

Supplementary Materials

Title: What Works for Whom in School-Based Anti-Bullying Interventions? An Individual

Participant Data Meta-Analysis

Journal: Special Issue: Innovations and Applications of Integrative Data Analysis (IDA) and Related Data Harmonization Procedures in Prevention Science

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S1. Search Strings for PsychINFO (search strings are adjusted accordingly to other databases)**Full Search String for PsychINFO**

#1 (cyber)bullying and/or (cyber)victimization

bullying/ OR cyberbullying/ OR (bullies OR bully* OR victimi*ation OR victimi*ed OR peer harassment* OR cyberbull* OR cybervictimi*).ti,ab,id.

#2 Intervention

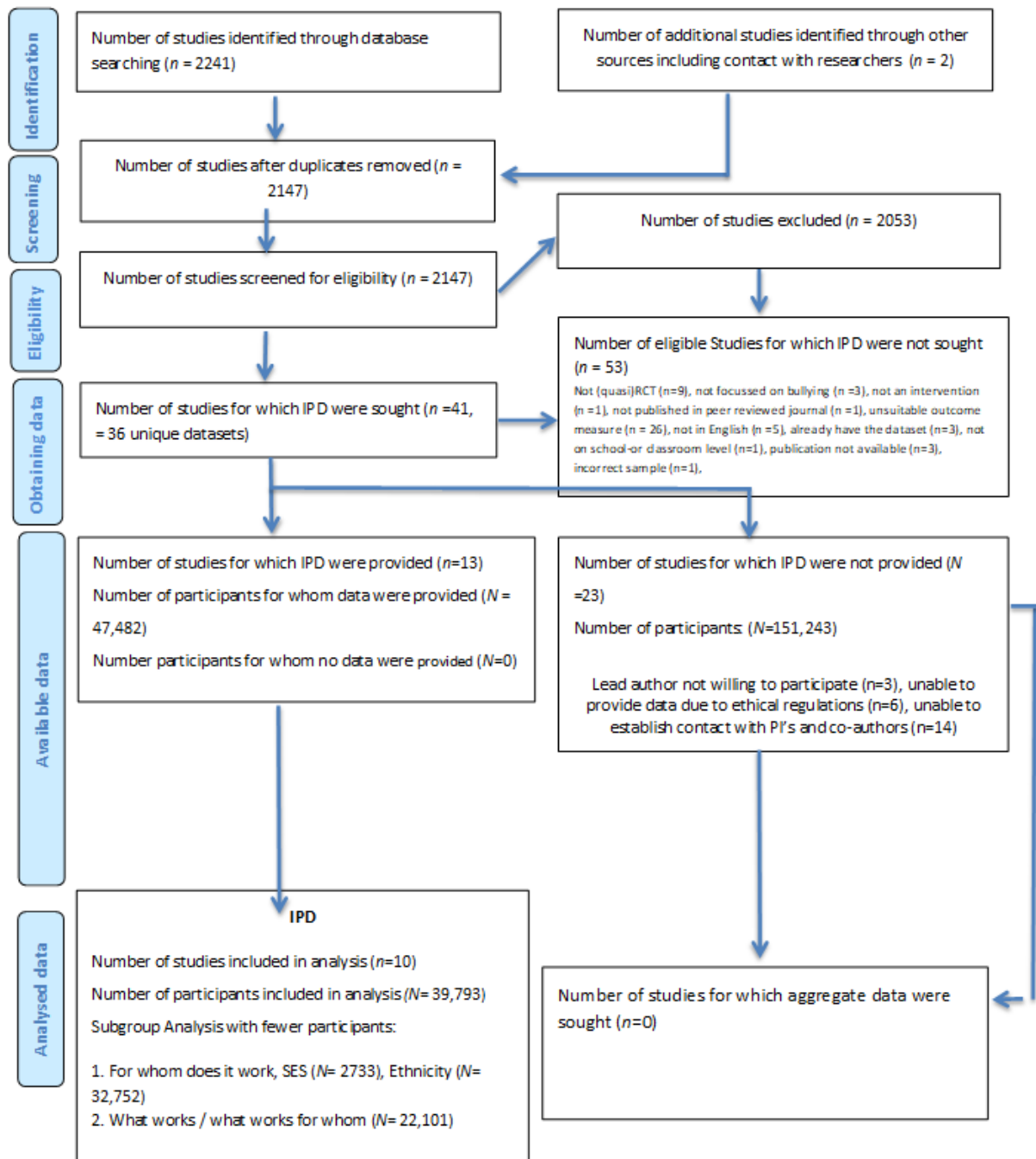
intervention/ OR training/ OR school based intervention/ OR group intervention/ OR curriculum/ OR (training* OR intervention* OR program*).ti,ab,id.

#3 children and adolescents (6-18 years old)

(school age 6 12 yrs OR adolescence 13 17 yrs).ag. OR elementary school students/ OR primary school students/ OR middle school students/ OR junior high school students/ OR high school students/ OR (child* OR kid OR kids OR prepubescen* OR prepuberty* OR teen* OR young* OR youth* OR juvenile* OR girl* OR boy* OR preadolesc* OR adolesc* OR elementary school* OR primary school* OR K-12* OR K12 OR 1st-grade* OR first-grade* OR grade 1 OR grade one OR 2nd-grade* OR second-grade* OR grade 2 OR grade two OR 3rd-grade* OR third-grade* OR grade 3 OR grade three OR 4th-grade* OR fourth-grade* OR grade 4 OR grade four OR 5th-grade* OR fifth-grade* OR grade 5 OR grade five OR 6th-grade* OR sixth-grade* OR grade 6 OR grade six OR intermediate general OR secondary education OR secondary school* OR 7th-grade* OR seventh-grade* OR grade 7 OR grade seven OR 8th-grade* OR eight-grade* OR grade 8 OR grade eight OR 9th-grade* OR ninth-grade* OR grade 9 OR grade nine OR 10th-grade* OR tenth-grade* OR grade 10 OR grade ten OR 11th-grade* OR eleventh-grade* OR grade 11 OR grade eleven OR 12th-grade* OR twelfth-grade* OR grade 12 OR grade twelve OR junior high* OR highschool*).ti,ab,id.

#4 Study type

(followup study OR "treatment outcome/clinical trial").md. OR followup studies/ OR (random* OR longitud* OR ((follow up OR followup) ADJ3 (study OR studies)) OR ((interaction OR direct OR indirect OR causal OR generali#ed OR treatment) ADJ1 (effect OR effects)) OR (control ADJ3 group*) OR repeated measure* OR treatment condition* OR control condition* OR quasi experiment* OR quasiexperiment* OR RCT).ti,ab,id.

S2. Flowchart for Inclusion of Studies in IPD Meta-Analysis.**PRISMA IPD Flow Diagram**

The PRISMA IPD flow diagram

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S3. Coding Scheme Intervention Components**Coding scheme IPD anti-bullying programs**

Bullying Interventions Research Consortium (BIRC)

Information coders:

Name coder:

Date of coding:

Name second coder:

Date discussion between coders:

Information article:

First author:

Title of article (in short):

Information program:

Name of the program:

Information from Manual

or article?

References:

De Mooij, B., Fekkes, M., Scholte, R.H.J., & Overbeek, G. (2020). Effective components of social

skills training programs for children and adolescents in nonclinical samples: A multilevel

meta-analysis. *Clinical Child and Family Psychology Review*, 1–15.<https://doi.org/10.1007/s10567-019-00308-x>

Farrington, D. P., & Ttofi, M. M. (2009). School-based programs to reduce bullying and

victimization. *The Campbell Collaboration*, 6, 1-149.

A. PROGRAM COMPONENTS	
1. Theory of change <i>Which mechanisms of change does the program target (what is most important).</i> <i>Open question.</i>	 ☐ Unclear (999)
2. Definition of bullying <i>How is bullying defined by the program.</i> <i>(Olweus: repetitive, intentional, power imbalance).</i>	☐ Based on Olweus (0) ☐ Other (1) ☐ Unclear (999)
3. School anti bullying policy <i>Presence of a formal anti-bullying policy on behalf of the school</i>	☐ No (0) ☐ Yes (1) ☐ Unclear (999)
4. Monitor <i>Does the program use a bully/victim monitor to identify and address students' roles.</i>	☐ No (0) ☐ Yes (1) ☐ Unclear (999)
5. Classroom rules <i>The use of rules against bullying that students are expected to follow</i>	☐ No (0) ☐ Yes (1) ☐ Unclear (999)

6. School assemblies <i>School assemblies during which children were informed about bullying (collective psychoeducation)</i>	☐ No (0) ☐ Yes (1) ☐ Unclear (999)
7. Student placement <i>Are teachers instructed to change the seating arrangements to prevent bullying or to intervene after a bullying incident</i>	☐ No (0) ☐ Yes (1) ☐ Unclear (999)
8. Work with peers <i>Formal engagement of peers in tackling bullying (e.g. mediation, peer mentoring).</i>	☐ No (0) ☐ Yes (1) ☐ Unclear (999)
9. Improved playground supervision <i>Identification of hotspots/hot-times for bullying and increasing supervision.</i>	☐ No (0) ☐ Yes (1) ☐ Unclear (999)
10. Disciplinary methods <i>Use of punitive methods in dealing with bullying situations (e.g. expelling bully).</i> <i>Use of non-punitive methods in dealing with bullying situations (e.g. restoring the harm that has been done, "positive" approach).</i>	☐ None (0) ☐ Punitive methods (1) ☐ Non-punitive methods (2) ☐ Punitive and non-punitive methods (3) ☐ Unclear (999)
B. CHILD-FOCUSED TRAINING - CONTENT	
1. Psychoeducation <i>Children are informed about bullying, changing attitudes</i>	☐ Not included (0) ☐ Included (1) ☐ Unclear (999)
2. Psychophysical <i>Relaxation, posture, etc.</i>	☐ Not included (0) ☐ Included (1) ☐ Unclear (999)
3. Social skills <i>(Non-)verbal communication skills, engagement, interpersonal problem solving skills, etc.</i>	☐ Not included (0) ☐ Included (1) ☐ Unclear (999)
4. Cognitive-emotion skills <i>Emotion recognition (own or other's), impulse regulation, cognitive restructuring (transforming unhelpful thoughts into helpful thoughts), empathy (understanding other's behavior)</i>	☐ Not included (0) ☐ Included (1) ☐ Unclear (999)

S4. Included Trials and Trial Information

Cross, D., Monks, H., Hall, M., Shaw, T., Pintabona, Y., Erceg, E., Hamilton, G., Roberts, C., Waters, S., & Lester, L. (2011). Three-year results of the Friendly Schools whole-of-school intervention on children's bullying behaviour. *British Educational Research Journal*, 37, 105–129. <https://doi.org/10.1080/01411920903420024>

DeSmet, A., Bastiaensens, S., Van Cleemput, K., Poels, K., Vandebosch, H., Deboutte, G., Herrewijn, L., Malliet, S., Pabian, S., Van Broeckhoven, F., De Troyer, O., Deglorie, G., Van Hoecke, S., Samyn, K., & Bourdeaudhuij, I. (2018). The efficacy of the Friendly Attack serious digital game to promote prosocial bystander behavior in cyberbullying among young adolescents: A cluster-randomized controlled trial. *Computers in Human Behavior*, 78, 336–347. <https://doi.org/10.1016/j.chb.2017.10.011>

Huitsing, G., Lodder, G.M.A., Browne, W.J., Oldenburg, B., Van der Ploeg, R., Veenstra, R. (2020). A large-scale replication of the effectiveness of the KiVa antibullying program: A randomized controlled trial in the Netherlands. *Prevention Science*, 21, 627–638. <https://doi.org/10.1007/s11121-020-01116-4>

Joronen, K., Konu, A., Rankin, H. S., & Åstedt-Kurki, P. (2011). An evaluation of a drama program to enhance social relationships and anti-bullying at elementary school: A controlled study. *Health Promotion International*, 27, 5–14. <https://doi.org/10.1093/heapro/dar012>

¹Juvonen, J., & Schacter, H. L. (2016). “Can a school-wide bullying prevention program improve the plight of victims? Evidence for risk × intervention effects”: Correction to

¹ Juvonen et al., (2016), Kärnä et al., (2011), Salmivalli et al., (2005) share the same dataset. They were all willing to contribute to our IPD and thus are referred to individually but their data were only included once.

- Juvonen et al. (2016). *Journal of Consulting and Clinical Psychology*, 84(6), 483–483.
<https://doi.org/10.1037/ccp0000116>
- Kärnä, A., Voeten, M., Little, T. D., Poskiparta, E., Kaljonen, A., & Salmivalli, C. (2011). A large-scale evaluation of the KiVa antibullying program: Grades 4–6. *Child development*, 82(1), 311–330. <https://doi.org/10.1111/j.1467-8624.2010.01557.x>
- 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. doi:10.1037/a0030417
- Leadbeater, B., & Sukhawathanakul, P. (2011). Multicomponent programs for reducing peer victimization in early elementary school: A longitudinal evaluation of the WITS primary program. *Journal of Community Psychology*, 39(5), 606–620.
<https://doi.org/10.1002/jcop.20447>
- Nocentini, A., & Menesini, E. (2016). KiVa anti-bullying program in Italy: Evidence of effectiveness in a randomized controlled trial. *Prevention Science*, 17, 1012–1023.
<https://doi.org/10.1007/s11121-016-0690-z>
- Palladino, B.E., Nocentini, A., & Menesini, E. (2016). Evidence-based intervention against bullying and cyberbullying: Evaluation of the NoTrap! Program in two independent trials. *Aggressive Behavior*, 42, 194–206. doi:10.1002/ab.21636
- Salmivalli, C., Kaukiainen, A., & Voeten, M. (2005). Anti-bullying intervention: Implementation and outcome. *British Journal of Educational Psychology*, 75(3), 465–487. <https://doi.org/http://dx.doi.org/10.1348/000709905X26011>
- Solomontos-Kountouri, O., Gradinger, P., Yanagida, T., & Strohmeier, D. (2016). The implementation and evaluation of the ViSC program in Cyprus: Challenges of cross-national dissemination and evaluation results. *European Journal of Developmental Psychology*, 13(6), 737–755. <https://doi.org/10.1080/17405629.2015.1136618>

Table 1*Study and Trial Characteristics.*

Trial	Intervention	Country	N	Setting	Age (Mean, SD)		Sex (n)		SES (%)		Risk of Bias
Solomontos-Kountouri et al. (2016)	ViSC	Cyprus	1652	Middle school	12.62	0.61	Girls	801	Low Middle	10.9 30.3	Moderate
DeSmet et al. (2018)	Friendly Attac	Belgium	251	Middle school	13.99	0.68	Girls	143	Low Middle	2.0 25.1	Moderate
Joronen et al. (2011)	Drama Program	Finland	134	Primary school	10.39	0.67	Girls	67	Low Middle	NA NA	Moderate
Leadbeater et al. (2012)	WITS	Canada	830	Primary school	7.33	0.85	Girls	411	Low Middle	21.3 77.2	Moderate
Nocentini & Menesini (2016)	KiVa (Italy)	Italy	2184	Primary and Middle school	9.92	1.14	Girls	1001	Low Middle	NA NA	Low
Huitsing et al. (2020)	KiVa (NL, NL+)	Netherlands	4724	Primary school	8.66	0.69	Girls	2405	Low Middle	NA NA	Low
Palladino et al. (2016)	NoTrap!	Italy	622	High school	14.58	0.88	Girls	245	Low Middle	NA NA	Moderate
Cross et al. (2011)	Friendly Schools	Australia	1968	Primary school	8.56	0.55	Girls	976	Low Middle	19.8 40.8	Moderate
Kärna et al. (2011) & Juvonen et al. (2016) & Salmivalli et al. (2005)	KiVa	Finland	8237	Primary school	11.00	1.11	Girls	9527	Low Middle	NA NA	Moderate
Kärna et al. (2013)	KiVa	Finland	19191	Middle school	14.36	0.89	Girls	4115	Low Middle	NA NA	Moderate

Note. SES = Social-economic status; NA = Not available.

Table 2*Included Components of Anti-Bullying Interventions.*

	School policy	Monitor	Class rules	School assemblies	Student placement	Peer involvement	Playground supervision	Solely non- punitive disciplinary methods	Both non- punitive and punitive disciplinary methods	Psychoeducation	Cognitive emotional skill-building
ViSC	*		*					*		*	*
Friendly Attack										*	
Drama program										*	*
WITS programs	*		*	*			*	*		*	*
KiVa (IT)	*		*	*			*		*	*	*
KiVa (NL)	*		*	*			*	*		*	*
KiVa+ (NL)	*	*	*	*			*	*		*	*
NoTrap!						*				*	*
Friendly schools	*	*	*	*	*		*		*	*	*
KiVa (original)	*		*	*			*		*	*	*

S5. Harmonization of Bullying and Victimization Measures

To harmonize different outcome measures into single 5-point scores for victimization and bullying perpetration, we (1) used all studies that employed the one-item, 5-point Likert scale to obtain the percentile distribution across the score categories, (2) calculated the percentile thresholds for the sum scores per study that used a multiple-item outcome, and (3) used these percentile thresholds to transform the sum score into a 5-point score. To examine if our harmonization approach was successful, we calculated correlations and chi-square coefficients to assess the association and agreement between the original and transformed outcome measure in four studies that used both the one-item and multiple-item bullying and victimization measures. The transformed 5-point outcome was moderately correlated ($r_s = .53$ to $.66$) with the original (1 item) 5-point outcome measure and had good weighted agreement—defined as the percentage of scores falling in the same score category or one category off—between the transformed and original scale of 0.88 to 0.95.

Table 1.

Cumulative percentage distribution of the pre- and post-intervention 5 point scale.

Measure	0	1	2	3	4
Victim pre	60	84	90	94	100
Victim post	64	87	92	96	100
Bully pre	68	92	96	98	100
Bully post	73	93	97	98	100

Table 2.

Threshold values for the sum scores to transform to the 5 point scale for each trial.

Measure	Trial 5	Trial 7	Trial 11	Trial 1	Trial 6	Trial 4
Victim pre	3-8-10-15-52	3-6-8-10-27	1-4-6-8-42	3-8-11-15-44	5-13-17-22-40	4-8-10-13-20
Victim post	3-8-11-15-38	2-5-6-8-23	1-4-6-10-42	4-12-16-22-44	3-10-13-18-40	4-8-9-11-20
Bully pre	2-6-8-13-56	4-10-16-21-37	1-5-8-12-42	3-10-15-22-44	1-8-15-21-40	NA
Bully post	2-6-9-12-32	4-10-14-15-23	1-5-10-14-42	4-15-22-25-44	0-4-11-16-40	NA

Table 3.

Comparing the observed 5pt scores to the transformed scores.

Measure	Correlation 5pt to sum score	Correlation 5pt to transformed	Agreement ^a	Weighted agreement ^b
Victim pre	0.654	0.577	0.62	0.88
Victim post	0.661	0.621	0.69	0.92
Bully pre	0.536	0.558	0.70	0.94
Bully post	0.575	0.584	0.76	0.95

Note: ^aAgreement is the percentage of the scores that fall in the same category in both the measured 5pt score and the transformed 5pt score. ^bWeighted agreement is the percentage of the scores that fall in the same category or 1 category off.

Table 4.

Cumulative percentage distribution of the transformed pre- and post-intervention 5 point scale

Measure	0	1	2	3	4
Victim pre scale	64	86	91	95	100
Victim post scale	70	88	92	96	100
Bully pre scale	73	93	96	98	100
Bully post scale	77	94	97	98	100

S6. ROBINS-I Risk of Bias and Risk of Publication Bias**Table 1.***Overview of risk of bias of the included trials based on the ROBINS-I.*

Trial	Overall Risk of Bias	Participant selection	Classification of interventions	Deviations from intended interventions	Missing data	Measurement of outcomes
Solomontos-Kountouri et al. (2016)	Moderate	Moderate	Low	Low	Moderate	Low
DeSmet et al. (2018)	Moderate	Low	Low	Low	Moderate	Moderate
Joronen et al. (2011)	Moderate	Low	Low	Moderate	Moderate	Low
Leadbeater et al. (2012)	Moderate	Moderate	Low	Moderate	Moderate	Low
Nocentini & Menesini (2016)	Low	Low	Low	Low	Low	Low
Huitsing et al. (2020)	Low	Low	Low	Low	Low	Low
Palladino et al. (2016)	Moderate	Moderate	Low	Moderate	Moderate	Low
Cross et al. (2011)	Moderate	Low	Low	Low	Moderate	Low
Kärna et al. (2011), Juvonen et al. (2016), Salmivalli et al. (2005)	Moderate	Low	Low	Moderate	Low	Low
Kärna et al. (2013)	Moderate	Low	Low	Low	Moderate	Low

Table 2.

Overview of studies selected after screening for which researchers were contacted to request full datasets.

Data shared					Data not shared				
Study #	PubYear	Location	Design	Reported effects	Study #	PubYear	Location	Design	Reported effects
1	2016	Cyprus	Quasi-experimental	CODE = 1.1 - Significant quadratic effects victimization and perpetration (steeper increase c/w control but over time this increase became smaller in intervention compared with control) - Small to medium effects.	14	2017	Turkey	RCT	CODE = 4 - Non-significant change in intervention group on bullying behavior. - Significant change in intervention group on victimization.
2	2018	Belgium	Cluster RCT	CODE = 2 No significant effects on (cyber-)bullying victimization or perpetration (ES_{range}: -0.15; 0.09).	15	2007	United States	Quasi-experimental	CODE = 2 Non-significant changes in intervention group on victimization.
3	2011	Finland	Quasi-experimental	CODE = 2 - Reduction (1.6 – 5.9%) in bullying behavior, non-significant difference between intervention and control group. - Reduction (1.6 – 20.7%) in victimization, non-significant difference between intervention and control group.	16	2016	Sweden	Quasi-experimental	CODE = 2 Non-significant changes in intervention group on victimization.

4 ^c	2016	Canada	RCT	No direct effects of the intervention on victimization reported.	17	2018	UK	RCT	CODE = 1.3 Significant changes in intervention group on victimization (ES_{range}: -.05 to -.08)
5	2016	Italy	RCT	CODE = 1.1 - Victimization and bullying decreased significantly over time in intervention groups (ES_{range}: .21 to .38).	18	2016	Germany	RCT	CODE = 4 - Significant changes in intervention group on traditional bullying and cyberbullying behavior (ES_{range}: -.25 to -.27). - Non-significant effect of intervention on victimization.
6	2020	Netherlands	RCT	CODE = 1.1 - Victimization and bullying reduced more strongly in intervention schools compared with control schools, with stronger effects after two school years than after one school year of implementation - The odds for intervention students to be victimized or to bully were 1.34 and 1.67 lower than for control students (after two intervention years)	19	2017	Turkey	Quasi-experimental	CODE = 1.1 Significant change in intervention groups on bullying behavior and victimization.
7	2016	Italy	Quasi-experimental	CODE = 1.1 Trial 1 Significant decrease of victimization and bullying over time in intervention group	20	2017	New Zealand	RCT	CODE = 2 Non-significant change in intervention group on bullying behavior (child report).

				Trial 2 - Significant decrease of victimization and bullying over time in intervention group (ES_{range}: .25 to .26).					
8 ^a	2015	United States	Quasi-experimental	CODE = 2 No significant treatment effects were identified for bullying perpetration and victimization	21	2018	Spain	RCT	CODE = 1.3 Significant change in bullying victimization in the intervention group (ES = .60).
9	2011	Australia	RCT	CODE = 1.3 Significant change in intervention group on victimization	22/37	2014/2016	Austria	RCT	CODE = 1.1 program is effective in preventing cyberbullying and cyber-victimization and the effects are sustainable after 6 months.
10/11/13	2005/2011/2016	Finland	RCT	CODE = 1.1 - Only significant intervention effects on bullying and victimization in grade 4 (in expected direction) (ES_{range}: -56% to -79%) in high level implementation schools - Strongest intervention effects for children with higher baseline levels of victimization. - Significant intervention effects on self-reported bullying behavior and victimization at 9-month follow-up (ES_{range}: .10 to 17).	23/41	2003/2012	Canada	Quasi-experimental	CODE = 1.3 - Significant decrease in physical and relational victimization in the intervention group (ES_{range}: .17 to 20). - Intervention moderately related to decreases in classroom levels of victimization
12	2013	Finland	RCT	CODE = 4	24/25	2007/	United	RCT	CODE = 4

				- Significant intervention effects on bullying behavior and victimization in Grades 1-3. - Non-significant intervention effects on bullying behavior and victimization in Grades 8-9.	2010	States		- Non-significant change in bullying in intervention group (OR = 1.16). - Non-significant change in victimization in intervention group (OR = 1.12). - Significant reduction in victimization in intervention group compared to control group at 12-month follow-up. - Non-significant reduction in bullying behavior in the intervention group compared to the control group at 12-month follow-up.	
39 ^b	2009	United States	Cluster randomized design	CODE = 4 Universal intervention was associated with reductions in victimization; the selective intervention was not associated with changes in victimization.	26	2014	Cyprus/Greece	RCT	CODE = 1.1 Significant effect of intervention of bullying behavior and victimization (ES_{range}: .46 to 70)
42	2011	Canada	Quasi-experimental	CODE = 1.3 Children in the program showed more rapid declines in peer victimization over time compared with children in control schools.	27	2018	United States	Quasi-experimental (extended age cohort)	CODE = 1.1 - Significant reductions in victimization and bullying - Large to very large - Less effective/ non-significant in some grades
					28 ^d	2012	United	Quasi-	CODE = 1.1

			States	experimental	• Perpetrating and being victimized by physical and relational aggression were statistically significantly lower, in the treatment than in the comparison schools. • Relatively weak in terms of effect size, explaining only 3% of the variance in the outcomes.
	29	2010	UK and Germany	Non-randomized controlled trial	CODE = 4 • 26% decrease in victimization risk in the intervention group compared to the control group but only at follow-up 1 (further analysis showed this was only the case for UK students) • No difference in bullying perpetration among students
	30	2018	Italy	Experimental design	CODE = 4 • Significant decrease both in cyberbullying and cybervictimization among students who received the intervention with a follow-up period of six months.
	31	2013	Netherlands	RCT	CODE = 1.1 • Assessed risk-groups effects • The results indicated that the intervention is effective for some children but less for others
	32	2015	Romania	Quasi-experimental	CODE = 2 • No behavioral change was found in the 2 experimental groups when compared with

					the control group.
	33	2013	Finland	RCT	CODE = 4 - Significant intervention effect on cybervictimization; odds of students in the control condition reporting more frequent cybervictimization were 29% greater than the odds of students in the intervention conditions. Cohen's $d = .14$ - Effect of the intervention on cyberbullying varied as a function of student's age – only sig. effective for younger students. Cohen's $d = .03$
	34 & 40	2014/2015	Germany	Pre-post test (randomly assigned classes within schools)	CODE = 1.2 - Reduced cyberbullying behavior within intervention classes compared with control group - only for long-term intervention; ES = -.64
	35	2011	China	Quasi-experimental	CODE = 1.2 Full intervention group had significant reduction of bullying, compared with partial intervention and the control group (ES = .18)
	36	2012	China	Quasi-experimental	CODE = 1.1 Highly significant main effect: reduction in victimization/ bullying in intervention schools ($F = 7.70$). Most significant reductions occurred when a whole-school intervention

					was used ($F = 10.73$). • Composite score of both victimization and perpetration
	38	2007	Australia	Randomized prospective design	CODE = 4 • No differences in the degree to which reported victimization changed over time between students in the 'intervention' versus 'control' schools. • Significant difference between the 'control' and 'intervention' schools in the number of students who reported having bullied others (only for boys in 1 school).

Note. Only the results on self-reported bullying behavior and victimization reported in the included and not included papers are reported in this table. Studies may have included additional variables. CODE = 1.1: Significant intervention effects in expected direction reported for both bullying behavior and victimization; CODE = 1.2: Significant intervention effects in expected direction reported for bullying behavior only; CODE = 1.3: Significant intervention effects in expected direction reported for victimization only; CODE = 2: Non-significant effects reported; CODE = 3: Significant intervention effects in unexpected direction (i.e., increased bullying behavior/victimization) reported; CODE = 4: Mixed intervention effects reported.

^a This study was not included in the final dataset because researchers provided a different dataset that was not identified through screening and at the time of checking and identifying the difference it was too far in the process to add new datasets.

^b This study was not included in the final dataset because upon receiving the data the intervention appeared not to fit our scope.

^c This study was not included in the final dataset due to a miscommunication.

^d The full dataset from this study was requested, but the outcome measure did not fit our scope. Thus, this study was excluded after a second full-text screening.

Publication bias analysis*Year of publication*

- Studies for which data was requested and shared were published between 2005 and 2020.
- Studies that data was requested for but not shared were published between 2003 and 2018.
- Exclusion of studies 4, 8, 39, and 28 did not change the range of publication dates.

Location of study (by continent)

- Of the studies for which data was requested and shared 61.54% of the data were gathered in Europe, 0% in Asia, 0% in Africa, 30.77% in America, and 7.69% in Oceania.
- Of the studies for which data was requested but not shared 64% of the data were gathered in Europe, 8% in Asia, 0% in Africa, 20% in America, and 8% in Oceania
- After exclusion of studies 4, 8, 39, and 28, which were all conducted in America, the percentages changed: Of the studies for which data was requested and shared, 80% was gathered in Europe (vs. 66.67% for studies that did not share data), 0% in Asia (vs. 8.33% for studies that did not share data), 0% in Africa (which is similar for studies that did not share data), 10% in America (vs. 16.67% for studies that did not share data), and 10% in Oceania (vs. 8.33% for studies that did not share data).

Design

- five papers (38.46%) for which data was requested and shared had a quasi-experimental design, and eight had a RCT design (61.54%).
- 13 papers (56.52%) for which data was requested but not shared had a quasi-experimental design, and ten had a RCT design (43.48%).
- After exclusion of studies 4, 8, 39, and 28, for studies for which data was requested and shared, the percentage of studies with a quasi-experimental design was 40% versus 60% with a RCT design, and for studies for which data was requested but not shared, the percentage of studies with a quasi-experimental design was 54.55% versus 45.45% with a RCT design

Reported effects

- Seven studies (58.34%) for which data was requested and shared reported significant intervention effects on bullying behavior and/or victimization that were all in the expected direction, three studies (25%) reported non-significant intervention effects, and two studies (16.67%), reported mixed intervention effects. One study did not report direct effects and was thus not given a code.
- 12 studies (52.17%) for which data was requested but not shared reported significant intervention effects on bullying behavior and/or victimization that were in the expected direction, four studies (17.39%) reported non-significant intervention effects, and seven studies (30.43%) reported mixed intervention effects.
- After exclusion of studies 4, 8, 39, and 28, for studies for which data was requested and selected, seven studies (70%) reported significant intervention effects on bullying behavior and/ or victimization that were as expected (vs. 50% for studies for which data was not shared), two studies (20%) reported non-significant intervention effects (vs. 18.18% for studies for which data was not shared), and one study (10%) reported mixed intervention effects (vs. 31.82% for studies for which data was not shared).

Final judgement of bias

No significant differences were found between studies that were eligible and shared their data and studies that were eligible and did not share their data on: the continent that they gathered data in, the effects that they reported (i.e., significant and as expected, non-significant, or mixed), and the design that they used (i.e., RCT or quasi-experimental). See Table 3 for test statistics.

It is important to emphasize that the studies included in our IPD did not gather data in Asia or Africa, which might hold implications for the generalizability of our findings to these continents.

Table 3

Chi-Square test assessing differences between studies that were identified as eligible and shared their data and studies that were eligible and did not share their data

	X^2	df	p
Full sample ($N=36$)			
Continent	1.412	3	.703
Effects	2.664	3	.446
Design	1.084	1	.298
After Exclusion ($N=32$)			
Continent	5.482	6	.476
Effects	3.629	6	.727
Design	1.440	2	.487

S7. Baseline Frequencies and Proportions of Bullying and Victimization.**Table 1***Baseline Logistic Regression Comparisons between Subgroups on Pretest Victimization and Bullying Perpetration*

Victimization Model	Coefficient	<i>SE</i>	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]
Sex	-0.245	.033	-7.452	<.001	0.783	[0.734; 0.835]
Age	-0.168	.020	-8.239	<.001	0.845	[0.812; 0.880]
Ethnicity	0.236	.062	3.793	<.001	1.266	[1.121; 1.429]
SES high	-0.541	.135	-4.020	<.001	0.582	[0.447; 0.758]
SES medium	-0.223	.115	-1.948	.052	0.800	[0.639; 1.001]
Intervention vs. Control	-0.021	.034	-0.626	-.532	0.979	[0.917; 1.046]

Perpetration Model	Coefficient	<i>SE</i>	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]
Sex	-0.797	.048	-16.600	<.001	0.451	[0.410; 0.495]
Age	0.075	.030	2.511	.012	1.078	[1.017; 1.144]
Ethnicity	0.283	.084	3.388	.001	1.328	[1.127; 1.564]
SES high	-0.371	.185	-2.007	.045	0.690	[0.480; 0.992]
SES medium	-0.092	.188	-0.489	.625	0.912	[0.631; 1.319]
Intervention vs. Control	-0.065	.047	-1.399	.162	0.937	[0.855; 1.026]

Table 2*Post-intervention Logistic Regression Comparisons between Subgroups on Posttest Victimization and Bullying Perpetration*

Victimization Model	Coefficient	<i>SE</i>	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]
Sex	-0.258	.036	-7.247	<.001	0.772	[0.720; 0.828]
Age	-0.119	.022	-5.343	<.001	0.888	[0.850; 0.927]
Ethnicity	0.201	.068	2.933	.003	1.222	[1.069; 1.397]
SES high	-0.580	.141	-4.120	<.001	0.560	[0.425; 0.738]
SES medium	-0.295	.124	-2.375	.018	0.745	[0.584; 0.950]
Intervention vs. Control	-0.226	.036	-6.235	<.001	0.798	[0.743; 0.857]
Initial victimization	1.816	.041	43.864	<.001	6.149	[5.669; 6.669]
Perpetration Model	Coefficient	<i>SE</i>	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]
Sex	-0.815	.053	-15.507	<.001	0.443	[0.399; 0.491]
Age	0.085	.033	2.604	.009	1.089	[1.021; 1.161]
Ethnicity	0.322	.094	3.427	.001	1.380	[1.148; 1.659]
SES high	-0.057	.187	-0.303	.762	0.945	[0.655; 1.363]
SES medium	-0.065	.192	-0.337	.736	0.937	[0.644; 1.365]
Intervention vs. Control	-0.121	.050	-2.403	.016	0.886	[0.803; 0.978]
Initial perpetration	2.138	.061	35.080	<.001	8.480	[7.525; 9.556]

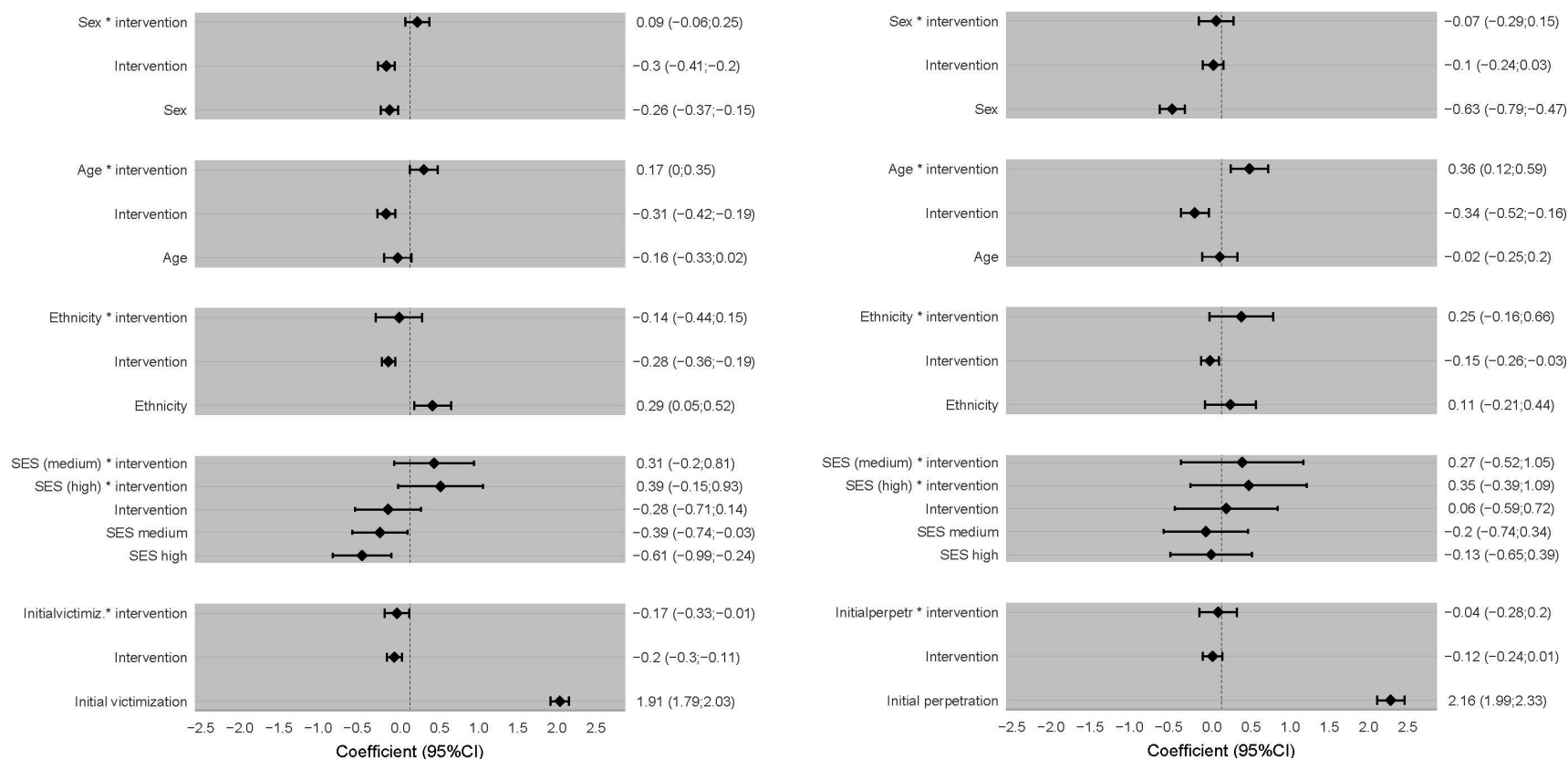
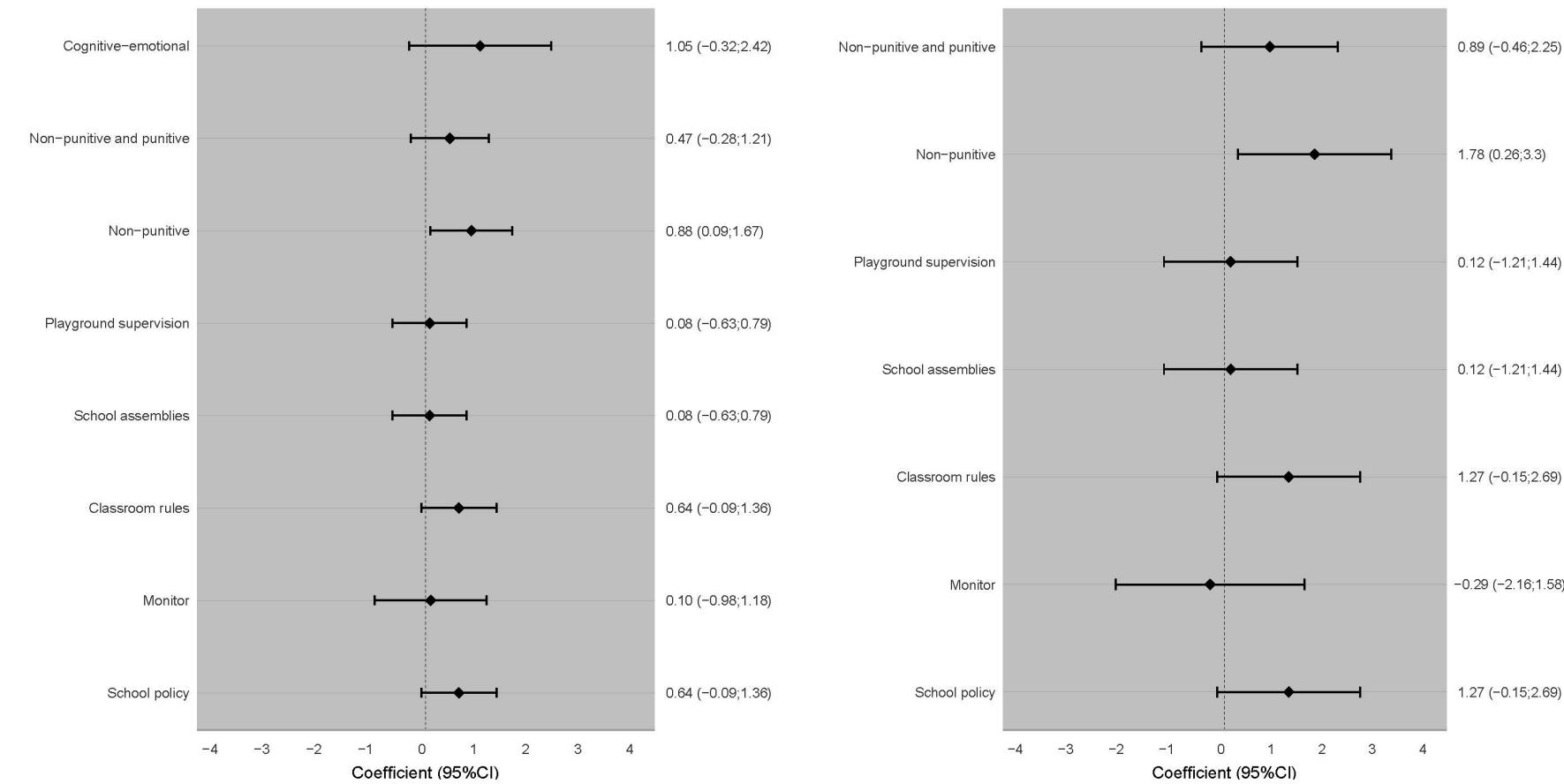
S8. Forest Plots of Main Analyses (for whom does it work and what works)**Figure 1***Forest Plots of Interaction Effects of Subgroup $\times$ Intervention Status on Post-Intervention Victimization (left) and Perpetration (right)*

Figure 2

Forest Plots of Main Effects of Intervention Components on Post-Intervention Victimization (left) and Perpetration (right)



S9. Exploratory Analyses: What Works for Whom

Table 1*Interaction Effects of Sex x Intervention Components for Post-Intervention Bullying Victimization and Perpetration*

Victimization Model	Coefficient	SE	t	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]	Rank	Adj. a
Sex	-1.008	0.436	-2.313	.021	0.365	[0.16, 0.86]		
School policy	0.302	0.395	0.765	.444	1.352	[0.62, 2.93]		
School policy * sex	0.848	0.439	1.931	.054	2.334	[0.99, 5.52]	3	.094
Sex	-0.186	0.055	-3.397	.001	0.831	[0.75, 0.92]		
Monitor	0.008	0.561	0.015	.988	1.008	[0.34, 3.03]		
Monitor * sex	0.179	0.218	0.823	.411	1.196	[0.78, 1.83]	7	.219
Sex	-1.008	0.436	-2.313	.021	0.365	[0.16, 0.86]		
Classroom rules	0.302	0.395	0.765	.444	1.352	[0.62, 2.93]		
Classroom rules * sex	0.848	0.439	1.931	.054	2.334	[0.99, 5.52]	2	.063
Sex	-0.437	0.195	-2.236	.025	0.646	[0.41, 0.95]		
School assemblies	-0.059	0.374	-0.157	.875	0.943	[0.45, 1.96]		
School assemblies * sex	0.283	0.203	1.396	.163	1.328	[0.89, 1.97]	6	.186
Sex	-0.437	0.195	-2.236	.025	0.646	[0.44, 0.95]		
Playground supervision	-0.059	0.374	-0.157	.875	0.943	[0.45, 1.96]		
Playground supervision * sex	0.283	0.203	1.396	.163	1.328	[0.89, 1.98]	5	.156
Sex	1.008	0.436	-2.315	.021	0.365	[0.16, 0.86]		
Non punitive	0.456	0.426	1.068	.285	1.577	[0.68, 3.64]		
Non punitive and punitive	0.179	0.406	0.440	.660	1.196	[0.54, 2.65]		
Non-punitive * sex	1.029	0.444	2.316	.021	2.799	[1.17, 6.69]	1	.031
Non-punitive and punitive * sex	0.740	0.441	1.679	.093	2.097	[0.88, 4.98]	4	.125
Sex	-0.311	1.025	-0.303	.762	0.733	[0.10, 5.47]		
Cognitive-emotional	0.951	0.870	1.093	.275	2.587	[0.47, 14.24]		
Cognitive-emotional * sex	0.137	1.027	0.134	.894	1.147	[0.15, 8.58]	8	.250
Perpetration Model	Coefficient	SE	t	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]	Rank	Adj. a
Sex	0.005	0.546	0.009	.992	1.005	[0.35, 2.93]		
School policy	1.593	0.779	2.045	.041	4.918	[1.07, 22.65]		
School policy * sex	-0.737	0.551	-1.337	.181	0.479	[0.16, 1.41]	4	.143

Sex	-0.690	0.080	-8.589	<.001	0.502	[0.43, 0.59]		
Monitor	-0.066	0.976	-0.067	.946	0.936	[0.14, 6.35]		
Monitor * sex	-0.877	0.506	-1.736	.083	0.416	[0.15, 1.12]	1	.036
Sex	0.005	0.546	0.009	.992	1.005	[0.35, 2.93]		
Classroom rules	1.593	0.779	2.045	.041	4.918	[1.07, 22.65]		
Classroom rules * sex	-0.737	0.551	-1.337	.181	0.479	[0.16, 1.41]	3	.107
Sex	-0.585	0.211	-2.770	.006	0.557	[0.37, 0.84]		
School assemblies	0.174	0.689	0.253	.800	1.191	[0.31, 4.60]		
School assemblies * sex	-0.154	0.228	-0.675	.499	0.857	[0.55, 1.34]	7	.250
Sex	-0.585	0.211	-2.770	.006	0.557	[0.37, 0.84]		
Playground supervision	0.174	0.689	0.253	.800	1.191	[0.31, 4.59]		
Playground supervision * sex	-0.154	0.228	-0.675	.499	0.857	[0.55, 1.34]	6	.214
Sex	-0.004	0.545	-0.007	.995	0.996	[0.34, 2.90]		
Non-punitive	2.040	0.826	2.469	.014	7.691	[1.52, 38.86]		
Non-punitive and punitive	1.228	0.742	1.655	.098	3.415	[0.80, 14.63]		
Non-punitive * sex	-0.541	0.562	-0.964	.335	0.582	[0.19, 1.75]	5	.179
Non-punitive and punitive * sex	-0.825	0.554	-1.488	.137	0.438	[0.15, 1.30]	2	.071

Table 2*Interaction Effects of Age x Intervention Components for Post-Intervention Bullying Victimization and Perpetration*

Victimization Model	Coefficient	<i>SE</i>	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]	Rank	Adj. <i>a</i>
Age	-0.847	0.755	-1.122	.262	0.429	[0.10, 1.88]		
School policy	-0.055	0.659	-0.083	.934	0.947	[0.26, 3.44]		
School policy * age	0.953	0.763	1.250	.211	2.594	[0.58, 11.57]	2	.083
Age	-0.847	0.755	-1.122	.262	0.429	[0.10, 1.88]		
Classroom rules	-0.055	0.659	-0.083	.934	0.947	[0.26, 3.44]		
Classroom rules * age	0.953	0.763	1.250	.211	2.594	[0.58, 11.57]	3	.125
Age	-0.040	0.126	-0.315	.753	0.961	[0.75, 1.23]		
School assemblies	0.009	1.716	0.005	.966	1.009	[0.04, 29.17]		
School assemblies * age	-0.012	0.131	-0.093	.926	0.988	[0.76, 1.28]	6	.250
Age	0.166	0.225	0.738	.461	1.181	[0.76, 1.84]		
Playground supervision	0.095	0.438	0.217	.828	1.100	[0.47, 2.60]		
Playground supervision * age	-0.113	0.259	-0.437	.662	0.893	[0.54, 1.48]	5	.208
Age	-0.842	0.715	-1.177	.239	0.431	[0.11, 1.75]		
Non-punitive	0.181	0.679	0.267	.790	1.199	[0.32, 4.54]		
Non-punitive and punitive	-0.176	0.637	-0.276	.782	0.839	[0.24, 2.92]		
Non-punitive *age	1.163	0.751	1.548	.122	3.201	[0.73, 13.96]	1	.042
Non-punitive and punitive*age	0.880	0.727	1.211	.226	2.411	[0.58, 10.02]	4	.167
Perpetration Model	Coefficient	<i>SE</i>	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]	Rank	Adj. <i>a</i>
Age	0.471	0.235	2.001	.045	1.601	[1.01, 2.54]		
Playground supervision	0.477	0.851	0.560	.575	1.611	[0.30, 8.55]		
Playground supervision * age	-0.322	0.311	-1.034	.301	0.725	[0.39, 1.33]	1	.083
Age	0.434	0.804	0.539	.590	1.543	[0.32, 7.47]		
Non-punitive	1.597	0.793	2.012	.044	4.936	[1.04, 23.28]		
Non-punitive and punitive	0.516	0.775	0.666	.505	1.676	[0.37, 7.66]		
Non-punitive *age	0.025	0.837	0.030	.976	1.026	[0.20, 5.29]	3	.250
Non-punitive and punitive*age	-0.318	0.809	-0.393	.694	0.727	[0.15, 3.55]	2	.167

Table 3*Interaction Effects of Ethnicity x Intervention Components for Post-Intervention Bullying Victimization and Perpetration*

Victimization Model	Coefficient	SE	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]	Rank	Adj. <i>a</i>
Ethnicity	0.147	0.423	0.348	.728	1.158	[0.51, 2.66]		
School assemblies	-0.102	0.606	-0.168	.867	0.903	[0.27, 2.97]		
School assemblies * ethnicity	0.034	0.435	0.078	.938	1.035	[0.44, 2.43]	1	.125
Ethnicity	0.147	0.423	0.348	.728	1.158	[0.51, 2.66]		
Playground supervision	-0.102	0.606	-0.168	.867	0.903	[0.28, 2.96]		
Playground superv. * ethnicity	0.034	0.435	0.078	.938	1.035	[0.44, 2.43]	2	.250
Perpetration Model	Coefficient	SE	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]		
Ethnicity	0.676	0.399	1.694	.090	1.967	[0.89, 4.30]		
School assemblies	-0.042	1.016	-0.041	.967	0.959	[0.13, 7.03]		
School assemblies * ethnicity	-0.360	0.424	-0.851	.395	0.698	[0.30, 1.60]	1	.125
Ethnicity	0.676	0.399	1.694	.090	1.967	[0.90, 4.30]		
Playground superv.	-0.042	1.016	-0.041	.967	0.959	[0.13, 7.03]		
Playground superv. * ethnicity	-0.360	0.424	-0.851	.395	0.698	[0.30, 1.60]	2	.250

Table 4*Interaction Effects of SES x Intervention Components for Post-Intervention Bullying Victimization and Perpetration*

Victimization Model	Coefficient	SE	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]	Rank	Adj. <i>a</i>
SES high	-0.392	0.280	-1.403	.161	0.675	[0.40, 1.17]		
SES medium	-0.086	0.255	-0.335	.737	0.918	[0.56, 1.51]		
Monitor	-0.034	1.150	-0.030	.976	0.966	[0.10, 9.23]		
Monitor * SES High	0.428	0.469	0.913	.361	1.535	[0.61, 3.85]	5	.208
Monitor * SES Medium	-0.007	0.379	-0.018	.986	0.993	[0.47, 2.09]	6	.250
SES high	-0.687	0.310	-2.215	.027	0.503	[0.27, 0.92]		
SES medium	-0.527	0.337	-1.563	.118	0.591	[0.31, 1.14]		
School assemblies	-0.560	0.999	-0.561	.575	0.571	[0.08, 4.05]		
School assemblies * SES High	0.862	0.478	1.802	.072	2.368	[0.93, 6.05]	1	.042
School assemblies * SES Medium	0.638	0.409	1.557	.120	1.892	[0.85, 4.22]	3	.125
SES high	-0.687	0.310	-2.215	.027	0.503	[0.27, 0.92]		
SES medium	-0.527	0.337	-1.563	.118	0.591	[0.31, 1.14]		
Playground supervision	-0.560	0.999	-0.561	.575	0.571	[0.08, 4.05]		
Playground supervision * SES High	0.862	0.478	1.802	.072	2.368	[0.93, 6.05]	2	.083
Playground supervision * SES Medium	0.638	0.409	1.557	.120	1.892	[0.85, 4.22]	4	.167
Perpetration Model	Coefficient	SE	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]	Rank	Adj. <i>a</i>
SES high	-0.012	1.356	-0.009	.993	0.988	[0.07, 14.13]		
SES medium	-0.034	1.396	-0.024	.981	0.967	[0.06, 14.96]		
Non-punitive	0.903	1.958	0.461	.645	2.466	[0.05, 114.91]		
Non-punitive and punitive	0.121	1.942	0.062	.950	1.129	[0.03, 50.95]		
Non-punitive * SES High	0.163	1.393	0.117	.907	1.177	[0.08, 18.10]	1	.063
Non-punitive and punitive * SES High	-0.064	1.383	-0.046	.963	0.938	[0.06, 14.16]	4	.250
Non-punitive * SES Medium	-0.082	1.438	-0.057	.955	0.922	[0.06, 15.48]	3	.188
Non-punitive and punitive * SES Medium	0.101	1.410	0.072	.943	1.106	[0.07, 17.58]	2	.125

Table 5

Interaction Effects of Initial Level of Victimization (ISV) x Intervention Components for Post-Intervention Bullying Victimization and Initial Level of Perpetration (ISP) x Intervention Components for Post-Intervention Perpetration

Victimization Model	Coefficient	SE	t	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]	Rank	Adj. a
ISV	1.807	0.465	3.888	<.001	6.090	[2.45, 15.14]	8	.250
School policy	0.650	0.386	1.684	.092	1.915	[0.90, 4.08]		
School policy * ISV	-0.052	0.468	-0.111	.911	0.949	[0.38, 2.38]		
ISV	1.780	0.058	30.631	<.001	5.932	[5.29, 6.65]	1	.031
Monitor	0.212	0.554	0.383	.702	1.236	[0.42, 3.66]		
Monitor * ISV	-0.402	0.242	-1.661	.097	0.669	[0.42, 1.08]		
ISV	1.807	0.465	3.888	<.001	6.090	[2.45, 15.14]	7	.219
Classroom rules	0.650	0.386	1.684	.092	1.915	[0.90, 4.08]		
Classroom rules * ISV	-0.052	0.468	-0.111	.911	0.949	[0.38, 2.38]		
ISV	1.677	0.218	7.693	<.001	5.349	[3.49, 8.20]	6	.186
School assemblies	0.056	0.368	0.152	.879	1.057	[0.51, 2.18]		
School assemblies * ISV	0.085	0.226	0.377	.706	1.089	[0.70, 1.67]		
ISV	1.677	0.218	7.693	<.001	5.349	[3.49, 8.20]	5	.156
Playground supervision	0.056	0.368	0.152	.879	1.057	[0.51, 2.18]		
Playground supervision * ISV	0.085	0.226	0.377	.706	1.089	[0.70, 1.69]		
ISV	1.810	0.464	3.897	<.001	6.110	[2.46, 15.18]	2	.063
Non-punitive	1.045	0.412	2.535	.011	2.843	[1.27, 6.38]		
Non-punitive and punitive	0.400	0.393	1.018	.309	1.491	[0.69, 3.22]		
Non-punitive * ISV	-0.425	0.472	-0.900	.368	0.654	[0.26, 1.65]	4	.125
Non-punitive and punitive * ISV	0.193	0.470	0.411	.681	1.213	[0.48, 3.05]		
ISV	2.548	1.294	1.968	.049	12.778	[1.01, 161.55]	3	.094
Cognitive-emotional	1.182	0.752	1.570	.116	3.259	[0.75, 14.24]		
Cognitive-emotional * ISV	-0.794	1.296	-0.613	.540	0.452	[0.04, 5.73]		
Perpetration Model	Coefficient	SE	t	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]	Rank	Adj. a
ISP	0.358	1.069	0.335	.737	1.431	[0.18, 11.62]	5	.179
School policy	1.126	0.740	1.522	.128	3.084	[0.72, 13.16]		
School policy * ISP	1.757	1.072	1.639	.101	5.794	[0.71, 47.36]		
ISP	2.099	0.085	24.797	<.001	8.160	[6.91, 9.63]		
Monitor	-0.277	0.956	-0.290	.772	0.758	[0.12, 4.94]		

Monitor * ISP	-0.223	0.799	-0.279	.780	0.800	[0.17, 3.83]	7	.250
ISP	0.358	1.069	0.335	.737	1.431	[0.18, 11.62]		
Classroom rules	1.126	0.740	1.522	.128	3.084	[0.72, 13.16]		
Classroom rules * ISP	1.757	1.072	1.639	.101	5.794	[0.71, 47.36]	4	.143
ISP	1.105	0.230	4.800	<.001	3.019	[1.92, 4.74]		
School assemblies	-0.014	0.741	-0.019	.985	0.986	[0.23, 4.21]		
School assemblies * ISP	1.144	0.247	4.632	<.001	3.139	[1.93, 5.09]	1	.036
ISP	1.105	0.230	4.800	<.001	3.019	[1.92, 4.74]		
Playground supervision	-0.014	0.741	-0.019	.985	0.986	[0.23, 4.21]		
Playground supervision * ISP	1.144	0.247	4.632	<.001	3.139	[1.93, 5.09]	2	.071
ISP	0.373	1.068	0.349	.727	1.452	[0.18, 11.79]		
Non-punitive	1.829	0.795	2.300	.021	6.230	[1.31, 19.61]		
Non-punitive and punitive	0.663	0.705	0.940	.347	1.940	[0.49, 7.73]		
Non-punitive * ISP	1.103	1.078	1.023	.306	3.012	[0.37, 24.90]	6	.214
Non-punitive and punitive * ISP	2.115	1.073	1.971	.049	8.293	[1.01, 68.01]	3	.107

Figure 1
Interaction Effects (Odds ratios) of Gender × Non-Punitive disciplinary methods on Post-Intervention Bullying Victimization.

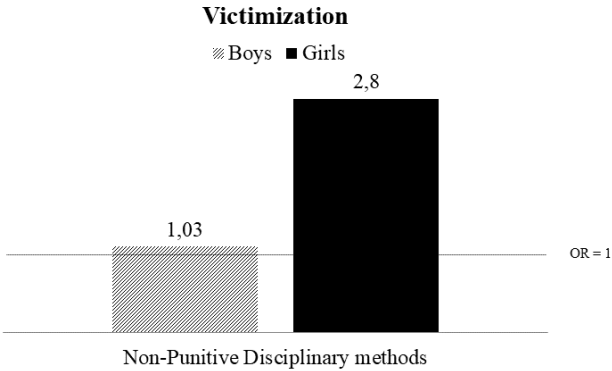
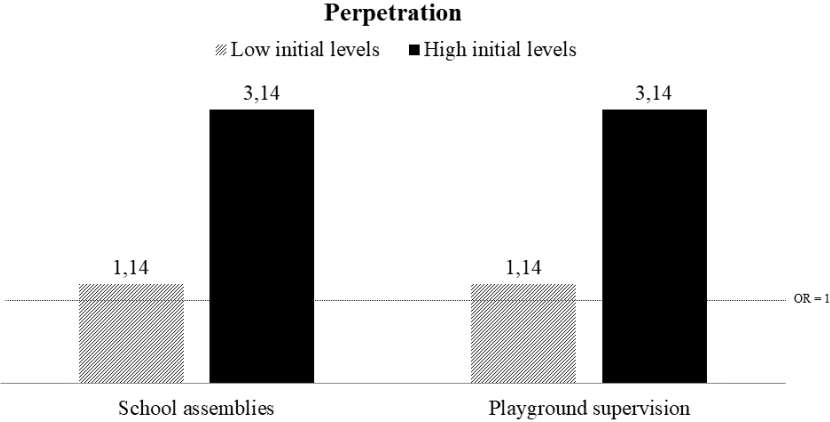


Figure 2
Interaction Effects (Odds ratios) of Initial Perpetration Levels × School Assemblies and Playground Supervision on Post-Intervention Bullying Perpetration.



S10. Sensitivity Analysis

Note. Sensitivity analyses were performed for findings that were significant in the initial analyses. Analyses were performed by excluding trials from the original model one by one. In line with the data sharing agreement of this study, we do not indicate to which study the trial numbers specifically belonged.

Table 1. *Sensitivity Analyses For the Univariate Multilevel Regressions for the Entire Sample (i.e., Do Anti-Bullying Interventions Work?).*

		Coefficient	SE	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]
All trials	Victimization	-0.261	0.040	-6.605	<.001	0.770	[0.71, 0.83]
	Perpetration	-0.126	0.055	-2.303	.021	0.881	[0.79, 0.98]
Without trial 1	Victimization	-0.293	.041	-7.115	.000	0.746	[0.69, 0.81]
	Perpetration	-0.210	.059	-3.541	.000	0.811	[0.72, 0.91]
Without trial 2	Victimization	-0.264	.040	-6.671	.000	0.768	[0.71, 0.83]
	Perpetration	-0.127	.055	-2.317	.021	0.881	[0.79, 0.98]
Without trial 3	Victimization	-0.263	.040	-6.623	.000	0.769	[0.72, 0.83]
	Perpetration	-0.124	.055	-2.256	.024	0.883	[0.79, 0.98]
Without trial 4	Victimization	-0.268	.040	-6.695	.000	0.765	[0.71, 0.83]
	Perpetration	-0.126	.055	-2.303	.021	0.881	[0.79, 0.98]
Without trial 5	Victimization	-0.217	.041	-5.277	.000	0.805	[0.74, 0.87]
	Perpetration	-0.096	.057	-1.686	.092	0.909	[0.81, 1.01]
Without trial 6	Victimization	-0.235	.045	-5.252	.000	0.790	[0.72, 0.86]
	Perpetration	-0.139	.060	-2.322	.020	0.871	[0.77, 0.98]
Without trial 7	Victimization	-0.264	.040	-6.656	.000	0.768	[0.71, 0.83]
	Perpetration	-0.114	.055	-2.053	.040	0.893	[0.80, 1.00]
Without trial 8	Victimization	-0.261	.040	-6.605	.000	0.770	[0.71, 0.83]
	Perpetration	-0.126	.055	-2.303	.021	0.881	[0.79, 0.98]
Without trial 9	Victimization	-0.270	.041	-6.588	.000	0.763	[0.70, 0.83]
	Perpetration	-0.139	.059	-2.490	.013	0.870	[0.78, 0.97]
Without trial 10	Victimization	-0.283	.048	-5.901	.000	0.754	[0.69, 0.83]
	Perpetration	-.008	.063	-0.132	.985	0.992	[0.88, 1.12]
Without trial 11	Victimization	-0.255	.044	-5.744	.000	0.775	[0.71, 0.85]
	Perpetration	-0.179	.067	-2.666	.008	0.836	[0.77, 0.95]

Note. Main effects of interventions.

Table 2. *Sensitivity Analyses for Post-Intervention Victimization Model on Interaction Effects of Subgroup $\times$ Intervention Status.*

	Victimization Model	Coefficient	SE	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]
All trials	Initial victimization	1.913	0.061	31.398	<.001	6.775	[6.01, 7.64]
	Intervention	-0.202	0.049	-4.145	<.001	0.817	[0.74, 0.90]
	Initialvictimiz.* intervention	-0.168	0.081	-2.065	.039	0.845	[0.72, 0.99]
Without trial 1	Initial victimization	1.972	0.065	30.401	<.001	7.188	[6.33, 8.16]
	Intervention	-0.217	0.051	-4.240	<.001	0.805	[0.73, 0.89]
	Initialvictimiz.* intervention	-.216	0.085	-2.528	.011	0.806	[0.68, 0.95]
Without trial 2	Initial victimization	1.912	0.061	31.339	<.001	6.764	[6.00, 7.65]
	Intervention	-0.205	0.049	-4.203	<.001	0.814	[0.74, 0.90]
	Initialvictimiz.* intervention	-0.168	0.082	-2.054	.040	0.846	[0.72, 0.99]
Without trial 3	Initial victimization	1.901	0.061	31.137	<.001	6.694	[5.94, 7.55]
	Intervention	-0.208	0.0	-4.258	<.001	0.812	[0.74, 0.89]
	Initialvictimiz.* intervention	-0.155	0.082	.901	.057	0.856	[0.73, 1.00]
Without trial 4	Initial victimization	1.918	0.062	31.162	<.001	6.807	[6.03, 7.68]
	Intervention	-0.206	0.049	-4.162	<.001	0.814	[0.74, 0.90]
	Initialvictimiz.* intervention	-0.178	0.082	-2.161	.031	0.837	[0.71, 0.98]
Without trial 5	Initial victimization	1.883	0.064	29.499	<.001	6.574	[5.80, 7.45]
	Intervention	-.162	0.051	-3.203	<.001	0.850	[0.77, 0.94]
	Initialvictimiz.* intervention	-0.154	0.084	-1.827	.068	0.857	[0.73, 1.01]
Without trial 6	Initial victimization	1.995	0.068	29.282	<.001	7.353	[6.34, 8.40]
	Intervention	-.225	0.054	-4.182	<.001	0.798	[0.72, 0.89]
	Initialvictimiz.* intervention	-0.032	0.096	-.331	.741	0.969	[0.80, 1.17]
Without trial 7	Initial victimization	1.916	0.061	31.396	<.001	6.792	[6.03, 7.66]
	Intervention	-0.204	0.049	-4.169	<.001	0.815	[0.74, 0.90]
	Initialvictimiz.* intervention	-0.170	0.082	-2.085	.037	0.843	[0.72, 0.99]

Without trial 8	Initial victimization	1.913	0.061	31.398	<.001	6.775	[6.01, 7.64]
	Intervention	-0.202	0.049	-4.145	<.001	0.817	[0.74, 0.90]
	Initialvictimiz.* intervention	-0.168	.081	-2.065	.039	0.845	[0.72, 0.99]
Without trial 9	Initial victimization	1.931	0.063	30.605	<.001	6.897	[6.10, 7.81]
	Intervention	-0.213	0.051	-4.179	<.001	0.809	[0.73, 0.89]
	Initialvictimiz.* intervention	-0.163	0.084	-1.934	.053	0.850	[0.72, 1.00]
Without trial 10	Initial victimization	1.895	0.073	26.022	<.001	6.653	[5.77, 7.67]
	Intervention	-0.201	0.060	-3.358	<.001	0.818	[0.73, 0.92]
	Initialvictimiz.* intervention	-0.219	0.097	-2.261	.024	0.804	[0.67, 0.97]
Without trial 11	Initial victimization	1.795	0.068	26.376	<.001	6.021	[5.27, 6.88]
	Intervention	-0.188	0.055	-3.419	<.001	0.828	[0.74, 0.92]
	Initialvictimiz.* intervention	-0.186	0.090	-2.059	.040	0.830	[0.70, 0.99]

Table 3. *Sensitivity Analyses for Post-Intervention Perpetration Model on Interaction Effects of Subgroup $\times$ Intervention Status.*

Perpetration Model		Coefficient	SE	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]
All trials	Age	-0.022	0.115	-0.191	.848	0.978	[0.78, 1.23]
	Intervention	-0.342	0.091	-3.756	<.001	0.710	[0.59, 0.85]
	Age * intervention	0.357	0.121	2.954	.003	1.429	[1.13, 1.81]
Without trial 1	Age	-0.083	0.156	-0.532	.595	0.920	[0.68, 1.25]
	Intervention	-0.435	0.100	-4.363	<.001	0.647	[-0.53, 0.78]
	Age * intervention	0.335	0.133	2.517	.012	1.398	[1.08, 1.82]
Without trial 2	Age	-0.001	0.114	-0.008	.993	0.999	[0.80, 1.25]
	Intervention	-0.343	0.091	-3.771	<.001	0.709	[0.59, 0.85]
	Age * intervention	0.358	0.121	2.962	.003	1.430	[1.13, 1.81]
Without trial 3	Age	-0.023	0.115	-0.196	.844	0.978	[0.78, 1.22]
	Intervention	-0.336	0.091	-3.678	<.001	0.715	[0.69, 0.86]
	Age * intervention	0.350	0.121	2.897	.004	1.420	[1.12, 1.80]
Without trial 4	Age	-0.022	0.115	-0.191	.848	0.978	[0.78, 1.23]
	Intervention	-0.342	0.091	-3.756	<.001	0.710	[0.59, 0.85]
	Age * intervention	0.357	0.121	2.954	.003	1.429	[1.13, 1.81]
Without trial 5	Age	-0.000	0.116	-0.000	1.000	1.000	[0.80, 1.26]

	Intervention	-0.287	0.101	-2.855	.004	0.750	[0.62, 0.91]
	Age * intervention	0.299	0.128	2.338	.019	1.349	[1.05, 1.73]
Without trial 6	Age	-0.022	0.115	-0.191	.848	0.978	[0.78, 1.23]
	Intervention	-0.342	0.091	-3.756	<.001	0.710	[0.59, 0.85]
	Age * intervention	0.357	0.121	2.954	.003	1.429	[1.13, 1.81]
Without trial 7	Age	-0.042	0.115	-0.360	.719	0.959	[0.77, 1.20]
	Intervention	-0.342	0.091	-3.752	<.001	0.710	[0.59, 0.85]
	Age * intervention	0.390	0.122	3.206	0.001	1.478	[1.16, 1.88]
Without trial 8	Age	-0.022	0.115	-0.191	.848	0.978	[0.78, 1.23]
	Intervention	-0.342	0.091	-3.756	<.001	0.710	[0.59, 0.85]
	Age * intervention	0.357	0.121	2.954	.003	1.429	[1.13, 1.81]
Without trial 9	Age	-0.049	0.115	-0.427	.670	0.952	[0.76, 1.19]
	Intervention	-0.405	0.096	-4.203	<.001	0.667	[0.55, 0.81]
	Age * intervention	0.419	0.125	3.360	.001	1.521	[1.19, 1.94]
Without trial 10	Age	0.126	0.156	0.807	.420	1.134	[0.83, 1.54]
	Intervention	-0.161	0.138	-1.170	.242	0.851	[0.65, 1.12]
	Age * intervention	0.225	0.161	1.404	.160	1.254	[0.91, 1.72]
Without trial 11	Age	-0.048	0.128	-0.376	.707	0.953	[0.74, 1.23]
	Intervention	-0.339	0.091	-3.741	<.001	0.713	[0.59, 0.85]
	Age * intervention	0.430	0.171	2.514	.012	1.537	[1.10, 2.15]

Table 4. *Sensitivity Analyses for Main Effects of Intervention Components on Post-Intervention Bullying Victimization*

	Victimization Model	Coefficient	SE	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]
All trials	Disciplinary methods						
	<i>Non-punitive [=2]</i>	0.879	0.402	2.187	.029	2.408	[1.10, 5.29]
	<i>Non-punitive and punitive [=3]</i>	0.466	0.381	1.223	.221	1.594	[0.76, 3.37]
Without trial 1	Disciplinary methods						
	<i>Non-punitive</i>	0.649	0.410	1.584	0.11	1.913	[0.86, 4.27]
	<i>Non-punitive and punitive</i>	0.469	0.359	1.308	0.19	1.599	[0.79, 3.23]
Without trial 2	Disciplinary methods						
	<i>Non-punitive</i>	0.703	0.452	1.555	0.12	2.021	[0.83, 4.90]
	<i>Non-punitive and punitive</i>	0.291	0.433	0.671	0.50	1.338	[0.57, 3.13]
Without trial 3	Disciplinary methods						
	<i>Non-punitive</i>	1.125	0.447	2.518	0.01	3.080	[1.28, 7.39]
	<i>Non-punitive and punitive</i>	0.712	0.429	1.661	0.097	2.039	[0.88, 4.72]
Without trial 4	Disciplinary methods						
	<i>Non-punitive</i>	1.077	0.420	2.567	0.010	2.937	[1.29, 6.69]
	<i>Non-punitive and punitive</i>	0.468	0.370	1.266	0.206	1.597	[0.77, 3.30]
Without trial 5	Disciplinary methods						
	<i>Non-punitive</i>	0.877	0.424	2.069	0.039	2.405	[1.05, 5.52]
	<i>Non-punitive and punitive</i>	0.521	0.421	1.239	0.216	1.684	[0.74, 3.85]
Without trial 6	Disciplinary methods						
	<i>Non-punitive</i>	0.880	0.476	1.846	0.065	2.310	[0.95, 6.13]
	<i>Non-punitive and punitive</i>	0.446	0.411	1.084	0.278	1.562	[0.70, 3.50]
Without trial 7	Disciplinary methods						
	<i>Non-punitive</i>	0.784	0.508	1.543	0.123	2.190	[0.81, 5.98]
	<i>Non-punitive and punitive</i>	0.372	0.490	0.759	0.448	1.451	[0.55, 3.79]
Without trial 8	Disciplinary methods						

	<i>Non-punitive</i>	0.879	0.402	2.187	0.029	2.404	[1.10, 5.29]
	<i>Non-punitive and punitive</i>	0.466	0.381	1.223	0.221	1.594	[0.75, 3.37]
Without trial 9	Disciplinary methods						
	<i>Non-punitive</i>	0.870	0.429	2.027	0.043	2.386	[1.03, 5.53]
	<i>Non-punitive and punitive</i>	0.423	0.426	0.991	0.322	1.526	[0.66, 3.53]
Without trial 10	Disciplinary methods						
	<i>Non-punitive</i>	0.902	0.360	2.506	0.012	2.464	[1.22, 4.99]
	<i>Non-punitive and punitive</i>	0.301	0.358	0.840	0.401	1.351	[0.67, 2.73]
Without trial 11	Disciplinary methods						
	<i>Non-punitive</i>	0.911	0.374	2.434	0.015	2.487	[1.19, 5.18]
	<i>Non-punitive and punitive</i>	0.639	0.372	1.714	0.087	1.894	[0.91, 3.93]

Table 5. *Sensitivity Analyses for Main Effects of Intervention Components on Post-Intervention Bullying Perpetration*

	Perpetration Model	Coefficient	<i>SE</i>	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]
All trials	Disciplinary methods						
	<i>Non-punitive</i>	1.782	0.776	2.297	.022	5.940	[1.30, 27.16]
	<i>Non-punitive and punitive</i>	0.894	0.690	1.296	.195	2.444	[0.63, 9.44]
Without trial 1	Disciplinary methods						
	<i>Non-punitive</i>	0.491	0.345	1.424	0.154	1.635	[0.38, 3.22]
	<i>Non-punitive and punitive</i>	0.407	0.309	1.317	0.188	1.503	[0.82, 2.76]
Without trial 2	Disciplinary methods						
	<i>Non-punitive</i>	1.203	0.695	1.731	0.083	3.311	[0.85, 13.01]
	<i>Non-punitive and punitive</i>	0.320	0.632	0.506	0.613	1.377	[0.40, 4.75]
Without trial 3	Disciplinary methods						
	<i>Non-punitive</i>	1.493	0.765	1.952	0.051	4.449	[0.99, 19.92]
	<i>Non-punitive and punitive</i>	0.606	0.689	0.880	0.379	1.833	[0.48, 7.07]
Without trial 4	Disciplinary methods						

	<i>Non-punitive</i>	-	-	-	-		
	<i>Non-punitive and punitive</i>	-	-	-	-		
Without trial 5	Disciplinary methods						
	<i>Non-punitive</i>	1.918	0.919	2.086	0.037	6.804	[1.12, 41.25]
	<i>Non-punitive and punitive</i>	1.037	0.850	1.220	0.222	2.821	[0.54, 14.92]
Without trial 6	Disciplinary methods						
	<i>Non-punitive</i>	1.484	0.242	6.140	0.000	4.410	[2.85, 7.08]
	<i>Non-punitive and punitive</i>	0.201	0.218	0.923	0.356	1.223	[0.80, 1.88]
Without trial 7	Disciplinary methods						
	<i>Non-punitive</i>	15.173	479.924	0.032	0.976	1612743.028	0
	<i>Non-punitive and punitive</i>	14.293	479.924		0.975	3887090.922	0
Without trial 8	Disciplinary methods						
	<i>Non-punitive</i>	-	-		-		
	<i>Non-punitive and punitive</i>	-	-	-	-		
Without trial 9	Disciplinary methods						
	<i>Non-punitive</i>	1.897	0.897	2.115	0.034	6.664	[1.15, 38.65]
	<i>Non-punitive and punitive</i>	1.091	0.829	1.316	0.188	2.977	[0.59, 15.11]
Without trial 10	Disciplinary methods						
	<i>Non-punitive</i>	1.941	0.924	2.101	0.036	6.964	[1.14, 42.56]
	<i>Non-punitive and punitive</i>	1.007	0.855	1.178	0.239	2.727	[0.51, 14.62]
Without trial 11	Disciplinary methods						
	<i>Non-punitive</i>	1.964	0.917	2.142	0.032	7.125	[1.18, 42.97]
	<i>Non-punitive and punitive</i>	0.964	0.849	1.136	0.256	2.623	[0.50, 13.84]

Table 6. *Sensitivity Analyses for the Victimization Model on Interaction Effects of Sex x Intervention Components for Post-Intervention Bullying Victimization*

	Victimization Model	Coefficient	SE	<i>t</i>	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]
All trials	Sex	1.008	0.436	-2.315	.021	0.365	[0.16, 0.86]
	Non punitive	0.456	0.426	1.068	.285	1.577	[0.68, 3.64]
	Non punitive and punitive	0.179	0.406	0.440	.660	1.196	[0.54, 2.65]
	Non-punitive * sex	1.029	0.444	2.316	.021	2.799	[1.17, 6.69]
	Non-punitive and punitive * sex	0.740	0.441	1.679	.093	2.097	[0.88, 4.98]
Without trial 1	Sex	-1.010	.436	-2.318	.020	0.364	[0.15, 0.86]
	Non-punitive	0.199	.434	.457	.648	1.220	[0.52, 2.86]
	Non-punitive and punitive	0.182	.385	0.471	.638	1.199	[0.56, 2.55]
	Non-punitive * sex	1.085	.446	2.433	.015	2.959	[1.24, 7.09]
	Non-punitive and punitive * sex	0.742	.441	1.683	.092	2.100	[0.86, 4.98]
Without trial 2	Sex	-1.144	.492	-2.326	.020	0.319	[0.12, 0.84]
	Non-punitive	0.267	.477	0.559	.576	1.305	[0.51, 3.32]
	Non-punitive and punitive	-0.010	.457	-0.022	.982	0.990	[0.40, 2.43]
	Non-punitive * sex	1.165	.499	2.332	.020	3.205	[1.20, 8.53]
	Non-punitive and punitive * sex	0.876	.496	1.764	.078	2.401	[0.91, 6.35]
Without trial 3	Sex	-1.297	.528	-2.455	.014	0.273	[0.10, 0.77]
	Non-punitive	0.610	.471	1.295	.195	1.841	[0.73, 4.64]
	Non-punitive and punitive	0.333	.453	.736	.462	1.396	[0.57, 3.39]
	Non-punitive * sex	1.317	.535	2.461	.014	3.734	[1.31, 10.66]
	Non-punitive and punitive * sex	1.029	.532	1.932	.052	2.797	[0.99, 7.94]
Without trial 4	Sex	-1.009	.436	-2.316	.021	0.365	[0.15, 0.86]
	Non-punitive	.646	.443	1.458	.145	1.908	[0.80, 4.55]
	Non-punitive and punitive	.181	.392	.458	.647	1.198	[0.55, 2.60]
	Non-punitive * sex	1.046	.445	.351	.019	2.947	[1.19, 6.81]

	Non-punitive and punitive * sex	0.741	.441	1.680	.093	2.097	[0.88, 4.98]
Without trial 5	Sex	-1.007	.436	-2.312	.021	0.365	[0.15, 0.86]
	Non-punitive	.454	.447	1.017	.309	1.575	[0.66, 3.78]
	Non-punitive and punitive	.239	.443	.540	.589	1.270	[0.54, 3.03]
	Non-punitive * sex	1.028	.444	2.313	.021	2.795	[1.17, 6.68]
	Non-punitive and punitive * sex	.0731	.441	1.657	.098	2.077	[0.88, 4.93]
Without trial 6	Sex	-1.020	.438	-2.326	.020	0.361	[0.15, 0.85]
	Non-punitive	.591	.503	1.174	.240	1.805	[0.67, 4.84]
	Non-punitive and punitive	.151	.434	.347	.729	1.163	[0.50, 2.72]
	Non-punitive * sex	.757	.476	1.589	.112	2.131	[0.84, 5.42]
	Non-punitive and punitive * sex	.765	.444	1.705	.088	2.131	[0.89, 5.08]
Without trial 7	Sex	-.273	.641	-.425	.671	0.761	[0.22, 2.67]
	Non-punitive	.632	.592	1.066	.286	1.881	[0.59, 6.01]
	Non-punitive and punitive	.355	.576	.616	.538	1.426	[0.46, 4.42]
	Non-punitive * sex	.293	.647	.454	.650	1.341	[0.38, 4.76]
	Non-punitive and punitive * sex	.004	.644	.007	.995	1.004	[0.28, 3.55]
Without trial 9	Sex	-1.009	.436	-2.313	.021	0.365	[0.15, 0.86]
	Non-punitive	.446	.452	.986	.324	1.561	[0.64, 3.79]
	Non-punitive and punitive	.147	.448	.328	.743	1.158	[0.48, 2.79]
	Non-punitive * sex	1.030	.445	2.317	.021	2.802	[1.17, 6.70]
	Non-punitive and punitive * sex	.711	.442	1.610	.107	2.037	[0.86, 4.84]
Without trial 10	Sex	-1.006	.435	-2.315	.021	0.366	[0.16, 0.86]
	Non-punitive	.483	.386	1.251	.211	1.621	[0.76, 3.45]
	Non-punitive and punitive	.062	.384	.161	.872	1.064	[0.50, 2.26]
	Non-punitive * sex	1.025	.443	2.312	.021	2.787	[1.17, 6.65]
	Non-punitive and punitive * sex	.627	.445	1.410	.159	1.873	[0.78, 4.48]
Without trial 11	Sex	-1.003	.434	-2.311	.021	0.367	[0.16, 0.86]
	Non-punitive	.492	.399	1.233	.218	1.636	[0.75, 3.58]

Non-punitive and punitive	.295	.397	.744	.457	1.344	[0.62, 2.93]
Non-punitive * sex	1.020	.443	2.303	.021	2.773	[1.16, 6.61]
Non-punitive and punitive * sex	.864	.442	1.956	.050	2.373	[1.00, 5.64]

Table 7. Sensitivity Analyses in Perpetration Model for Interaction Effects of Initial Level of Perpetration (ISP) x Intervention Components for Post-Intervention Perpetration.

	Perpetration Model	Coefficient	SE	t	Sig.	Exp (Coefficient)	95% CI (coef.) [LL, UL]
All trials	ISP	1.105	0.230	4.800	<.001	3.019	[1.92, 4.74]
	School assemblies	-0.014	0.741	-0.019	.985	0.986	[0.23, 4.21]
	School assemblies * ISP	1.144	0.247	4.632	<.001	3.139	[1.93, 5.09]
	ISP	1.105	0.230	4.800	<.001	3.019	[1.92, 4.74]
	Playground supervision	-0.014	0.741	-0.019	.985	0.986	[0.23, 4.21]
	Playground supervision * ISP	1.144	0.247	4.632	<.001	3.139	[1.93, 5.09]
Without trial 1	ISP	0.352	0.986	0.357	0.721	1.422	[0.21, 9.82]
	School assemblies	0.099	0.225	0.443	0.658	1.105	[0.71, 1.72]
	School assemblies * ISP	1.588	0.989	1.606	0.108	4.896	[0.70, 34.03]
	ISP	0.352	0.986	0.357	0.721	1.422	[0.21, 9.82]
	Playground supervision	0.099	0.225	0.443	0.658	1.105	[0.71, 1.72]
	Playground supervision * ISP	1.588	0.989	1.606	0.108	4.896	[0.70, 34.03]
Without trial 2	ISP	1.113	0.230	4.838	0.000	3.044	[1.94, 4.78]
	School assemblies	-0.720	0.524	-1.372	0.170	0.487	[0.17, 1.36]
	School assemblies * ISP	1.136	0.247	4.606	0.000	3.116	[1.92, 5.05]
	ISP	1.113	0.230	4.838	0.000	3.044	[1.94, 4.78]
	Playground supervision	-0.720	0.524	-1.372	0.170	0.487	[0.17, 1.36]
	Playground supervision * ISP	1.136	0.247	4.606	0.000	3.116	[1.92, 5.05]
Without trial 3	ISP	1.102	0.230	4.795	0.000	3.012	[1.92, 4.73]
	School assemblies	-0.445	0.665	-0.668	0.504	0.641	[0.17, 2.36]
	School assemblies * ISP	1.146	0.247	4.648	0.000	3.147	[1.94, 5.10]
	ISP	1.102	0.230	4.795	0.000	3.012	[1.92, 4.73]

	Playground supervision	-0.445	0.665	-0.668	0.504	0.641	[0.17, 2.36]
	Playground supervision * ISP	1.146	0.247	4.648	0.000	3.147	[1.94, 5.10]
Without trial 4	ISP	-	-	-	-	-	-
	School assemblies	-	-	-	-	-	-
	School assemblies * ISP	-	-	-	-	-	-
	ISP	-	-	-	-	-	-
	Playground supervision	-	-	-	-	-	-
	Playground supervision * ISP	-	-	-	-	-	-
Without trial 5	ISP	1.100	0.230	4.777	0.000	3.004	[1.91, 4.72]
	School assemblies	0.106	0.899	0.117	0.906	1.111	[0.19, 6.47]
	School assemblies * ISP	1.159	0.248	4.673	0.000	3.185	[1.96, 5.18]
	ISP	1.100	0.230	4.777	0.000	3.004	[1.91, 4.72]
	Playground supervision	0.106	0.899	0.117	0.906	1.111	[0.19, 6.47]
	Playground supervision * ISP	1.159	0.248	4.673	0.000	3.185	[1.96, 5.18]
Without trial 6	ISP	1.100	0.230	4.777	0.000	3.005	[1.91, 4.72]
	School assemblies	0.012	0.899	0.014	0.989	1.012	[0.17, 5.89]
	School assemblies * ISP	1.388	0.253	5.492	0.000	4.008	[2.44, 6.58]
	ISP	1.100	0.230	4.777	0.000	3.005	[1.91, 4.72]
	Playground supervision	0.012	0.899	0.014	0.989	1.012	[0.17, 5.89]
	Playground supervision * ISP	1.388	0.253	5.492	0.000	4.008	[2.44, 6.58]
Without trial 7	ISP	1.158	0.240	4.826	0.000	3.182	[1.99, 5.09]
	School assemblies	0.290	0.989	0.293	0.769	1.336	[0.19, 9.29]
	School assemblies * ISP	1.091	0.256	4.264	0.000	2.978	[1.80, 4.92]
	ISP	1.158	0.240	4.826	0.000	3.182	[1.99, 5.09]
	Playground supervision	0.290	0.989	0.293	0.769	1.336	[0.19, 9.29]
	Playground supervision * ISP	1.091	0.256	4.264	0.000	2.978	[1.80, 4.92]
Without trial 8	ISP	-	-	-	-	-	-
	School assemblies	-	-	-	-	-	-
	School assemblies * ISP	-	-	-	-	-	-
	ISP	-	-	-	-	-	-
	Playground supervision	-	-	-	-	-	-
	Playground supervision * ISP	-	-	-	-	-	-
Without trial 9	ISP	1.100	0.230	4.778	0.000	3.005	[1.91, 4.72]

	School assemblies	0.148	0.889	0.167	0.868	1.160	[0.20, 6.63]
	School assemblies * ISP	1.154	0.247	4.667	0.000	3.169	[1.95, 5.15]
	ISP	1.100	0.230	4.778	0.000	3.005	[1.91, 4.72]
	Playground supervision	0.148	0.889	0.167	0.868	1.160	[0.20, 6.63]
	Playground supervision * ISP	1.154	0.247	4.667	0.000	3.169	[1.95, 5.15]
Without trial 10	ISP	1.100	0.230	4.776	0.000	3.003	[1.91, 4.72]
	School assemblies	0.101	0.902	0.112	0.911	1.106	[0.19, 6.49]
	School assemblies * ISP	1.068	0.252	4.247	0.000	2.910	[1.79, 4.77]
	ISP	1.100	0.230	4.776	0.000	3.003	[1.91, 4.72]
	Playground supervision	0.101	0.902	0.112	0.911	1.106	[0.19, 6.49]
	Playground supervision * ISP	1.068	0.252	4.247	0.000	2.910	[1.79, 4.77]
Without trial 11	ISP	1.100	0.230	4.776	0.000	3.003	[1.91, 4.72]
	School assemblies	0.103	0.901	0.114	0.909	1.108	[0.19, 6.48]
	School assemblies * ISP	0.934	0.259	3.606	0.000	2.545	[1.53, 4.23]
	ISP	1.100	0.230	4.776	0.000	3.003	[1.91, 4.72]
	Playground supervision	0.103	0.901	0.114	0.909	1.108	[0.19, 6.48]
	Playground supervision * ISP	0.934	0.259	3.606	0.000	2.545	[1.53, 4.23]

PRISMA-IPD Checklist of items to include when reporting a systematic review and meta-analysis of individual participant data (IPD)

PRISMA-IPD Section/topic	Item No	Checklist item	Reported on page
Title			
Title	1	Identify the report as a systematic review and meta-analysis of individual participant data.	Page 1 ,4
Abstract			
Structured summary	2	Provide a structured summary including as applicable:	Page 3 Manuscript Page 3+ Manuscript Page 3+ Manuscript Page 21
		Background: state research question and main objectives, with information on participants, interventions, comparators and outcomes.	
		Methods: report eligibility criteria; data sources including dates of last bibliographic search or elicitation, noting that IPD were sought; methods of assessing risk of bias.	
		Results: provide number and type of studies and participants identified and number (%) obtained; summary effect estimates for main outcomes (benefits and harms) with confidence intervals and measures of statistical heterogeneity. Describe the direction and size of summary effects in terms meaningful to those who would put findings into practice.	
		Discussion: state main strengths and limitations of the evidence, general interpretation of the results and any important implications.	
		Other: report primary funding source, registration number and registry name for the systematic review and IPD meta-analysis.	
Introduction			
Rationale	3	Describe the rationale for the review in the context of what is already known.	page 5, 6, 7
Objectives	4	Provide an explicit statement of the questions being addressed with reference, as applicable, to participants, interventions, comparisons, outcomes and study design (PICOS). Include any hypotheses that relate to particular types of participant-level subgroups.	page 7, 8
Methods			
Protocol and registration	5	Indicate if a protocol exists and where it can be accessed. If available, provide registration information including registration number and registry name. Provide publication details, if applicable.	
Eligibility criteria	6	Specify inclusion and exclusion criteria including those relating to participants, interventions, comparisons, outcomes, study design and characteristics (e.g. years when conducted, required minimum follow-up). Note whether these were applied at the study or individual level i.e. whether eligible participants were included (and ineligible participants excluded) from a study that included a wider population than specified by the review inclusion criteria. The rationale for criteria should be stated.	Page 8, 9
Identifying	7	Describe all methods of identifying published and unpublished studies including, as applicable: which bibliographic databases	Page 8, 9

studies - information sources		were searched with dates of coverage; details of any hand searching including of conference proceedings; use of study registers and agency or company databases; contact with the original research team and experts in the field; open adverts and surveys. Give the date of last search or elicitation.	
Identifying studies - search	8	Present the full electronic search strategy for at least one database, including any limits used, such that it could be repeated.	SupMat 1
Study selection processes	9	State the process for determining which studies were eligible for inclusion.	Page, 7, 8, 9
Data collection processes	10	Describe how IPD were requested, collected and managed, including any processes for querying and confirming data with investigators. If IPD were not sought from any eligible study, the reason for this should be stated (for each such study).	Page 8,9
		If applicable, describe how any studies for which IPD were not available were dealt with. This should include whether, how and what aggregate data were sought or extracted from study reports and publications (such as extracting data independently in duplicate) and any processes for obtaining and confirming these data with investigators.	SupMat 2
Data items	11	Describe how the information and variables to be collected were chosen. List and define all study level and participant level data that were sought, including baseline and follow-up information. If applicable, describe methods of standardising or translating variables within the IPD datasets to ensure common scales or measurements across studies.	10, 11, 12
IPD integrity	A1	Describe what aspects of IPD were subject to data checking (such as sequence generation, data consistency and completeness, baseline imbalance) and how this was done.	Page 9 + SupMat 2
Risk of bias assessment in individual studies.	12	Describe methods used to assess risk of bias in the individual studies and whether this was applied separately for each outcome. If applicable, describe how findings of IPD checking were used to inform the assessment. Report if and how risk of bias assessment was used in any data synthesis.	Page 12 + SupMat 6
Specification of outcomes and effect measures	13	State all treatment comparisons of interests. State all outcomes addressed and define them in detail. State whether they were pre-specified for the review and, if applicable, whether they were primary/main or secondary/additional outcomes. Give the principal measures of effect (such as risk ratio, hazard ratio, difference in means) used for each outcome.	Page 10, 11, 12
Synthesis methods	14	Describe the meta-analysis methods used to synthesise IPD. Specify any statistical methods and models used. Issues should include (but are not restricted to): • Use of a one-stage or two-stage approach. • How effect estimates were generated separately within each study and combined across studies (where applicable). • Specification of one-stage models (where applicable) including how clustering of patients within studies was accounted for. • Use of fixed or random effects models and any other model assumptions, such as proportional hazards. • How (summary) survival curves were generated (where applicable). • Methods for quantifying statistical heterogeneity (such as I^2 and τ^2). • How studies providing IPD and not providing IPD were analysed together (where applicable).	Page 12, 13

		How missing data within the IPD were dealt with (where applicable).	
Exploration of variation in effects	A2	If applicable, describe any methods used to explore variation in effects by study or participant level characteristics (such as estimation of interactions between effect and covariates). State all participant-level characteristics that were analysed as potential effect modifiers, and whether these were pre-specified.	Page 12, 13
Risk of bias across studies	15	Specify any assessment of risk of bias relating to the accumulated body of evidence, including any pertaining to not obtaining IPD for particular studies, outcomes or other variables.	Page 12, SupMat 6
Additional analyses	16	Describe methods of any additional analyses, including sensitivity analyses. State which of these were pre-specified.	Page 13
Results			
Study selection and IPD obtained	17	Give numbers of studies screened, assessed for eligibility, and included in the systematic review with reasons for exclusions at each stage. Indicate the number of studies and participants for which IPD were sought and for which IPD were obtained. For those studies where IPD were not available, give the numbers of studies and participants for which aggregate data were available. Report reasons for non-availability of IPD. Include a flow diagram.	SupMat 2, SuptMat 6
Study characteristics	18	For each study, present information on key study and participant characteristics (such as description of interventions, numbers of participants, demographic data, unavailability of outcomes, funding source, and if applicable duration of follow-up). Provide (main) citations for each study. Where applicable, also report similar study characteristics for any studies not providing IPD.	SupMat 4
IPD integrity	A3	Report any important issues identified in checking IPD or state that there were none.	SupMat 6 (Table 2, note)
Risk of bias within studies	19	Present data on risk of bias assessments. If applicable, describe whether data checking led to the up-weighting or down-weighting of these assessments. Consider how any potential bias impacts on the robustness of meta-analysis conclusions.	SupMat 4, SupMat 6, page 12
Results of individual studies	20	For each comparison and for each main outcome (benefit or harm), for each individual study report the number of eligible participants for which data were obtained and show simple summary data for each intervention group (including, where applicable, the number of events), effect estimates and confidence intervals. These may be tabulated or included on a forest plot.	SupMat 2, page 12, SupMat 8
Results of syntheses	21	Present summary effects for each meta-analysis undertaken, including confidence intervals and measures of statistical heterogeneity. State whether the analysis was pre-specified, and report the numbers of studies and participants and, where applicable, the number of events on which it is based.	SupMat 8, SupMat 9, Supmat 10, page
		When exploring variation in effects due to patient or study characteristics, present summary interaction estimates for each characteristic examined, including confidence intervals and measures of statistical heterogeneity. State whether the analysis	

		was pre-specified. State whether any interaction is consistent across trials.	13, 14, 15
		Provide a description of the direction and size of effect in terms meaningful to those who would put findings into practice.	
Risk of bias across studies	22	Present results of any assessment of risk of bias relating to the accumulated body of evidence, including any pertaining to the availability and representativeness of available studies, outcomes or other variables.	SupMat 6, page 12
Additional analyses	23	Give results of any additional analyses (e.g. sensitivity analyses). If applicable, this should also include any analyses that incorporate aggregate data for studies that do not have IPD. If applicable, summarise the main meta-analysis results following the inclusion or exclusion of studies for which IPD were not available.	SupMat 9, 10
Discussion			
Summary of evidence	24	Summarise the main findings, including the strength of evidence for each main outcome.	Page 15, 16, 17
Strengths and limitations	25	Discuss any important strengths and limitations of the evidence including the benefits of access to IPD and any limitations arising from IPD that were not available.	Page 18, 19, 20
Conclusions	26	Provide a general interpretation of the findings in the context of other evidence.	Page 15, 16, 17
Implications	A4	Consider relevance to key groups (such as policy makers, service providers and service users). Consider implications for future research.	Page 20, 21
Funding			
Funding	27	Describe sources of funding and other support (such as supply of IPD), and the role in the systematic review of those providing such support.	Page 21

A1 – A3 denote new items that are additional to standard PRISMA items. A4 has been created as a result of re-arranging content of the standard PRISMA statement to suit the way that systematic review IPD meta-analyses are reported.

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