations: Competing interest reported. Karen Devries and Dipak Naker have co-authored research papers that meet the inclusion criteria for and appear within the systematic review. All authors have no other conflicts of interest to declare.

Abstract

Background

Education is a key social determinant of health and improving access to quality education is Sustainable Development Goal 4. Unfortunately, many children experience violence in and around schools. Although many school-based violence prevention interventions are effective in prevention of violence and improving school climate, they are still not widely implemented globally in the education sector. This may be because it is unclear whether preventing violence at school improves children's educational outcomes. We aimed to 1) document whether school-based violence prevention interventions measure educational outcomes and describe what these are; and 2) summarise evidence on effect of school violence interventions on educational outcomes.

Methods

We drew on a larger systematic review of randomised controlled trials of school-based interventions to prevent violence, with searches until December 2023. We screened 161 papers for any papers that also reported on any educational outcomes. We summarised risk of bias and results narratively and visualised intervention effects on educational outcomes on a forest plot.

Results

We identified 13 papers reporting on 12 intervention trials. All 12 interventions trialled reduced violence. 5 showed an improvement in educational outcomes; 5 trials showed mixed results on educational outcomes; 2 showed no effect. No trials showed a clear and consistent effect of any violence intervention on literacy or numeracy test scores. All 5 of the interventions improving educational outcomes were trialled in high income countries.

Conclusions

School-based violence prevention interventions can improve some educational outcomes for children in high-income settings. In less well-resourced settings, preventing violence may not be sufficient to improve educational outcomes without other interventions. There is no evidence that violence prevention programmes negatively impact educational outcomes.

Registration:

PROSPERO CRD42023463384

Introduction

Education is a child's right (1), and an important social determinant of health (2) with impacts on morbidity and mortality (3)(4). Parents, especially in resource-constrained settings, often prioritise children's schooling as a primary pathway out of poverty (5–7). While education holds great potential to improve child health and social outcomes, schools are also one of the most common sites where children experience physical, emotional and sexual violence (9). Perpetrators are often peers and teachers (10), and institutional failures to protect children can be seen as a form of structural violence and a violation of the rights of a child. Children themselves view institutional lack of action to ensure safe environments as a form of violence against them (11).

There is a clear moral imperative to prevent violence against children for its own sake, and to prevent a range of adverse health and social outcomes caused by violence exposure. Schools provide a hugely important platform for violence prevention—globally, nearly 90% of all children attend at least some school (12), and most children spend more time in school than any other location besides their family homes (8). In November 2024, 100 countries pledged to end school violence as one of three key pillars being emphasised to end violence against children in 2030 (13).

But despite the importance of safe schools to children, and international initiatives to visiblise school violence issue (14, 15), to date there has been limited uptake of violence prevention interventions within the education sector. This may be because violence is not seen as directly impacting literacy and numeracy outcomes, which are central to Sustainable Development Goal 4, 'Ensuring inclusive and equitable quality education and promote lifelong learning opportunities for all' (16). Where schools have extremely limited resources and demands on teachers are high, the time required to deliver school violence prevention interventions may be seen as detrimental to learning outcomes, potentially leading to poor implementation of interventions.

It is also unclear whether addressing violence through schools is actually sufficient to improve children's educational outcomes. Although there is abundant empirical evidence that children who experience violence are also more likely to have poor educational performance, in both cross-sectional and cohort studies (17), various other factors (for example, violence at home, child labour and work, conflict, poverty) could contribute to students experiencing both school violence and to poor educational performance. It thus remains unclear whether intervening to reduce violence in schools, on its own, would be sufficient to improve children's educational attainment, particularly in contexts where there is considerable adversity.

We conducted a systematic review of randomised controlled trials of violence prevention interventions, aiming to 1) document whether school-based violence prevention interventions measure educational outcomes and describe what these are; and 2) summarise evidence on effect of school violence interventions on educational outcomes.

Methods

Search strategy and screening

This paper is part of a larger systematic review of school-based violence prevention interventions registered on PROSPERO (CRD42023463384). Further details on searches and screening are included elsewhere (18). In the larger review, we conducted screening in two stages to find randomised control trials (trials hereafter) evaluating school-based violence prevention interventions. First, we conducted a systematic search of 6 databases (Medline, Cochrane Library, Embase, Global Health, PsycINFO, Web of Science) in July 2023, limited to the past 5 years, to find systematic reviews of violence prevention interventions in schools (see Supplementary B for search terms). We excluded theses, conference proceedings, and books. Title and abstract screening, followed by full text screening was completed using Covidence software. In stage 1, the initial search yielded a result of 5,214 unique records. After title, abstract, and full text screening, we identified 27 systematic reviews (19–46). We identified a further two reviews in May 2024, utilizing professional networks, that included records up to December 2023.

In this second stage, we obtained the full text of all 512 papers included in each of the 29 systematic reviews. After reading these 512 papers, and finding 3 papers via professional networks in January 2025, we identified a final sample of 161 papers reporting trial results of school-based interventions reporting different violence outcomes. At both the first and second stages EE completed the screening with 10% double screened by AZA.

For this paper, we included all randomised controlled trials of any violence prevention interventions in schools that also reported on educational outcomes. Four authors (EE, JP, MA, SN) screened the full text of all 161 papers reporting on violence prevention trials, to find papers that reported on any of the following education outcomes: educational attainment, achievement or performance (such as literacy or numeracy test scores); school absence or drop out; and academic behaviours (for example, homework completion or participation in class). Specific definitions and criteria are outlined in Table 1.

Table 1
Inclusion criteria

Inclusion criteria	Description
1. Randomised control trial (RCT)	All randomised control trial designs, including cluster or wedge-step design. When authors did not label their studies as an RCT, these were included if they met the criteria of an RCT design: a) one or more experimental groups receiving treatment (e.g. behavioural intervention); b) one control group not receiving the intervention in a (e.g. no intervention); c) randomisation. Keywords*: Randomized Controlled Trial/ or Early Intervention, Educational
2. School-based interventions	All interventions delivered within or to children attending nursery, primary or secondary schools. This includes interventions that take a whole-school approach or focus specifically on a group of children (e.g. girls), or grade, or have a school-based element within a larger programme that is reported separately. Keywords*: Schools, Nursery/
3. Violence outcomes measured among nursery, primary and secondary school children	Violence outcomes are measured among nursery, primary, and secondary school children. Violence interventions that are targeted at adult perpetrators, but where victimisation outcomes are measured among children, are included. 'Children' includes any child included in nursery, primary or secondary schools up to the age of 24 (encompassing WHO & UN definition of young person and children who may be over-age for grade). Keywords*: Child/ or Adolescent/ or Young Adult/ or Infant/ or Infant, Newborn/ or Students/ or Child, Preschool/
4. Violence outcomes	Any of the included studies definition of bullying, physical fighting between peers, emotional violence between peers, sexual violence by peers intimate partner violence, dating or relationship violence between adolescent partners, sexual violence from teachers, physical violence from teachers, emotional violence from teachers. Violence could be a primary, secondary or other outcome. Keywords*: Violence/ or Physical Abuse/ or Rape/ or Adverse Childhood Experiences/ or Child Abuse/
5. Education outcomes	Any author definitions of the following education outcomes: educational attainment, achievement or performance (e.g. test scores); school absence or drop out; and academic behaviours (e.g. homework completion, participation in class).
*Keywords are based on Medical Subject Headings (MESH)	

Data extraction

We (EE, SN) extracted information about each intervention, trial designs and location, sample size, violence and education outcome measures, effect estimates and uncertainty, from included papers. Where papers reported multiple educational outcomes, outcomes authors reported as a primary,

secondary or other pre-specified outcomes were extracted. Where authors did not pre-specify an educational outcome, we extracted effect estimates for single educational measures; where these were not available, we extracted effect estimates for composite measures.

Quality assessment

We (EE, JP) rated the risk of bias using the Cochrane Risk of Bias Assessment, categorising risk as 'low', 'some concerns' or 'high' (47). An overall score was given based on the sum of each domain. We visualised the results using Risk-of-bias VISualization (ROBVIS) tool (48).

Data analysis

Interventions were heterogenous in content, form of violence addressed, and educational outcomes measured, precluding any quantitative synthesis. We therefore display each effect estimate reported from each trial and narratively described study results. Too few studies assessed any one outcome to formally assess publication bias.

Where studies reported enough information to calculate a standardised mean difference (SMD) between control and intervention groups for continuous education outcomes, we calculated and visualised SMD estimates on a forest plot. Where studies did not report enough information for us to calculate an SMD, we described whether each effect estimate was in a positive direction and statistically significant (the intervention improved an educational outcome); in a positive direction but not statistically significant; in a negative direction but not statistically significant; or in a negative direction and statistically significant (the intervention was harmful to an educational outcome).

To summarise the effect of a trial reporting multiple educational outcomes without specifying which was a primary or secondary outcome, we described results as: 'improved' when all educational outcomes are in a positive direction and at least one was statistically significant; 'no effect' when some educational outcomes are in a positive and some are in a negative direction, and none are statistically significant; 'mixed' when some educational outcomes are in a positive and some are in a negative direction, and at least one is statistically significant; and 'harmful' if all outcomes were in a negative direction and at least one was statistically significant.

Results

Study characteristics

We found 13 papers reporting on 12 trials that measured both violence and education outcomes (inclusion process in Supplementary A; Table 2 provides further details on included trials. Trials were conducted mainly in primary schools (n = 8/12). Six and were conducted in the USA, and one in each of: El Salvador, India, Jamaica, Norway, Pakistan, and Uganda. The main forms of violence addressed in

interventions included violence from teachers to students (n = 2), bullying or violent behaviour between students (n = 9), violence from teachers to students (n = 2), sexual harassment/assault (n = 1), with several interventions addressing multiple forms of violence. Only three trials formally specified education outcomes as a primary or secondary outcome in a pre-registered protocol. Education outcomes included: academic self-concept (n = 2), educational attainment, achievement or performance (n = 6), literacy, numeracy or other test scores (n = 5), school absence or drop out (n = 2), and academic behaviours (n = 1).

Intervention content and approaches varied widely. Some are comprehensive, whole-school approaches (55), others are focused more directly on working with teachers to improve their competencies (56), and others focus more on peer behaviour (54, 61). Length of intervention implementation ranged from 3 weeks to 5 years, and length of follow up measurement of educational outcomes ranged from immediately post intervention to 1 year post intervention implementation.

Table 2
Study characteristics of trials of school-based violence prevention interventions which measured education outcomes

Lead author, year, design, registration	Intervention description (name; location; school type; description)	Intervention content, measurement*
Baker-Henningham, 2019 Location: Jamaica Design: Cluster randomised control trial Registration: ISRCTN11968472	**Name**: IRIE Classroom Toolbox **School type**: Primary **Main intervention aim**: to prevent violence against children by teachers and to prevent the early development of antisocial behaviour **Description**: Teachers were trained through a combination of workshop and in-class support sessions **Length of intervention**: 8 months	**Content**: In the workshops teachers were introduced to: (1) teaching rules and routines, (2) using praise in the classroom and paying attention to positive behaviour, (3) being proactive to prevent child behaviour problems, (4) promoting children's social–emotional competence, (5) interactive storybook reading and (6) promoting children's active participation in teaching and learning activities. **Literacy/numeracy content**: Yes **Measurement**: student test scores; tests administered at trial endline. **Follow up measurement timing**: post intervention (not specified)
Brown, 2011 Location: USA Design: Cluster randomised control trial Registration: none	**Name**: Steps to Respect **School type**: Primary **Main intervention aim**: to reduce school bullying perpetration and victimisation **Description**: School-based prevention program aligned with the social-ecological model of bullying, targeting school, peer, and individual levels of the school environment. **Length of intervention**: 3 years	**Content**: Teacher training aims to foster a positive school climate and norms, with a focus on the creation of effective disciplinary policies, improved monitoring of students, and instruction on how to effectively intervene with students involved in bullying incidents. **Literacy/numeracy content**: No **Measurement**: teacher perceptions of student outcomes; collected via survey at trial endline. **Follow up measurement timing**: post intervention (not specified)
Capella, 2012 Location: USA Design: Cluster randomised control trial Registration: none	**Name**: Bridging Mental Health and Education in Urban Schools (BRIDGE) **School type**: Primary **Main intervention aim**: to promote effective emotional support and classroom organization; supportive teacher–student relationships; and children's social, behavioural, and academic adjustment **Description**: A consultation and coaching programme utilising	**Content**: Mental health professionals undergo training to work with teachers on the classroom interactions and student behaviour. **Literacy/numeracy content**: No **Measurement**: student survey data at trial endline. **Follow up measurement timing**: post intervention (not specified)

Lead author, year, design, registration	Intervention description (name; location; school type; description)	Intervention content, measurement*
	mental health professionals within schools. **Length of intervention**: 1 year	
Catalano, 2003 Location: USA Design: Matched-pairs randomised control trial Registration: none	**Name**: Raising Healthy Children (RHC) **School type**: Primary **Main intervention aim**: to increase academic success and reduce adolescent antisocial behaviour and chronic mental health problems **Description**: The RHC program is universal prevention intervention based on the social development model focused on reducing antisocial behaviours and enhancing prosocial behaviours. **Length of intervention**: 18 months	**Content**: Teachers receive workshops that focus on improvement classroom management, reducing academic risks and early aggressive behaviours while enhancing protective factors among students. **Literacy/numeracy content**: No **Measurement**: teacher reports of student academic performance, collected via survey at trial endline **Follow up measurement timing**: At 1.5 years of intervention implementation
Devries, 2015 Location: Uganda Design: Cluster randomised control trial Registration: NCT01678846	**Name**: Good School Toolkit **School type**: Primary **Main intervention aim**: to improve school operational culture and reduce violence **Description**: A complex behavioural intervention, using a whole school approach **Length of intervention**: 18 months	**Content**: Specific behaviour-change techniques for school staff include: setting school-wide goals, developing action plans with specific dates for deliverables, encouraging empathy by facilitating reflection on experiences of violence, providing new knowledge on alternative non-violent discipline, and providing opportunities to practise new behavioural skills. **Literacy/numeracy content**: No **Measurement**: student test scores; tests administered at trial endline. **Follow up measurement timing**: 2 months post intervention
Dhar 2018 Location: India Design: Cluster randomised controlled trial Registration: AEA RCT Registry (AEARCTR-0000072)	**Name**: Taaron ki Toli, or Legion of Stars **School type**: Secondary **Main intervention aim**: to influence adolescent boys' and girls' views related to gender norms **Description**: Curriculum-based intervention for 7th to 10th grade students, with discussions around	**Content**: None reported **Literacy/numeracy content**: No **Measurement**: From routine test data collected in schools at the end of the intervention implementation, in 2014–2016 and again in 2017 **Follow up measurement timing**: post intervention (not specified)

Lead author, year, design, registration	Intervention description (name; location; school type; description)	Intervention content, measurement*
	gender equality, facilitated by external human rights organisation **Length of intervention**: 45-minute sessions every 3 weeks over 2.5 school years	
Dinarte-Diaz 2024; Dinarte 2019 Location: El Salvador Design: Cluster randomised controlled trial Registration: AEA RCT Registry (AEARCTR-0001602)	**Name**: After-school programme (ASP) **School type**: Secondary **Main intervention aim**: to successfully modify children's violence, misbehavior, and attitudes through the acquisition of life skills, and therefore improve their academic performance **Description**: An after-school programme focusing on social skills development (e.g. social emotional skills development) and traditional after school club activities (e.g. sports or science). Additional within-treatment randomisation to after school club groups with peers at 'homogeneous' risk of baseline violence; and groups with peers at heterogeneous risk levels at baseline. **Length of intervention**: Twice a week meetings of 1.5 hours over 20 weeks	**Content**: None reported **Literacy/numeracy content**: No **Measurement**: From routine test data collected in schools at the end of the intervention implementation **Follow up measurement timing**: post intervention (not specified)
Espelage, 2016 Location: USA Design: Cluster randomised control trial Registration: NCT01792167	**Name**: Second Step: Student Success Through Prevention (SS-SSTP) **School type**: Secondary **Main intervention aim**: to increase prosocial behaviours **Description**: A curriculum-based intervention targeted to grades 6–8 focusing on social emotional learning (including empathy, communication skills, problem-solving, bullying prevention) **Length of intervention**: 28 lessons delivered over 3 school years	**Content**: Teachers received a 4-hr training that covered several areas: understanding bullying prevention and social-emotional learning; intervention delivery; implementation strategies to maximize fidelity. **Literacy/numeracy content**: No **Measurement**: From routine test data collected by schools at the end of the intervention implementation **Follow up measurement timing**: 1 year post intervention
Holen, 2013	**Name**: Zippy's Friends	**Content**: None reported

Lead author, year, design, registration	Intervention description (name; location; school type; description)	Intervention content, measurement*
Location: Norway Design: Matched-pair cluster randomised controlled trial Registration: none	**School type**: Primary **Main intervention aim**: to strengthen children's ability to cope with stress **Description**: A curriculum-based intervention based on 6 stories relating to family and friends of a cartoon stick insect, Zippy, exploring emotions, communication, relationships and conflict resolution. The programme also includes class discussions, role-playing, drawing, play and performance exercises about the stories. **Length of intervention**: 24 weekly lessons	**Literacy/numeracy content**: No **Measurement**: teacher reports of student academic skills, collected via survey at trial endline **Follow up measurement timing**: post intervention (not specified)
Karmaliani, 2020 Location: Pakistan Design: Cluster randomised controlled trial Registration: NCT03448523	**Name**: Right to Play **School type**: Primary **Main intervention aim**: to educate and empower children to lead healthier, empowered and safer lives **Description**: A play-based intervention with 103 play-based learning activities. After each game, coaches led a three-step discussion including: reflecting on the activity, feelings and learning; connecting activity to everyday life and broader circumstances. **Length of intervention**: 2 years with 120 sessions	**Content**: None reported **Literacy/numeracy content**: No **Measurement**: student self-reported attendance and perceived academic achievement, collected via survey at trial endline **Follow up measurement timing**: post intervention (not specified)
Snyder, 2013 Location: USA Design: Matched-pair cluster randomised controlled trial Registration: NCT00328445	**Name**: Positive Action **School type**: Primary **Main intervention aim**: to develop positive behaviours **Description**: A school-wide curriculum-based programme aiming to influence academic achievement and substance misuse.	**Content**: Teachers and school staff are trained by the programme developer on the curriculum. **Literacy/numeracy content**: No **Measurement**: students self-reported academic behaviour, collected via survey at trial endline **Follow up measurement timing**: 1 year post intervention

Lead author, year, design, registration	Intervention description (name; location; school type; description)	Intervention content, measurement*
	Length of intervention: 140 lessons per year for each grade in 15–20-minute lesson slots over 4–5 years	
Yeager, 2012 Location: USA Design: Randomised control trial Registration: none	**Name**: Implicit Theories of Personality Intervention **School type**: Secondary **Main intervention aim**: to teach high school students how to apply an incremental theory of personality in their daily lives **Description**: Student sessions taught students new strategies for thinking positively following conflicts or setbacks and new ways to resolve conflicts. **Length of intervention**: 6 sessions for students over 3 weeks	**Content**: None reported **Literacy/numeracy content**: No **Measurement**: routine data collected by schools, measured at trial endline **Follow up measurement timing**: 2 weeks post intervention

Risk of bias

Figure 1 displays the risk of bias for included studies. All but 2 studies receiving a score of ‘some concerns’. Areas of high concern included the domain on ‘bias due to deviations from intended interventions’ due to authors not reporting or not conducting intention to treat analyses and ‘bias in selection of the reported result’ due no availability of a protocol or statistical analysis plan.

Impact of violence interventions on educational outcomes

The impact of violence prevention interventions on educational outcomes is summarised in Table 3 and Fig. 2. Of the 12 interventions trialled, all reduced violence in schools. Five of the 12 interventions also showed a positive effect on educational outcomes (49–53), five showed mixed effects (54–58) and two showed no effect (59, 60). No interventions showed a harmful effect of on educational outcomes.

All five of the interventions that showed a positive effect on educational outcomes were trialled in high income countries; four in the USA (49–51, 53) (of 6 trials total conducted in the USA) and one in Norway (52) (of one trial in Norway). Educational outcomes measured in these trials included ‘academic self-concept’, absences and tardiness, ‘academic behaviour’, teacher reports of ‘academic skills’, teacher reports of ‘academic performance’. None of these trials measured literacy, numeracy or other test scores as outcomes. All five of these interventions scored ‘some concerns’ on risk of bias across more domains versus trials that showed mixed or no effects.

Of the five interventions that showed mixed effects on educational outcomes, four were trialled in low- or middle-income countries including India, Jamaica, Pakistan, and Uganda, and one in the USA among a population of children with disabilities (57). Educational outcomes measured in these trials included literacy, numeracy and other test scores, as well as 'perceived academic performance', and attendance. Two of these five trials which showed no or mixed effects were at low risk of bias, and as a group, these trials scored 'some concerns' on risk of bias across fewer domains versus trials that did show an effect.

The two interventions that showed no effect on educational outcomes were trialled in the USA (60) and India (59). These both measured test scores and Brown et al. also measured 'academic competency'. There were 'some concerns' about risk of bias in both trials.

None of the trials with literacy, numeracy or other test score data showed a clear positive effect of their intervention. All trials that measured educational test scores via tests administered during trial data collection showed mixed effects, with test results in varying directions and of varying statistical significance (55–57). Two further trials relied on routinely collected test data from schools, and also did not show any effects of violence reductions on test scores (54, 59, 61). Two trials reported test score data without specifying how it was collected, but also found mixed results (57) or no effect (60). We also note that the interventions which did show an impact on educational outcomes were all trialled in high income countries, while all the interventions that showed mixed or no effects were all trialled in low- or middle-income countries. However, two interventions trialled in a high-income country also did not show any effect.

Table 3
Impact of violence prevention interventions on educational outcomes, where SMD could not be calculated

Lead author, year	Violence reduced?	Education outcomes	Educational outcomes	Quantitative summary, effect of intervention on education outcomes
Dhar, 2018	Yes	No effect	In 2014–2016, proportion scoring > 50 in:	n = 228–237 schools
				b = 0.013, se = 0.018, p > 0.1
			Hindi	b=-0.007, se = 0.019, p > 0.1
			English	b = 0.012, se = 0.018, p > 0.1
			Math	b=-0.020, se = 0.019, p > 0.1
			Science	b=-0.012, se = 0.018, p > 0.1
			Social Science	b=-0.002, se = 0.008, p > 0.1
			All subjects	n = 307 schools
			In 2017, proportion passing in:	b = 0.001, se = 0.010, p > 0.1
				b=-0.005, se = 0.023, p > 0.1
			Hindi	b=-0.010, se = 0.027, p > 0.1
			English	b=-0.011, se = 0.026, p > 0.1
			Math	b=-0.21, se = 0.022, p > 0.1
			Science	b=-0.13, se = 0.027, p > 0.1
			Social Science	
			All subjects	
Snyder, 2013	Yes	Improved	Academic behaviour	n = 20 schools, 1784 students, b = 0.273, SE(b) = 0.39, p < 0.001
Yeager, 2012	Yes	Improved	Absences and tardiness	n = 230 students; b=-0.43, se = 0.21

Discussion

Summary of main findings

Despite interest in the field, we find a surprisingly small number of randomised controlled trials of school-based violence prevention interventions which also measure educational outcomes. There was some concern about bias in most trials, and caution is therefore needed in drawing definitive conclusions. All 12 interventions which met our inclusion criteria reduced violence, but only five of the 12 also showed an improvement in any educational outcomes. We did not find any evidence of negative

impacts of violence prevention interventions on educational outcomes. Overall, our results suggest that, alongside reducing violence, school-based violence prevention interventions can improve some educational outcomes, but that this effect is not consistent across setting of intervention implementation, type of outcomes or intervention content or length.

Comparison to other literature

Our findings show no clear or consistent effects of school-based violence interventions on test scores, but some evidence of effectiveness in relation to outcomes like teacher perceptions of academic skills and competency, as well as attendance and lateness. It is possible that violence prevention interventions may affect teacher and student perceptions of skills, competence and attendance differently to literacy and numeracy test scores. Previous qualitative work examining effects of violence prevention interventions has highlighted impacts on reduction of fear and improvement in student-teacher relationships (62), which could plausibly affect attendance in the short term, but not necessarily school performance over the same frame. For school violence prevention programmes to improve test scores, it is likely that interventions would need to reduce fear and increase the ability of students to concentrate, in the presence of a curriculum and skilled teachers that can teach literacy and numeracy skills. This is likely to require a longer time frame to achieve. However, we note that many of the interventions included in the review were implemented for long periods, ranging from 20 weeks to 5 years, with educational outcomes generally assessed at trial endlines near the end of implementation periods. Arguably this could have been enough time for effects on test scores to occur.

All interventions that improved violence and educational outcomes were trialled in high-income countries. In these settings, if violence prevention interventions reduce victimisation, fear of violence and improve school climate, students will then be more likely to find themselves in a well-resource education system with a curriculum and skilled teachers who can support their learning. In our review, all trials which showed mixed effects on educational outcomes were conducted in low- and middle-income country settings, where education systems are comparatively less well resourced. Particularly in some low- and middle- income countries, major systems interventions are needed to ensure the majority of students can achieve literacy and numeracy outcomes and there are vast gaps in ensuring teacher coverage and quality instruction (63). In some contexts, children also are far more likely to have competing demands on their time, and are likely to have work alongside attending school (64) and deal with the effects of structural poverty (7). In these settings, it is possible that reducing violence and creating safer classroom environments, while a positive step, could be insufficient on its own to improve educational outcomes.

We also note that *both* the studies from high income countries, as well as the studies not measuring literacy, numeracy or other test scores, scored overall worse on our risk of bias assessment. This makes it difficult to disentangle whether the lack of effects observed are potentially due to context, or dependent on the outcomes measured. Finally, the interventions themselves are heterogeneous in content, length and delivery models. This may also have affected various educational outcomes

differently, which we unfortunately are not able to explore further in our review given the small number of studies included.

Strengths and limitations

We conducted a comprehensive and systematic search and include all randomised controlled trials of any school-based interventions to reduce any form of violence globally. Our strategy of relying on the search lists of existing systematic reviews means it more likely we will have identified all relevant trials, as each review will also have conducted a screening and review process. We double screened a proportion of abstracts to identify systematic reviews and had good inter-rater reliability.

The studies within the review were generally of reasonable quality, but only two had low risk of bias. Many authors did not conduct intent to treat analyses or have protocols with pre-specified analysis plans available, leaving open the possibility of selective reporting of results. There was little consistency in the types of educational outcomes included, or how they were measured, so it was not possible to conduct a meta-analysis. Several studies did not report enough information to enable us to calculate differences between groups in outcome scores. It is also possible that studies were underpowered to detect differences in educational outcomes if they were not pre-specified as primary outcomes in trials.

Implications

Efforts to prevent violence and improve primary and secondary school environments and educational outcomes are central to a multi-sectoral commitment to improving the lives of children (65). Our findings suggest that in high income countries, some educational outcomes can be positively impacted by preventing school violence, thus supporting the case for scaling up violence prevention interventions in schools as a way to achieve SDG targets related to both education (SDG 16) and ending violence (SDG 4) (16).

Our findings also suggest that in low- and middle- income countries, preventing violence in schools may not be enough to improve educational outcomes. Interventions restricted to the school, whilst they may be important to help provide safe spaces and help students to build resilience, may not be sufficient on their own to support students who are dealing with multiple forms of adversity, including: violence in other settings, the effects of poor nutritional status, labour demands of the family, gendered exclusions, distance and accessibility of schools, road and transport infrastructure, and unequal access to health services amongst others.

Instead, in low- and middle- income country settings, school violence prevention interventions may be important as part of a larger package of structural interventions to help children achieve better educational outcomes. Further empirical evidence is needed to establish whether there may be synergistic effects of combining violence prevention with other types of intervention content to address literacy and numeracy directly and/or structural drivers of educational outcomes, but these are promising strategies that should be tested.

Conclusion

School-based violence prevention interventions can improve some educational outcomes for students in high-income settings. However, the effect is not consistent and may not generalise to literacy, numeracy and other test scores. Preventing violence may not be sufficient to improve the educational outcomes measured in existing studies in low- and middle- income countries. There is no evidence that implementing violence prevention programmes in schools negatively impacts learning outcomes.

Abbreviations

PROSPERO is the International Prospective Register of Systematic Reviews;

ROBVIS is Risk-of-bias VISualization;

SMD is Standardised Mean Difference;

USA is United States of America;

SDG is Sustainable Development Goal

Declarations

Ethics approval and consent to participate

Not applicable

Consent for publication

Not applicable

Availability of data and materials

All data used in this article are publicly available

Competing interests

Karen Devries and Dipak Naker have co-authored research papers that meet the inclusion criteria for and appear within the systematic review. All authors have no other conflicts of interest to declare.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

Authors' contributions

KD conceived the idea for paper, contributed to data extraction, data analysis and drafted the manuscript.

EE conducted the larger systematic review on which this paper is based, supervised by KD and AB; extracted data, conducted risk of bias assessments and input into drafting the manuscript.

JP participated in screening, extracted data, conducted risk of bias assessments and input into drafting the manuscript.

CO led quantitative data analysis and input into drafting the manuscript.

AZA, MA and SN participated in screening, and input into drafting the manuscript.

SM and DN contributed to interpretation of results and drafting of the manuscript.

AB supervised the larger systematic review on which this paper is based, contributed to interpretation of results and drafting of the manuscript.

All authors gave final approval of the version to be submitted and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Acknowledgements

Not applicable

References

1. United Nations. The United Nations Convention on the Rights of the Child. London: UNICEF UK; 1989.
2. The Lancet Public H. Education: a neglected social determinant of health. Lancet Public Health. 2020;5(7):e361.
3. Raghupathi V, Raghupathi W. The influence of education on health: an empirical assessment of OECD countries for the period 1995–2015. Arch Public Health. 2020;78:20.
4. Wu YT, Daskalopoulou C, Muniz Terrera G, Sanchez Niubo A, Rodriguez-Artalejo F, Ayuso-Mateos JL, et al. Education and wealth inequalities in healthy ageing in eight harmonised cohorts in the ATHLOS consortium: a population-based study. Lancet Public Health. 2020;5(7):e386–94.
5. Wolf S, McCoy DC. Household Socioeconomic Status and Parental Investments: Direct and Indirect Relations With School Readiness in Ghana. Child Dev. 2017;88(5):1691–706.
6. Mbonile MAM, Mwakaje MSK. Sending children to school: rural livelihoods and parental investment in education in northern Tanzania. World Dev. 2015;70:1–10.

7. Boyden J, Dawes A, Dornan P, Tredoux C. Tracing the Consequences of Child Poverty: Evidence from the Young Lives Study in Ethiopia, India, Peru and Vietnam. Bristol University; 2019.
8. Pinheiro PS. World Report on Violence Against Children. New York; 2006.
9. Devries KM, Ward CH, Naker D, Parkes J, Bonell C, Bhatia A, et al. School violence: where are the interventions? Lancet Child Adolesc Health. 2022;6(1):5–7.
10. Devries K, Knight L, Petzold M, Merrill KG, Maxwell L, Williams A, et al. Who perpetrates violence against children? A systematic analysis of age-specific and sex-specific data. BMJ Paediatr Open. 2018;2(1):e000180.
11. Turner E, Kelly SA, Eldred E, Bouzanis K, Gatuguta A, Balliet M, et al. What do we know about how children and adolescents conceptualise violence? A systematic review and meta-synthesis of qualitative studies from sub-Saharan Africa. PLoS ONE. 2024;19(7):e0304240.
12. UNICEF, Primary Education. April 2021. 2021.
13. First Global Ministerial Conference on Ending Violence. Against Children [Available from: https://endviolenceagainstchildrenconference.org/pledges/
14. Learn St. Safe to Learn Call to Action: Ending Violence against children in, and around, and through schools. 2023.
15. NGO Advisory Council. Five Years On: A global update on violence against children. UN Study on Violence Against Children; 2011.
16. The United Nations. Sustainable Development Goals [Available from: https://sdgs.un.org/goals
17. Fry D, Fang X, Elliott S, Casey T, Zheng X, Li J, et al. The relationships between violence in childhood and educational outcomes: A global systematic review and meta-analysis. Child Abuse Negl. 2018;75:6–28.
18. Eldred E, Devries K, Zinke-Allmang A, Mallick R, Mughis W, Banks LM et al. Are school-based violence prevention interventions inclusive and effective for children with disabilities? A systematic review of global evidence. eClinicalMedicine. 2025;80.
19. Baumgarten E, Simmonds M, Mason-Jones AJ. School-based interventions to reduce teacher violence against children: a systematic review. Child Abuse Rev. 2022;32(4).
20. Ali-Saleh Darawshy N, Gewirtz A, Marsalis S. Psychological Intervention and Prevention Programs for Child and Adolescent Exposure to Community Violence: A Systematic Review. Clin Child Fam Psychol Rev. 2020;23(3):365–78.
21. Bonell C, Taylor B, Berry V, Filho SRP, Rizzo A, Farmer C, et al. Re-orientating systematic reviews to rigorously examine what works, for whom and how: Example of a realist systematic review of school-based prevention of dating and gender violence. Res Synth Methods. 2023;14(4):582–95.
22. Che Yusof R, Norhayati MN, Mohd Azman Y. Effectiveness of school-based child sexual abuse intervention among school children in the new millennium era: Systematic review and meta-analyses. Front Public Health. 2022;10:909254.

23. Doty JL, Giron K, Mehari KR, Sharma D, Smith SJ, Su YW, et al. The Dosage, Context, and Modality of Interventions to Prevent Cyberbullying Perpetration and Victimization: a Systematic Review. Prev Sci. 2022;23(4):523–37.
24. Farmer C, Shaw N, Rizzo AJ, Orr N, Chollet A, Hagell A, et al. School-Based Interventions to Prevent Dating and Relationship Violence and Gender-Based Violence: Systematic Review and Network Meta-Analysis. Am J Public Health. 2023;113(3):320–30.
25. Fraguas D, Diaz-Caneja CM, Ayora M, Duran-Cutilla M, Abregu-Crespo R, Ezquiaga-Bravo I, et al. Assessment of School Anti-Bullying Interventions: A Meta-analysis of Randomized Clinical Trials. JAMA Pediatr. 2021;175(1):44–55.
26. Gaffney H, Ttofi MM, Farrington DP. What works in anti-bullying programs? Analysis of effective intervention components. J Sch Psychol. 2021;85:37–56.
27. Mokhtarian Gilani T, Simbar M, Kariman N, Mokhtarian Gilani T, Bazzazian S, Ghiasvand M et al. Methods for Prevention of Sexual Abuse among Adolescents: A Systematic Review. Iran J Public Health. 2020.
28. Gubbels J, van der Put CE, Stams GJM, Assink M. Effective Components of School-Based Prevention Programs for Child Abuse: A Meta-Analytic Review. Clin Child Fam Psychol Rev. 2021;24(3):553–78.
29. Kennedy RS. A meta-analysis of the outcomes of bullying prevention programs on subtypes of traditional bullying victimization: Verbal, relational, and physical. Aggress Violent Beh. 2020;55.
30. Melendez-Torres GJ, Bonell C, Shaw N, Orr N, Chollet A, Rizzo A, et al. Are school-based interventions to prevent dating and relationship violence and gender-based violence equally effective for all students? Systematic review and equity analysis of moderation analyses in randomised trials. Prev Med Rep. 2023;34:102277.
31. Ng ED, Chua JYX, Shorey S. The Effectiveness of Educational Interventions on Traditional Bullying and Cyberbullying Among Adolescents: A Systematic Review and Meta-Analysis. Trauma Violence Abuse. 2022;23(1):132–51.
32. Nyoni T, Steiner JJ, Okumu M, Orwenyo E, Tonui BC, Lipsey K et al. The Use and Effectiveness of the Whole School Approach in School-Based Interventions Addressing Gender-Based Violence in Sub-Saharan Africa: A Systematic Review. Trauma Violence Abuse. 2022:15248380221134296.
33. Orr N, Chollet A, Rizzo AJ, Shaw N, Farmer C, Young H, et al. School-based interventions for preventing dating and relationship violence and gender-based violence: A systematic review and synthesis of theories of change. Rev Educ. 2022;10(3):e3382.
34. Patterson A, Ryckman L, Guerra C. A Systematic Review of the Education and Awareness Interventions to Prevent Online Child Sexual Abuse. J Child Adolesc Trauma. 2022;15(3):857–67.
35. Piolanti A, Foran HM. Psychological violence in dating relationships among adolescents: A systematic review and meta-analysis of prevention programs. Prev Med. 2022;159:107053.
36. Piolanti A, Jouriles EN, Foran HM. Assessment of Psychosocial Programs to Prevent Sexual Violence During Adolescence: A Systematic Review and Meta-analysis. JAMA Netw Open.

2022;5(11):e2240895.

37. Polanin JR, Espelage DL, Grotpeter JK, Ingram K, Michaelson L, Spinney E, et al. A Systematic Review and Meta-analysis of Interventions to Decrease Cyberbullying Perpetration and Victimization. Prev Sci. 2022;23(3):439–54.
38. Russell D, Higgins D, Posso A. Preventing child sexual abuse: A systematic review of interventions and their efficacy in developing countries. Child Abuse Negl. 2020;102:104395.
39. Russell KN, Voith LA, Lee H. Randomized controlled trials evaluating adolescent dating violence prevention programs with an outcome of reduced perpetration and/or victimization: A meta-analysis. J Adolesc. 2021;87:6–14.
40. Sivaraman B, Nye E, Bowes L. School-based anti-bullying interventions for adolescents in low- and middle-income countries: A systematic review. Aggress Violent Beh. 2019;45:154–62.
41. Tancred T, Melendez-Torres GJ, Paparini S, Fletcher A, Stansfield C, Thomas J et al. Interventions integrating health and academic education in schools to prevent substance misuse and violence: a systematic review. Public Health Res Southampton (UK)2019.
42. Tanrikulu I. Cyberbullying prevention and intervention programs in schools: A systematic review. School Psychol Int. 2017.
43. Torgal C, Espelage DL, Polanin JR, Ingram KM, Robinson LE, El Sheikh AJ, et al. A Meta-Analysis of School-Based Cyberbullying Prevention Programs' Impact on Cyber-Bystander Behavior. School Psychol Rev. 2021;52(2):95–109.
44. Villardon-Gallego L, Garcia-Cid A, Estevez A, Garcia-Carrion R. Early Educational Interventions to Prevent Gender-Based Violence: A Systematic Review. Healthc (Basel). 2023;11(1).
45. Walsh K, Zwi K, Woolfenden S, Shlonsky A. School-Based Education Programs for the Prevention of Child Sexual Abuse. Res Social Work Pract. 2015;28(1):33–55.
46. Celik P. The effectiveness of school-based child sexual abuse prevention programmes among primary school-aged children: A systematic review. Int J Educational Res Open. 2024;7.
47. Sterne JAC, Savović J, Page MJ, Elbers RG, Blencowe NS, Boutron I, et al. RoB 2: a revised tool for assessing risk of bias in randomised trials. BMJ. 2019;366:l4898.
48. McGuinness LA, Higgins JPT. Risk-of-bias VISualization (robvis): An R package and Shiny web app for visualizing risk-of-bias assessments. Res Synth Methods. 2021;12(1):55–61.
49. Yeager DS, Trzesniewski KH, Dweck CS. An implicit theories of personality intervention reduces adolescent aggression in response to victimization and exclusion. Child Dev. 2013;84(3):970–88.
50. Snyder F, Acock A, Vuchinich S, Beets MW, Washburn I, Flay BR. Preventing Negative Behaviors Among Elementary-SchoolStudents Through Enhancing Students' Social-Emotional and Character Development. Am J Health Promotion. 2013;28:50–8.
51. Catalano RF, Mazza JJ, Harachi TW, Abbott RD, Haggerty KP, Fleming CB. Raising healthy children through enhancing social development in elementary school: Results after 1.5 years. J Sch Psychol. 2003;41(2):143–64.

52. Holen S, Waaktaar T, Lervåg A, Ystgaard M. Implementing a Universal Stress Management Program for Young School Children: Are there Classroom Climate or Academic Effects? Scandinavian J Educational Res. 2013;57(4):420–44.
53. Cappella E, Hamre BK, Kim HY, Henry DB, Frazier SL, Atkins MS, et al. Teacher consultation and coaching within mental health practice: classroom and child effects in urban elementary schools. J Consult Clin Psychol. 2012;80(4):597–610.
54. Dinarte L, Egana-delSol P. Preventing Violence in the Most Violent Contexts Behavioral and Neurophysiological Evidence. World Bank Group: Policy Research Working Paper 8862. 2019.
55. Devries KM. The Good School Toolkit For Reducing Physical Violence From School Staff To Primary School Students: A cluster-randomised controlled trial in Uganda. Lancet Global Health. 2015;3:e378–86.
56. Baker-Henningham H, Scott Y, Bowers M, Francis T. Evaluation of a Violence-Prevention Programme with Jamaican Primary School Teachers: A Cluster Randomised Trial. Int J Environ Res Public Health. 2019;16(15).
57. Espelage DL, Rose CA, Polanin JR. Social-Emotional Learning Program to Promote Prosocial and Academic Skills Among Middle School Students With Disabilities. Remedial Special Educ. 2016;37(6):323–32.
58. Karmaliani R, McFarlane J, Khuwaja HMA, Somani Y, Shehzad S, Saeed Ali T, et al. Right To Play's intervention to reduce peer violence among children in public schools in Pakistan: a cluster-randomized controlled trial. Glob Health Action. 2020;13(1):1836604.
59. Dhar D, Jain T, Jayachandran S, RESHAPING ADOLESCENTS' GENDER ATTITUDES. EVIDENCE FROM A SCHOOL-BASED EXPERIMENT IN INDIA. Working Paper 25331 http://wwwnberorg/papers/w25331. 2018.
60. Brown EC, Low S, Smith BH, Haggerty KP. Outcomes From a School-Randomized Controlled Trial of Steps to Respect: A Bullying Prevention Program. School Psychol Rev. 2011;40:423–43.
61. Dinarte-Diaz L. Peer Effects on Violence: Experimental Evidence from El Salvador. Institute of Labor Economics; 2024.
62. Kyegombe N, Namakula S, Mulindwa J, Lwanyaaga J, Naker D, Namy S, et al. How did the Good School Toolkit reduce the risk of past week physical violence from teachers to students? Qualitative findings on pathways of change in schools in Luwero, Uganda. Soc Sci Med. 2017;180:10–9.
63. International Task Force on Teachers for Education 2030. Closing the gap - Ensuring there are enough qualified and supported teachers. Paris: UNESCO; 2021.
64. Putnick DL, Bornstein MH. Is Child Labor a Barrier to School Enrollment in Low- and Middle-Income Countries? Int J Educ Dev. 2015;41:112–20.
65. Clark H, Coll-Seck AM, Banerjee A, Peterson S, Dalglish SL, Ameratunga S, et al. A future for the world's children? A WHO-UNICEF-Lancet Commission. Lancet. 2020;395(10224):605–58.

Figures

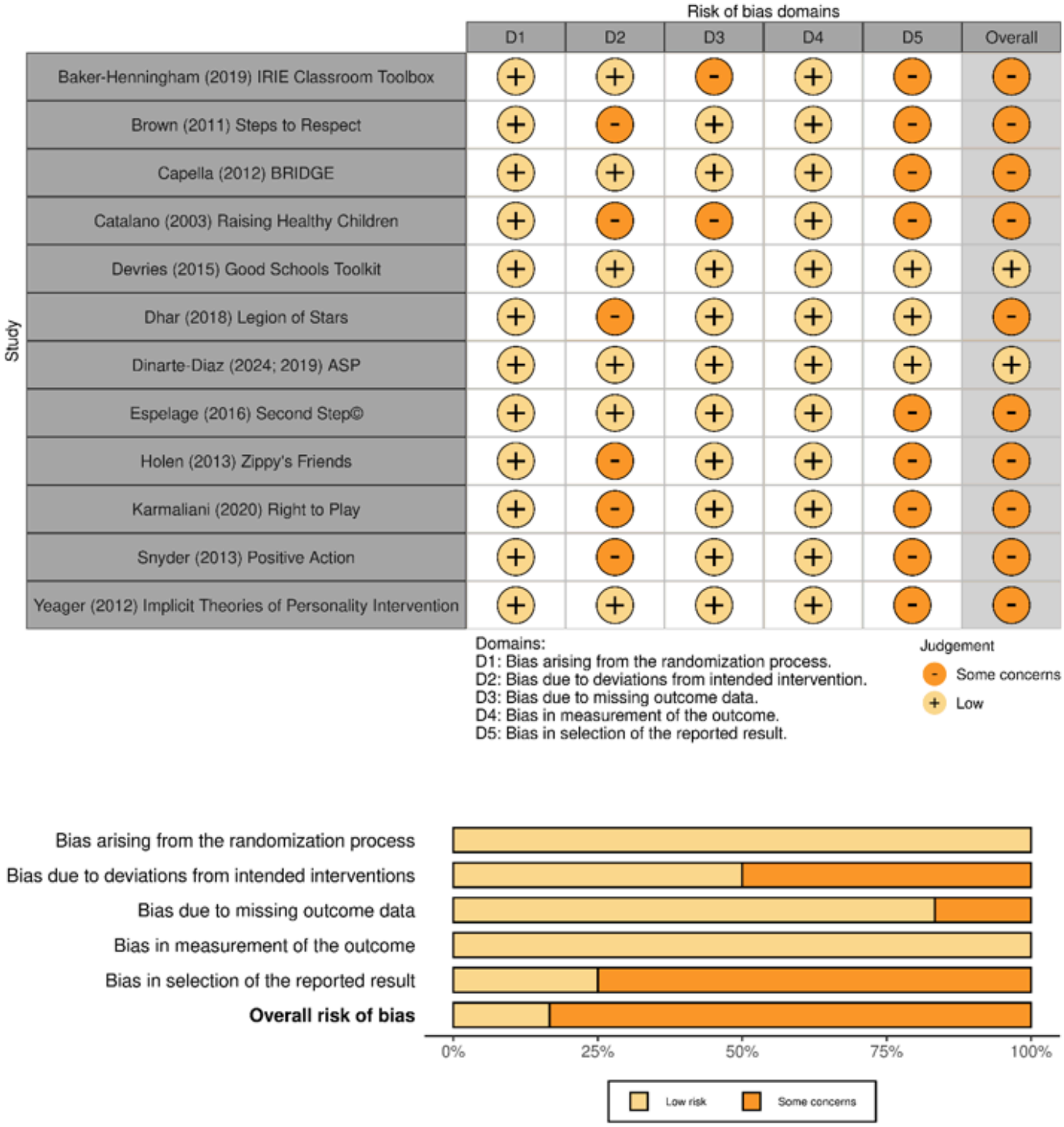

Figure 1

Risk of bias in included trials

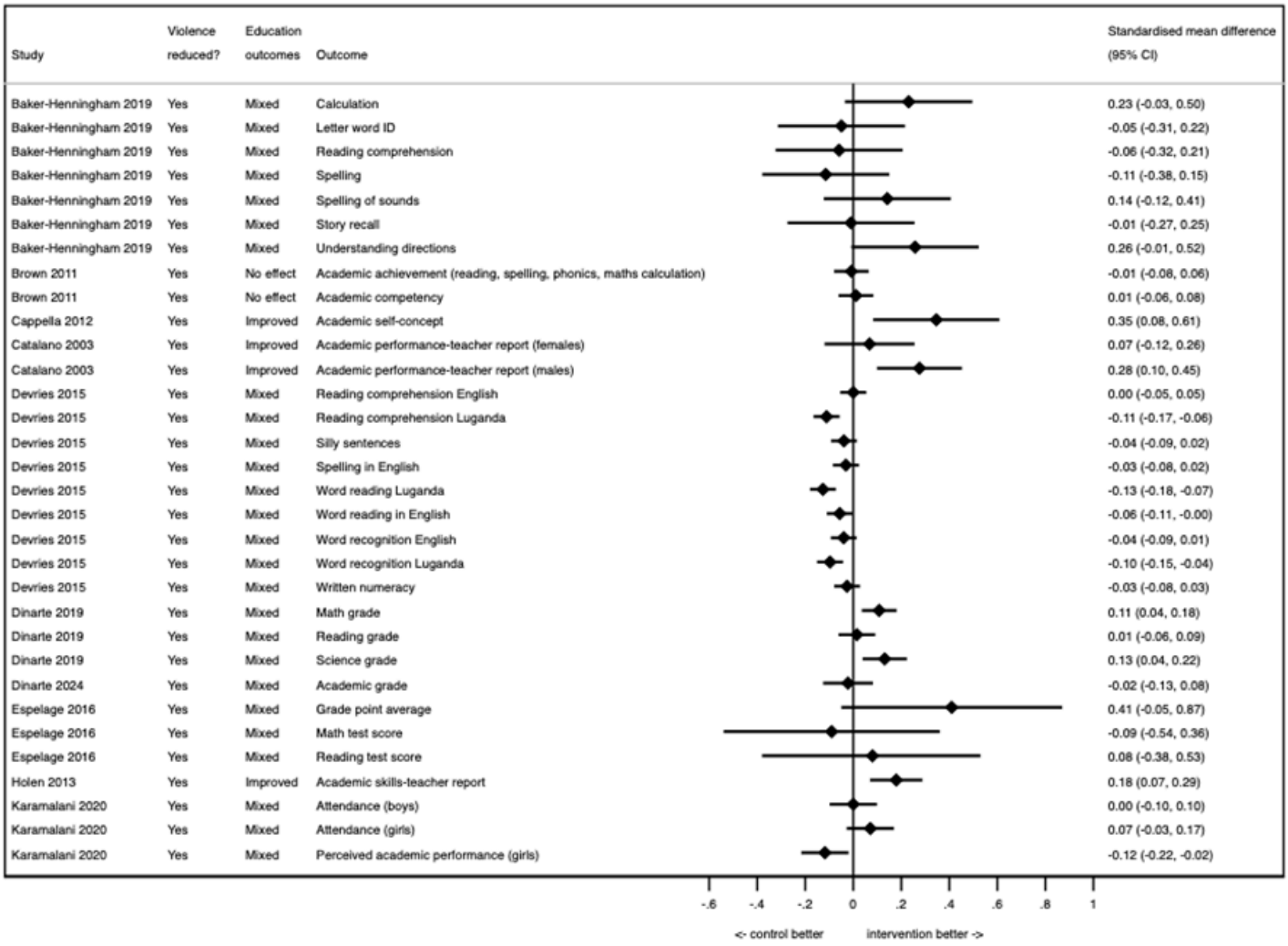

Figure 2

Forest plot, standardised mean difference in educational outcomes between intervention and control groups

Note: If SMD is less than 0, educational outcomes were better in the control group; if SMD is more than 0, educational outcomes were better in the intervention group. *Brown and Capella did not provide sample size for control and intervention groups so we assumed the total divided by two for SMD calculation

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- SupplementarymaterialsAB.docx
- SupplementarymaterialsPRISMAchecklist.docx