The Consequences of School Violence:

A Systematic Review and Meta-Analysis

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The purpose of the project was to find, collect, and synthesize all available published and unpublished research reports that quantitatively analyzed the longitudinal relation between a measure of school violence (e.g., physical aggression, bullying)* and a later mental health (e.g., depression, anxiety, posttraumatic stress disorder [PTSD]), school performance (e.g., test scores, grade point average), or crime and delinquency (e.g., violent and property offenses) outcome. Using state-of-the-art systematic review and meta-analysis methods (i.e., combining effect sizes by estimating a random effects model with robust variance estimation) we assessed the variation in the relations across studies through multiple-meta-regression modeling. In practical terms, the results of the meta-analysis provide an empirical synthesis of consequences of school violence, which will allow stakeholders to make informed decisions about how best to address various forms of school violence.

Project Design and Methods†

Inclusion/exclusion criteria. Empirical research studies were selected based on the following inclusion and exclusion criteria:

1. Eligible studies included only students in K–12 settings. This criterion was operationalized as the first time point in the study; in other words, studies that sampled students for the first time beyond high school were excluded.
2. Studies must have measured a school violence variable at the first time point. Violence was broadly defined to encompass multiple types of aggressive acts, including a) physical aggression, specifically fighting or forceful behavior; b) bullying; or c) any other measure of school violence that involved a propensity to commit physical or aggressive acts.
3. Studies must have measured at least one of three outcome variable domains (i.e., mental

* We included studies that assessed forms of school violence on school grounds, on the way to or from school, or a school-sponsored event.

† The results of this systematic review and meta-analysis are the product of adhering to well-established standards and reporting guidelines outlined in the Campbell Collaboration's MECCIR (Methodological Expectations of Campbell Collaboration Intervention Reviews) and in the MOOSE (Meta-Analyses of Observational Studies in Epidemiology) checklist. Before analyzing the final dataset and writing the manuscript, the protocol and analysis plan were published online at Open Science Framework (OSF). The analytical dataset also was submitted to ICPSR.

health, school performance, and crime and delinquency), each composed of more specific variables.*

4. Studies must have used a longitudinal design that tracked students over time. The minimum time between data collection time points was 5 months or 1 semester.
5. Studies must have quantitatively analyzed the dataset using a multiple regression analysis. Studies that simply reported the longitudinal correlation between school violence and outcome variables were excluded.
6. Studies must have been published between 1990 and April 2017.
7. We included all types of study reports, published or unpublished.
8. Studies must have been published in English, but we did not exclude studies based on country of origin (i.e., we included all studies, regardless of where the study's sample originated).

Literature search and screening. Several complementary approaches were undertaken: searches of the traditional and gray literatures, forward and backward reference harvesting, and hand searching of targeted journals. An electronic bibliographic search† of the literature was conducted to identify qualifying studies. We searched the following online databases, which included both published and unpublished studies, using search terms tailored to each database: Academic Search Complete, Education Research Complete, ERIC, National Criminal Justice Reference Service Abstracts, ProQuest Criminal Justice, ProQuest Dissertations and Theses,

* The mental health variables included depression, PTSD or traumatic exposure, anxiety disorders and symptoms, and suicidality (ideation and/or attempts). We also included "positive" mental health variables, such as self-esteem and empathy, but we reverse-coded all relationships so the effects could be combined appropriately. The school performance variables included dropout, grade point average, test scores, grades, and a composite school engagement variable. The crime and delinquency variables included criminal and delinquent behavior, property offenses, and violent offenses with and without weapons.

† The following search terms and variants were used in different combinations with the Boolean operators "AND" and "OR": bully, cyberbully, physical aggression, violent, forceful behavior, threat, shooting, weapon, hit, slap, pick on, tease, harass, aggression, victim, safe, theft crime, delinquency, vandalism, school, student, K-12 grade, peer, adolescent, wave, trajectory, prospective, time 1, pretest, pre-intervention, cohort, panel, observational, time series, repeated measures design, long-term, short term, temporal, month apart, month later, year later, follow up, antecedent, baseline, subsequent, criminal, delinquency, depression, anxiety, psychological, internalizing, externalizing, post-traumatic stress disorder, problem, disturbance, suicide, dropout, suspension, expulsion, fail, absenteeism, functioning, substance, alcohol, abuse, profile, structural equation modeling, latent, path analysis, parallel, growth, regression, linear, logistic, multinomial, HLM, hierarchical, random effects model, fixed effects model, predict, covariate, cross-lagged path, path model, mediator, moderator, pattern.

ProQuest Education Journals, ProQuest Social Science Journals, PsycINFO, PubMed (Medline), Social Sciences Abstracts (H.W. Wilson), CORDIS Library, CrimDoc (Criminology Library of Grey Literature), Grey Literature Database (Canadian), Social Care Online (UK), and the Social Science Research Network eLibrary. The final database searches were conducted on April 1, 2017.

To augment these searches, the reference lists of key review studies were backward and forward searched, and graduate students conducted hand searches of the journals *Child Development* and the *Journal of School Psychology*. After completing the searches, we uploaded the 21,693 found citations in a Zotero database. Using this software, duplicate citations were removed (i.e., citations found through searches of multiple databases), resulting in a total of 18,294 citations to screen (see Figure 1 for the full PRISMA flowchart).

Abstract screening. We developed an abstract screening tool and double-screened the abstracts using the free Abstrackr software (Wallace, Small, Brodley, Lau, & Trikalinos, 2012), an open-source, web-based abstract screening tool. All review team members, including the principal and co–principal investigators, research coordinator, graduate and undergraduate research assistants, and professional research assistants, screened abstracts. The vast number of studies identified in the screening round required the team to develop unique methods and, ultimately, best-practice recommendations for abstract screening large numbers of studies (see Polanin, Pigott, Espelage, & Grotpeter, 2019). A total of 3,145 abstracts were kept.

Full-text retrieval. Team members located full-text PDFs for all abstracts that screened in during the first round of screening, in preparation for a second round of screening using a full-text screening tool. We located a total of 2,903 full-text PDFs for full-text screening and 294 PDFs were not retrievable.

Full-text screening. The full-text PDFs were located and placed in a shared drive folder accessible to all team members. We developed a screening tool that was similar to, but more detailed than, the abstract screening tool. One team member screened each study, and one member of the project leadership team validated each coding decision. A total of 131 reports

were included for full-text coding; we report the reasons for exclusion in Figure 1.

Full-text coding. The codebook included five primary sections: study-level information, sample characteristics, data collection timing, predictor and outcome constructs, and effect sizes. For study-level information, we captured the study's country of origin, the study's scale, sampling design, and if it used a named dataset. For the study's sample, we captured the percentage of males, the percentage of white and nonwhite students, and the students' age and socioeconomic status. We also recorded the number of data collection waves and the amount of time between waves. For each predictor and outcome variable, we coded the following: how the measure was collected, who collected it, how many items were used, the measure's direction (i.e., whether a larger numerical value indicated a positive or negative meaning), and the measure's reliability. We considered a study "independent" when the sample was unique to a particular set of analyses. In other words, all the studies that used the Adolescent Health dataset were considered one "study" because the samples overlapped across research reports. All related reports, or one independent study, were coded by the same person at roughly the same time.

Meta-analyses. The data extraction and effect size estimation processes produced a dataset that allowed us to conduct meta-analyses. We estimated a random-effects model because we assumed the effects derived from a normal distribution and we wished to generalize the findings beyond the included studies. In addition, we estimated every available partial correlation within each study, resulting in dependent effect sizes. To account for the dependency, we estimated the random-effects model using robust variance estimation (Tanner–Smith, Tipton, & Polanin, 2016). For each of the overall analyses, we reported effect size heterogeneity through tau-squared and I-squared; we estimated each meta-analytic model using the *robumeta* R package (Fisher, Tipton, & Zhipeng, 2017).

One notable feature of this meta-analytic dataset is the variety of predictor and outcome variables. We sought to include a wide range of variables so we could examine and attempt to explain variation among the relations. For efficiency's sake, we categorized the predictors and outcomes into several groupings, ranging from the broadest to the narrowest. The results,

presented below, are organized in this way as well. We started by analyzing all predictors and all outcomes combined, and we then analyzed all predictors together, but we split the dataset by major outcome type (i.e., mental health, school performance, crime and delinquency). We refer to these analyses as the "overall" analyses. We then split the analyses by the perpetration or victimization perspective. For each, we examined the relations between all the school violence variables predicting outcome categories. We also unpacked the school violence and outcome constructs into their smaller measurements. For example, we examined the relation of bullying (and other variables) individually predicting the combined school performance measures and the combined school violence measures predicting individual school performance variables. We refer to these analyses as the "macro-relations." We then examined the individual school violence and individual outcome category relations (for example, bullying predicting depression). We refer to these analyses as the "micro-relations." For all the analyses, we assessed the relations separately for perpetration and victimization measurements. Thus, each analysis was conducted twice, once for perpetration, once for victimization.

Data Analysis and Findings

A total of 131 research reports from 114 independent studies were included. Within the 114 studies (number of effect sizes [*m*] = 765), we included 79 studies that measured a mental health (MH) outcome (*m* = 482), 30 studies that measured a school performance (SP) outcome (*m* = 142), and 31 studies that measured a crime or delinquency (CD) outcome (*m* = 133); some studies reported outcomes in multiple domains. Table 1 provides summary statistics for the included studies.

Overall Analyses

We first conducted the broadest possible analysis to answer the overall question, Does involvement in any form of school violence—as a perpetrator, victim, or witness—predict negative outcomes? As shown in Table 2, the resulting model supports the hypothesis that regardless of form of involvement or type of violence, school violence has deleterious consequences for students (r_p = 0.064, *SE* = 0.007, 95% CI[0.049, 0.078]). We next examined

the predictive relation between the general school violence variable and each of the three general outcome types. Involvement in school violence in any form significantly predicted poorer MH (r_p = 0.060, *SE* = 0.009, 95% CI[0.041, 0.078]) and SP (r_p = 0.049, *SE* = 0.013, 95% CI[0.023, 0.076]) and greater involvement in CD (r_p = 0.076, *SE* = 0.012, 95% CI[0.050, 0.101]). Heterogeneity statistics for each of the four models indicated significant variation (Overall: τ^2 = .005, I^2 = 76.78; MH: τ^2 = .007, I^2 = 82.99; SP: τ^2 = .004, I^2 = 75.12; CD: τ^2 = .005, I^2 = 84.59).

Perpetration Results

Perpetration: Macro-relations. We estimated an overall meta-analytic model to assess the longitudinal impact of perpetration of school violence (aggregated across all forms) on MH, SP, and CD outcomes (aggregated across all types). As shown in Table 3, the resulting model supports the hypothesis that perpetrating school violence, in any form, has a deleterious impact on students' lives over time (r_p = 0.063, *SE* = 0.011, 95% CI[0.042, 0.084]). We followed up this result by examining the overall impact of perpetration of school violence on each of the three broad outcome domains. The resulting estimated meta-analytic models provided statistically significant evidence that perpetration of school violence, in any form, has a specific negative impact on the overall MH (r_p = 0.048, *SE* = 0.016, 95% CI[0.015, 0.081]), SP (r_p = 0.056, *SE* = 0.016, 95% CI[0.023, 0.089]), and CD (r_p = 0.090, *SE* = 0.015, 95% CI[0.060, 0.120]) outcomes.

As shown in Table 4, models were estimated using specific types of school violence as predictors of the broad outcomes. Specifically, perpetration of aggression significantly predicted negative MH outcomes (r_p = 0.054, *SE* = 0.024, 95% CI[0.005, 0.104]), negative SP (r_p = 0.063, *SE* = 0.020, 95% CI[0.020, 0.107]), and greater involvement in CD (r_p = 0.110, *SE* = 0.022, 95% CI[0.063, 0.156]). Perpetration of bullying significantly predicted CD outcomes (r_p = 0.075, *SE* = 0.023, 95% CI[0.022, 0.128]), but not MH or SP outcomes. Perpetrating peer victimization* significantly predicted poorer SP (r_p = 0.046, *SE* = 0.001, 95% CI[0.046, 0.046]), but not MH or

* We defined peer victimization, also commonly labeled harassment or bullying, as physical, verbal, or psychological abuse of victims by perpetrators who intend to cause them harm (Olweus, 1993).

CD outcomes. The fighting perpetration variable did not significantly predict MH, SP, or CD outcomes.

We also examined the relation of the aggregated perpetration of school violence variable on specific types of outcome variables (Table 5). Among the MH variables, perpetration of school violence predicted higher levels of depression (r_p = 0.060, *SE* = 0.027, 95% CI[0.004, 0.116]) and lower levels of empathy (r_p = 0.066, *SE* = 0.012, 95% CI[0.009, 0.124]), but we found no statistically significant relations with anxiety, other negative internalizing problems, or self-esteem. Perpetration of school violence significantly predicted school days absent (r_p = 0.048, *SE* = 0.002, 95% CI[0.029, 0.068]), but not any of the specific SP variables. Among the CD variables, the aggregated perpetration of school violence variable significantly predicted engagement in later property offending (r_p = 0.057, *SE* = 0.019, 95% CI[0.007, 0.107]), violent offending without a weapon (r_p = 0.061, *SE* = 0.015, 95% CI[0.026, 0.097]), and self-reported general delinquency (r_p = 0.108, *SE* = 0.022, 95% CI[0.058, 0.158]).

Perpetration: Micro-relations. As available studies allowed, we estimated meta-analytic models for each type of school violence predicting each specific outcome variable. The results of the micro-relation analyses on the consequences of perpetrating school violence yielded several specific findings; significant results are presented in Table 6 and full results are reported in Appendix A). Perpetration of aggression predicted later higher levels of depression (r_p = 0.073, *SE* = 0.033, 95% CI[0.002, 0.144]), school dropout (r_p = 0.139, *SE* = 0.041, 95% CI[0.003, 0.275]), delinquency (r_p = 0.127, *SE* = 0.024, 95% CI[0.063, 0.191]), and violent offenses without a weapon (r_p = 0.067, *SE* = 0.012, 95% CI[0.026, 0.107]). Perpetration of bullying behavior predicted a trend toward lower grade point averages (r_p = 0.019, *SE* = 0.001, 95% CI[0.008, 0.030]). No other micro-relation observed had a statistically significant relationship.

Victimization Results

Victimization: Macro-relations. We estimated an overall meta-analytic model to assess the longitudinal impact of school violence victimization on MH, SP, or CD outcomes (aggregated across all types). As shown in Table 7, the resulting statistically significant model (r_p

= 0.059, *SE* = 0.008, 95% CI[0.042, 0.076]) supports the hypothesis that being victimized by school violence, in any form, has a deleterious impact on students' lives over time. We followed up this result by examining the overall impact of being victimized by school violence on each of the three broad outcome domains. The resulting estimated meta-analytic models provided statistically significant evidence that victimization by school violence, in any form, has a specific negative impact on MH (r_p = 0.060, *SE* = 0.009, 95% CI[0.043, 0.078]), but it may not share the same relationship with SP or CD.

As shown in Table 8, we estimated models using school violence victimization measures as predictors of two of the broad outcomes of MH or SP. Note that we did not observe relationships between school violence victimization and the CD outcomes. Being a victim of bullying (r_p = 0.068, *SE* = 0.019, 95% CI[0.027, 0.108]) or general peer victimization (r_p = 0.054, *SE* = 0.009, 95% CI[0.035, 0.072]) significantly predicted negative MH outcomes. Feeling unsafe at school predicted worse SP outcomes (r_p = 0.040, *SE* = 0.001, 95% CI[0.040, 0.040]), but fighting victimization predicted *better* MH outcomes as expressed by the inverse relationship (r_p = –0.011, *SE* = 0.001, 95% CI[–0.011, 0.011]. However, each of these values was derived from few effect sizes within only one study and therefore must be interpreted with acute caution.

We also examined the impact of the aggregated victimization by school violence variable on specific types of outcome variables, shown in Table 9. Among the MH variables, school violence victimization predicted higher rates of depression (r_p = 0.066, *SE* = 0.015, 95% CI[0.036, 0.096]) and other negative internalizing problems (r_p = 0.065, *SE* = 0.017, 95% CI[0.028, 0.103]). School violence victimization did not significantly predict any of the specific SP variables. No studies assessed school violence victimization predicting CD outcomes.

Victimization: Micro-relations. As available studies allowed, we estimated meta-analytic models for each type of school violence victimization predicting each specific outcome variable. The results of the micro-relation analyses on the consequences of being a victim of school violence yielded several specific findings; significant results are presented in Table 10 and full

results are reported in Appendix C. Being the recipient of general peer victimization predicted later higher levels of depression (r_p = 0.051, *SE* = 0.013, 95% CI[0.025, 0.078]) and other negative internalizing problems (r_p = 0.051, *SE* = 0.009, 95% CI[0.026, 0.077]); being the victim of bullying was related to later higher levels of depression (r_p = 0.074, *SE* = 0.026, 95% CI[0.009, 0.139]). The results also revealed an inverse relation between bullying victimization and later grade point average (r_p = –0.028, *SE* = 0.001, 95% CI[–0.030, –0.026]). The results did not reveal any additional statistically significant relations.

Multiple Predictor Meta-Regression and Sensitivity Analyses

We conducted multiple predictor meta-regression analyses for the results in each of the three outcome domains, separately and combined overall, to examine the relationships between study or measurement characteristics and effect sizes. In general, the results revealed few significant relationships and, most important, no clinically significant results (see Appendix C).

Implications for Criminal Justice Policy and Practice

Our findings clearly indicate experiences with school violence are related to deleterious outcomes in mental health, school performance, and crime and delinquency. Notably, we identified these results from regression models that control for confounding variables—and that are longitudinal. We believe this provides strong evidence, regardless of the person's perspective, that involvement in school violence leads to worsened future outcomes.

Addressing school violence, particularly perpetration, could make a significant impact on deterring other forms of crime/delinquency among youth and promote academic outcomes and mental health. Schools always have been viewed as places where youth can be deterred from delinquency. Theories such as social control theory, social learning theory, and social–ecological frameworks have identified schools as an important contextual influence on student behavior. Schools provide youths with the environment, interpersonal relationships, and academic instruction to regulate their own behaviors and form strong connections with others that deter the development of aggression and other deviant behaviors (Hirschi, 1969). More specifically, social control theory posits that individuals with a stronger bond to school communities are less likely

to engage in deviant or criminal behavior (Hirschi, 1969; Wiatrowski, Griswold, & Roberts, 1981). Schools are social institutions that can foster a sense of attachment, social bonds, and a personal commitment to engage in prosocial behaviors instead of aggression and/or antisocial, rule-breaking behaviors (Hirschi, 1969).

Conversely, schools also can be places where aggression and violence are modeled and promoted. Thus, scholars and policymakers increasingly are recognizing that improving school climate may prevent school safety issues and strengthen student mental health and academic achievement (Cohen & Espelage, 2020). The growing attention to the issue of school climate in practice, programming, and policy is best illustrated by its inclusion in the federal Every Student Succeeds Act of 2015 (ESSA) [see the U.S. Department of Education's ESSA website at https://www.ed.gov/essa]. Under *ESSA*, states are expected to collect data on school climate, providing a unique opportunity to understand how school violence is related to numerous academic and social outcomes. It would be important for future studies to be conducted that evaluate school climate interventions to address all types of school violence.

The impact of school violence on youth outcomes has been of great interest to scholars and policymakers for many decades. In an attempt to summarize the vast literature on school violence and psychosocial and academic outcomes, we conducted this meta-analysis with longitudinal studies and used a regression-based analysis. Perhaps the most intriguing result of this meta-analysis is the finding that perpetration of school violence was strongly associated with numerous mental health, academic performance, and involvement in criminal or delinquent behaviors, whereas victimization was largely associated with only mental health outcomes. Strategies aiming to prevent school violence should attend to the potential compromised mental health of youths who are targets and should consider youth perpetration of school violence as a result of disconnection from school and/or devaluation of policies and laws.

We know youths are at risk for suicidal behaviors when they lack the skills to manage overwhelming emotions, feel powerless to stop the victimization or feel the need to perpetrate violence to manage their own victimization, perceive their school environment as unsupportive,

and do not think others can help them stop the bullying (Ybarra, Espelage, & Mitchell, 2014). Research on prevention programs that utilize social–emotional learning approaches to teach skills related to emotion-regulation and use of social support, and that address victimization, are likely to affect the rates of suicidal behavior, because they can potentially decrease victimization experiences and provide youth with the skills to cope better with these experiences. However, it is also clear that social–emotional programs must be situated within a comprehensive schoolwide approach that addresses policies, trains teachers to respond effectively to bullying, and cultivates a supportive and safe environment (Espelage, 2012).

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Tables

Table 1. Summary statistics of included studies

Variable	Summary Statistic
Publication Status	
Published	90 (79%)
Unpublished	24 (21%)
Design	
Random	21 (19%)
Convenience	92 (81%)
Location	
U.S.	74 (65%)
Non–U.S.	39 (35%)
Scale	
Local	83 (73%)
Nonlocal	30 (27%)
Socioeconomic Status	
Low (1)	34 (30%)
Middle–low (2)	31 (27%)
Middle (3)	34 (30%)
Middle–high (4)	11 (10%)
High (5)	3 (3%)
Funding	
Funded	55 (49%)
Not-funded	58 (51%)
Percentage Male	52%
Percentage Nonwhite	41%
Mean Age	11.4
Mean Time Between Measurements	31.7

Note: $n = 114$.

Table 2. Aggregated school violence variables predicting aggregated outcome variables

Predictor Variable	Outcome Variable	Number of Studies	Number of Effect Sizes	Beta	Standard Error	CI (Lower)	CI (Upper)	SS
All school violence	All combined	114	765	0.064	0.007	0.049	0.078	**
All school violence	All mental health	79	482	0.060	0.009	0.041	0.078	**
All school violence	All school performance	30	142	0.049	0.013	0.023	0.076	**
All school violence	All crime/ delinquency	31	133	0.076	0.012	0.050	0.101	**

Notes: CI = confidence interval; SS = statistical significance; * = $p < .05$; ** = $p < .01$.

Table 3. Aggregated perpetration of school violence variables predicting aggregated outcome variables

Predictor Variable	Outcome Variable	Number of Studies	Number of Effect Sizes	Beta	Standard Error	CI (Lower)	CI (Upper)	SS
All school violence	All combined	67	365	0.063	0.011	0.042	0.084	**
All school violence	All mental health	36	169	0.048	0.016	0.015	0.081	**
All school violence	All school performance	23	93	0.056	0.016	0.023	0.089	**
All school violence	All crime/ delinquency	27	103	0.090	0.015	0.060	0.120	**

Notes: CI = confidence interval; SS = statistical significance; * = $p < .05$; ** = $p < .01$.

Table 4. Specific forms of school violence perpetration predicting aggregated outcome variables

Specific Predictor Variable	Aggregated Outcome Variable	Number of Studies	Number of Effect Sizes	Beta	Standard Error	CI (Lower)	CI (Upper)	SS
Aggression	All mental health	25	55	0.054	0.024	0.005	0.104	*
Fighting	All mental health	3	38	0.007	0.020	–0.097	0.111	
Bullying	All mental health	9	63	0.046	0.026	–0.016	0.107	
Peer victimization	All mental health	2	13	0.050	0.043	–0.492	0.592	
Aggression	All school performance	18	55	0.063	0.020	0.020	0.107	**
Fighting	All school performance	3	16	0.067	0.056	–0.190	0.324	
Bullying	All school performance	4	19	0.005	0.007	–0.019	0.029	
Peer victimization	All school performance	1	3	0.046	0.001	0.046	0.046	**
Aggression	All crime/delinquency	18	46	0.110	0.022	0.063	0.156	**
Bullying	All crime/delinquency	12	56	0.075	0.023	0.022	0.128	*

Notes: CI = confidence interval; SS = statistical significance; * = $p < .05$; ** = $p < .01$; relations with only 1 effect size were excluded.

Table 5. Aggregated school violence perpetration predicting specific outcome variables

Aggregated Predictor Variable	Specific Outcome Variable	Number of Studies	Number of Effect Sizes	Beta	Standard Error	CI (Lower)	CI (Upper)	SS
All school violence	MH: Depression	25	83	0.060	0.027	0.004	0.116	*
All school violence	MH: Anxiety	5	9	0.009	0.004	–0.003	0.021	
All school violence	MH: Other negative internalizing	8	18	0.060	0.032	–0.018	0.138	
All school violence	MH: Self-esteem	6	26	–0.024	0.027	–0.103	0.056	
All school violence	MH: Suicidal ideation	2	3	0.030	0.004	–0.022	0.083	
All school violence	MH: Empathy	3	30	0.066	0.012	0.009	0.124	*
All school violence	SP: GPA or grades	8	41	0.030	0.032	–0.047	0.107	
All school violence	SP: Standardized tests	6	15	0.042	0.034	–0.046	0.130	
All school violence	SP: School days absent	2	3	0.048	0.002	0.029	0.068	*
All school violence	SP: Graduation	3	7	0.082	0.066	–0.210	0.373	
All school violence	SP: Dropout	4	18	0.115	0.034	–0.040	0.269	
All school violence	SP: Disengagement from school	4	4	0.052	0.043	–0.107	0.211	
All school violence	SP: Suspension	3	5	0.075	0.102	–0.559	0.709	
All school violence	CD: General crime	6	16	0.153	0.067	–0.022	0.327	
All school violence	CD: Property offenses	8	19	0.057	0.019	0.007	0.107	*
All school violence	CD: Violent offenses without a weapon	11	32	0.061	0.015	0.026	0.097	**
All school violence	CD: Violent offenses with a weapon	2	5	0.145	0.040	–0.366	0.656	
All school violence	CD: General self-reported delinquency	11	28	0.108	0.022	0.058	0.158	**

Notes: CI = confidence interval; SS. = statistical significance; * = $p < .05$; ** = $p < .01$; "Violent offenses" refers specifically to the subcategory of violent offenses without a weapon; "Other internalizing" refers to other negative internalizing disorders (i.e., not depression, anxiety, or PTSD); relations with only 1 effect size were excluded.

Table 6. Specific forms of school violence perpetration predicting specific outcome variables: Significant results

Micro-relation Combination (Predictor–Outcome)	Number of Studies	Number of Effect Sizes	Beta	Standard Error	CI (Lower)	CI (Upper)	SS
Aggression–depression	17	32	0.073	0.033	0.002	0.144	*
Aggression–school dropout	4	18	0.139	0.041	0.003	0.275	*
Bullying–grade point average	2	14	0.019	0.001	0.008	0.030	**
Aggression–delinquency	7	10	0.127	0.024	0.063	0.191	**
Aggression–violent offenses (without a weapon)	6	12	0.067	0.012	0.026	0.107	*

Notes: CI = confidence interval; SS = statistical significance; * = $p < .05$; ** = $p < .01$; "Violent offenses" refers specifically to the subcategory of violent offenses without a weapon; "Other int." refers to other negative internalizing disorders (i.e., not depression, anxiety, or PTSD); relations with fewer than 2 studies or 4 effect sizes were excluded.

Table 7. Aggregated school violence victimization variables predicting aggregated outcome variables

Predictor Variable	Outcome Variable	Number of Studies	Number of Effect Sizes	Beta	Standard Error	CI (Lower)	CI (Upper)	SS
All school violence	All combined	66	364	0.059	0.008	0.042	0.076	**
All school violence	All mental health	58	293	0.060	0.009	0.043	0.078	**
All school violence	All school performance	12	46	0.019	0.009	–0.004	0.043	
All school violence	All crime/ delinquency	9	25	0.039	0.023	–0.015	0.093	

Notes: CI = confidence interval; SS = statistical significance; * = $p < .05$; ** = $p < .01$.

Table 8. Specific forms of school violence victimization predicting aggregated outcome variables

Specific Predictor Variable	Aggregated Outcome Variable	Number of Studies	Number of Effect Sizes	Beta	Standard Error	CI (Lower)	CI (Upper)	SS
Aggression	All mental health	3	8	0.121	0.068	–0.201	0.443	
Fighting	All mental health	1	4	–0.011	0.001	–0.011	–0.011	**
Bullying	All mental health	16	111	0.068	0.019	0.027	0.108	**
Peer victimization	All mental health	38	169	0.054	0.009	0.035	0.072	**
Feeling unsafe at school	All school performance	1	3	0.040	0.000	0.040	0.040	**
Bullying	All school performance	4	18	–0.011	0.014	–0.065	0.044	
Peer victimization	All school performance	7	25	0.031	0.016	–0.017	0.078	

Notes: CI = confidence interval; SS = statistical significance; * = $p < .05$; ** = $p < .01$; relations with only 1 effect size were excluded.

Table 9. Aggregated school violence victimization predicting specific outcome variables

Aggregated Predictor Variable	Specific Outcome Variable	Number of Studies	Number of Effect Sizes	Beta	Standard Error	CI (Lower)	CI (Upper)	SS
All school violence	MH: Depression	34	115	0.066	0.015	0.036	0.096	**
All school violence	MH: Anxiety	10	27	0.043	0.018	–0.001	0.086	
All school violence	MH: Other negative internalizing	18	65	0.065	0.017	0.028	0.103	**
All school violence	MH: Self-esteem	9	43	0.059	0.026	–0.004	0.121	
All school violence	MH: Suicidal ideation	4	29	0.045	0.015	–0.005	0.095	
All school violence	MH: Empathy	2	14	–0.008	0.022	–0.287	0.271	
All school violence	SP: GPA or grades	8	32	0.016	0.015	–0.027	0.058	
All school violence	SP: School days absent	2	2	0.035	0.023	–0.252	0.323	
All school violence	SP: Acad. Engagement	5	10	0.034	0.024	–0.038	0.107	

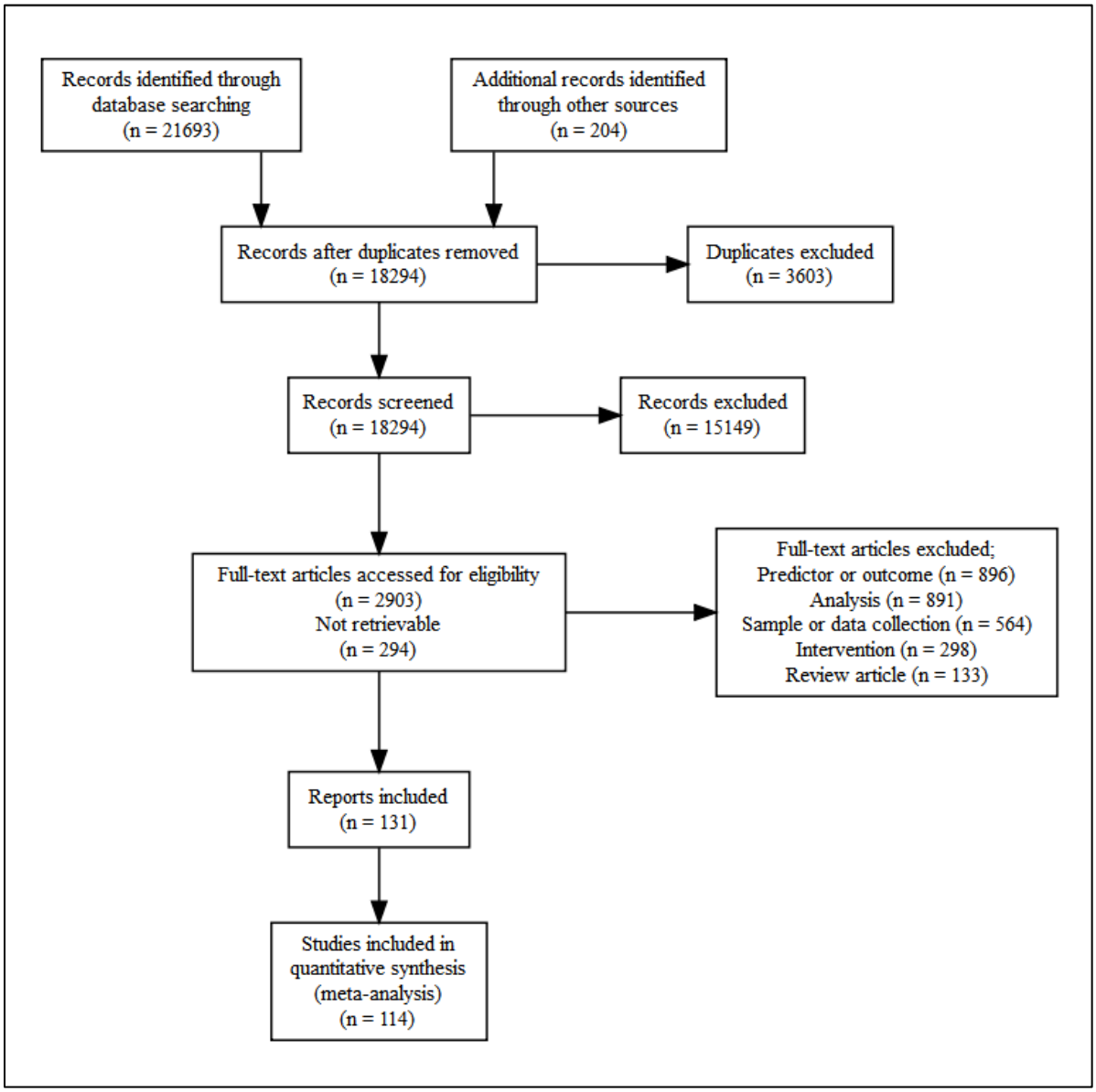
Notes: CI = confidence interval; SS. = statistical significance; * = $p < .05$; ** = $p < .01$; "Violent offenses" refers specifically to the subcategory of violent offenses without a weapon; "Other internalizing" refers to other negative internalizing disorders (i.e., not depression, anxiety, or PTSD); relations with only 1 effect size were excluded.

Table 10. Specific forms of school violence victimization predicting specific outcome variables: Significant results

Micro-relation Combination (Predictor– Outcome)	Number of Studies	Number of Effect Sizes	Beta	Standard Error	CI (Lower)	CI (Upper)	SS
Bully victimization–depression	7	36	0.074	0.026	0.009	0.139	*
Peer victimization–depression	25	74	0.051	0.013	0.025	0.078	**
Peer victimization–other negative internalizing problems	9	17	0.051	0.009	0.026	0.077	**
Bully victimization–grade point average	2	14	–0.028	0.000	–0.030	–0.026	**

Notes: CI = confidence interval; SS = statistical significance; * = $p < .05$; ** = $p < .01$; "Violent offenses" refers specifically to the subcategory of violent offenses without a weapon; "Other int." refers to other negative internalizing disorders (i.e., not depression, anxiety, or PTSD); relations with fewer than 2 studies or 4 effect sizes were excluded.

Figure 1. PRISMA Flowchart



Appendices

Appendix A. Specific forms of school violence perpetration predicting specific outcome variables: Full results

Micro-relation Combination (Predictor–Outcome)	Number of Studies	Number of Effect Sizes	Beta	Standard Error	CI (Lower)	CI (Upper)	SS
Aggression–anxiety	3	6	0.007	0.006	–0.024	0.038	
Aggression–depression	17	32	0.073	0.033	0.002	0.144	*
Bullying–depression	6	33	0.018	0.009	–0.005	0.041	
Fighting–depression	3	16	–0.003	0.016	–0.081	0.076	
Bullying–empathy	3	16	0.049	0.019	–0.034	0.133	
Fighting–empathy	2	14	0.061	0.017	–0.156	0.278	
Aggression–other negative internalizing	6	10	0.044	0.042	–0.064	0.153	
Bullying–other negative internalizing	2	7	0.150	0.224	–2.693	2.993	
Aggression–self-esteem	3	4	–0.065	0.073	–0.399	0.268	
Fighting–self-esteem	2	8	–0.011	0.009	–0.130	0.107	
Aggression–school dropout	4	18	0.139	0.041	0.003	0.275	*
Aggression–grade point average	5	12	0.031	0.046	–0.097	0.158	
Bullying–grade point average	2	14	0.019	0.001	0.008	0.030	**
Fighting–grade point average	2	14	0.011	0.048	–0.601	0.623	
Aggression–school grades	2	5	0.068	0.090	–1.074	1.209	
Aggression–test scores	6	13	0.052	0.031	–0.029	0.133	
Aggression–general crime	3	6	0.283	0.074	–0.054	0.621	
Bullying–general crime	4	10	0.026	0.016	–0.059	0.111	

Aggression–delinquency	7	10	0.127	0.024	0.063	0.191	**
Bullying–delinquency	5	18	0.084	0.037	–0.023	0.192	
Aggression–property offenses	5	14	0.124	0.072	–0.078	0.326	
Bullying–property offenses	3	4	0.028	0.007	–0.025	0.081	
Aggression–violent offenses (without a weapon)	6	12	0.067	0.012	0.026	0.107	*
Bullying–violent offense (without a weapon)	6	20	0.066	0.026	–0.004	0.135	

Notes: CI = confidence interval; SS = statistical significance; * = $p < .05$; ** = $p < .01$; "Violent offenses" refers specifically to the subcategory of violent offenses without a weapon; "Other int." refers to other negative internalizing disorders (i.e., not depression, anxiety, or PTSD); relations with fewer than 2 studies or 4 effect sizes were excluded.

Appendix B. Specific forms of school violence victimization predicting specific outcome variables: Full results

Micro-relation Combination (Predictor–Outcome)	Number of Studies	Number of Effect Sizes	Beta	Standard Error	CI (Lower)	CI (Upper)	SS
Bully victimization–anxiety	2	7	0.049	0.031	–0.350	0.449	
Peer victimization–anxiety	8	20	0.027	0.019	–0.021	0.075	
Bully victimization–depression	7	36	0.074	0.026	0.009	0.139	*
Peer victimization–depression	25	74	0.051	0.013	0.025	0.078	**
Bully victimization–other negative internalizing problems	6	45	0.080	0.041	–0.029	0.189	
Peer victimization–other negative internalizing problems	9	17	0.051	0.009	0.026	0.077	**
Bully victimization–self-esteem	2	10	–0.002	0.024	–0.307	0.304	
Peer victimization–self-esteem	7	28	0.038	0.024	–0.022	0.098	
Bully victimization–suicide ideation	2	5	0.057	0.024	–0.250	0.365	
Peer victimization–suicide ideation	2	24	0.023	0.004	–0.029	0.075	
Peer victimization–school engagement	3	7	0.021	0.025	–0.111	0.154	
Bully victimization–grade point average	2	14	–0.028	0.000	–0.030	–0.026	**
Peer victimization–grade point average	5	17	0.061	0.045	–0.068	0.190	
Peer victimization–property offenses	2	4	0.010	0.006	–0.071	0.092	

Notes: CI = confidence interval; SS = statistical significance; * = $p < .05$; ** = $p < .01$;"Violent offenses" refers specifically to the subcategory of violent offenses without a weapon; "Other int." refers to other negative internalizing disorders (i.e., not depression, anxiety, or PTSD); relations with fewer than 2 studies or 4 effect sizes were excluded.

Appendix C. Multiple meta-regression covariate analyses

Overall Analyses

	Model1_Estimate	Model1_CI	Model2_Estimate	Model2_CI	Model3_Estimate	Model3_CI	Model4_Estimate	Model4_CI	Full_Model_Estimate	Full_Model_CI
Intercept	0.06* * * (0.01)	0.03, 0.09	0.1* * (0.04)	0.02, 0.18	0.06* * * (0.01)	0.04, 0.09	0.07* * * (0.01)	0.04, 0.09	0.07* * * (0.01)	0.05, 0.09
U.S. vs. Non–U.S.	0.02 (0.01)	–0.01, 0.05								
Local vs. Nonlocal	0 (0.01)	–0.02, 0.03								
Random vs. Convenience	–0.04* * * (0.01)	–0.07, –0.02							–0.04* * (0.01)	–0.06, –0.01
Published vs. Nonpublished	–0.02 (0.02)	–0.06, 0.02								
Funded vs. Nonfunded	0.02 (0.01)	–0.01, 0.04								
Avg. Age			0 (0)	–0.01, 0						
Perc. Males			–0.01 (0.02)	–0.06, 0.03						
SES			0 (0.01)	–0.02, 0.01						
Perc. Nonwhite			–0.01 (0.03)	–0.08, 0.05						
Measure: Vict.					0 (0.02)	–0.03, 0.03				
Measure: Witn.					–0.01 (0.03)	–0.11, 0.09				
Survey vs. Other Method					–0.01 (0.01)	–0.04, 0.02				
Report: Adult					0.01 (0.02)	–0.03, 0.05				
Report: Peer					0.01 (0.02)	–0.04, 0.06				
Time Between Measures					0 (0.01)	–0.02, 0.03				
Model Included Age							–0.02 (0.01)	–0.05, 0.01		
Model Included Gender							0.01 (0.02)	–0.02, 0.04		
Model Included Race							–0.02 (0.02)	–0.05, 0.01		
Model Included SES							0.01 (0.01)	–0.02, 0.04		
Model Included Ext.							0 (0.02)	–0.03, 0.03		
Model Included Int.							0 (0.01)	–0.03, 0.02		

Notes: Reference groups: U.S., Local, Random, Published, Funded; Measure: Perpetration; Report: Self; Model Included = "No."

Mental Health

	Model1_Estimate	Model1_CI	Model2_Estimate	Model2_CI	Model3_Estimate	Model3_CI	Model4_Estimate	Model4_CI	Full_Model_Estimate	Full_Model_CI
Intercept	0.04* * * (0.01)	0.01, 0.07	0.07 (0.04)	-0.02, 0.16	0.05* * (0.02)	0.01, 0.09	0.05* * * (0.02)	0.02, 0.09	0.07* * * (0.01)	0.05, 0.09
U.S. vs. Non-U.S.	0.02 (0.02)	–0.01, 0.06								
Local vs. Nonlocal	0.01 (0.02)	–0.03, 0.04								
Random vs. Convenience	–0.05* * (0.02)	–0.08, –0.01							–0.04* * (0.02)	–0.07, –0.01
Published vs. Nonpublished	–0.01 (0.03)	–0.07, 0.05								
Funded vs. Nonfunded	0.03* (0.02)	–0.01, 0.07								
Avg. Age			0 (0)	0, 0.01						
Perc. Males			–0.05* (0.03)	–0.1, 0.01						
SES			0 (0.01)	–0.02, 0.02						
Perc. Nonwhite			0.01 (0.04)	–0.07, 0.08						
Measure: Vict.					0.01 (0.02)	–0.04, 0.05				
Measure: Witn.					0.02 (0.05)	–0.18, 0.22				
Survey vs. Other Method					–0.01 (0.02)	–0.07, 0.04				
Report: Adult					0.01 (0.02)	–0.04, 0.06				
Report: Peer					0 (0.03)	–0.07, 0.07				
Time Between Measures					–0.01 (0.01)	–0.03, 0.01				
Model Included Age							–0.02 (0.02)	–0.06, 0.02		
Model Included Gender							0.02 (0.02)	–0.02, 0.07		
Model Included Race							–0.03* (0.02)	–0.07, 0		
Model Included SES							0 (0.02)	–0.04, 0.04		
Model Included Ext.							0.02 (0.02)	–0.03, 0.06		
Model Included Int.							0 (0.02)	–0.04, 0.04		

Notes: Reference groups: U.S., Local, Random, Published, Funded; Measure: Perpetration; Report: Self; Model Included = "No."

School Performance

	Model1_Estimate	Model1_CI	Model2_Estimate	Model2_CI	Model3_Estimate	Model3_CI	Model4_Estimate	Model4_CI	Full_Model_Estimate	Full_Model_CI
Intercept	0.06* * (0.03)	0, 0.12	0.17 (0.1)	–0.04, 0.37	0.02 (0.03)	–0.04, 0.08	0.09* * * (0.03)	0.03, 0.15	0.14* * * (0.04)	0.05, 0.23
U.S. vs. Non–U.S.	0.01 (0.04)	–0.11, 0.13								
Local vs. Nonlocal	0.04 (0.03)	–0.02, 0.11								
Random vs. Convenience	–0.06 (0.03)	–0.14, 0.02								
Published vs. Nonpublished	–0.01 (0.03)	–0.08, 0.06								
Funded vs. Nonfunded	–0.02 (0.02)	–0.07, 0.03								
Avg. Age			–0.01* * (0)	–0.02, 0					–0.01* * (0)	–0.02, 0
Perc. Males			–0.04 (0.06)	–0.2, 0.13						
SES			0 (0.02)	–0.04, 0.05						
Perc. Nonwhite			–0.03 (0.08)	–0.21, 0.15						
Measure: Vict.					0 (0.03)	–0.06, 0.05				
Measure: Witn.					0.02 (0.03)	–0.22, 0.26				
Survey vs. Other Method					0.03 (0.03)	–0.05, 0.11				
Report: Adult					0.07 (0.04)	–0.02, 0.15				
Report: Peer					0.02 (0.03)	–0.05, 0.1				
Time Between Measures					0.01 (0.02)	–0.03, 0.06				
Model Included Age							–0.01 (0.04)	–0.11, 0.09		
Model Included Gender							–0.02 (0.03)	–0.08, 0.05		
Model Included Race							0.01 (0.03)	–0.07, 0.08		
Model Included SES							0.01 (0.04)	–0.09, 0.12		
Model Included Ext.							–0.03 (0.03)	–0.09, 0.02		
Model Included Int.							–0.05* (0.03)	–0.11, 0.01		

Notes: Reference groups: U.S., Local, Random, Published, Funded; Measure: Perpetration; Report: Self; Model Included = "No."

Crime or Delinquency

	Model1_Estimate	Model1_CI	Model2_Estimate	Model2_CI	Model3_Estimate	Model3_CI	Model4_Estimate	Model4_CI	Full_Model_Estimate	Full_Model_CI
Intercept	0.07* * (0.02)	0.02, 0.13	0.15 (0.17)	–0.25, 0.56	0.09* * * (0.02)	0.05, 0.14	0.1* * (0.03)	0.02, 0.17	0.09* * * (0.02)	0.06, 0.13
U.S. vs. Non–U.S.	0.05* (0.03)	–0.01, 0.11								
Local vs. Nonlocal	–0.03 (0.03)	–0.09, 0.03								
Random vs. Convenience	–0.03 (0.02)	–0.07, 0.02								
Published vs. Nonpublished	0.01 (0.04)	–0.09, 0.12								
Funded vs. Nonfunded	–0.01 (0.03)	–0.07, 0.05								
Avg. Age			0 (0.01)	–0.02, 0.02						
Perc. Males			–0.02 (0.07)	–0.18, 0.15						
SES			–0.02 (0.03)	–0.09, 0.06						
Perc. Nonwhite			–0.06 (0.06)	–0.2, 0.07						
Measure: Vict.					–0.07* * (0.02)	–0.11, –0.02			–0.07* * (0.02)	–0.11, –0.02
Measure: Witn.					–0.13 (0.08)	–0.33, 0.06			–0.08* * * (0.02)	–0.11, –0.04
Survey vs. Other Method					0 (0.02)	–0.05, 0.05				
Report: Adult					–0.02 (0.03)	–0.09, 0.06				
Report: Peer					0.07 (0.08)	–0.16, 0.29				
Time Between Measures					0.01 (0.02)	–0.02, 0.04				
Model Included Age							–0.03 (0.04)	–0.1, 0.05		
Model Included Gender							–0.02 (0.03)	–0.07, 0.04		
Model Included Race							0.01 (0.06)	–0.11, 0.14		
Model Included SES							–0.03 (0.04)	–0.12, 0.07		
Model Included Ext.							0.01 (0.03)	–0.06, 0.08		
Model Included Int.							0.02 (0.03)	–0.04, 0.08		

Notes: Reference groups: U.S., Local, Random, Published, Funded; Measure: Perpetration; Report: Self; Model Included = "No."