



School Bullying in Primary and Secondary Education: Dynamics, Impacts, and Evidence-Based Interventions

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ABSTRACT

This comprehensive review synthesizes recent international empirical work on school bullying, systematically integrating theoretical frameworks, measurement methodologies, prevalence patterns, and multi-level socio-ecological outcomes. Specifically, this paper explicitly bridges Social Identity Theory and Moral Disengagement to explain the psychological mechanisms driving participant roles and chronic perpetration. It further examines the boundaryless reach of cyberbullying, characterizing its unique socio-technical dynamics and presenting targeted digital interventions, such as value-based digital citizenship education, real-time computational bystander bots, and modernized policy frameworks. Given the mixed evidence of universal programs, this paper dedicatedly examines implementation realities in low-resource settings, validating peer-led 'Agents of Change' networks and exploring cross-cultural adaptation challenges. To establish a robust business case for stakeholders, the paper provides an economic synthesis of cost-effectiveness and return-on-investment across universal programs (such as Olweus and KiVa) and localized peer-led alternatives. Additionally, gender-specific neurodevelopmental, somatic, and psychosocial trajectories are mapped to inform gender-responsive pedagogy (GRP). Ultimately, this review serves as a roadmap for researchers, educators, and policymakers to move beyond fragmented prevention models toward robust, data-driven, and culturally sensitive multi-sectoral frameworks.

Keywords: school bullying, victimization, gender-responsive pedagogy, cyberbullying, cost-effectiveness, measurement invariance.

INTRODUCTION

School bullying represents a critical public health and educational challenge globally. To systematically unpack this phenomenon, this review synthesizes recent international empirical work, establishing a rigorous, integrated framework for understanding peer victimization, classroom climates, and socio-ecological intervention dynamics. Historically treated as a localized behavioral nuisance, contemporary research redefines bullying as a complex, multi-level socio-ecological system. It operates within a nested hierarchy, stretching from individual neurodevelopmental predispositions to family dynamics, peer networks, classroom environments, and broader cultural and national legislative structures. By examining this continuum, this paper offers an evaluative synthesis of evidence-based prevention modalities, presenting a detailed critique of current methodologies while identifying actionable recommendations for policy, research, and classroom practice.

Scope and Typology of Bullying

Bullying is defined as repeated, intentional aggressive behavior characterized by a power imbalance (Olweus, 1993). In school settings, it manifests in distinct typologies requiring physical and psychological measurement. Direct forms include physical bullying (e.g., hitting, pushing, or playground aggression) and verbal abuse (e.g., insults and threats), both representing immediate, frequent harassment (Al-Ani et al., 2024; Hakim & Baihaqi, 2024; İpek & Taştan, 2025). Covert forms include relational bullying, such as social exclusion, rumor spreading, or relationally manipulative actions like forced borrowing. This relational aggression is difficult for teachers to identify but severely threatens long-term peer alignment and social self-efficacy (İpek & Taştan,



2025; Palameta et al., 2025). Cyberbullying utilizes digital spaces to harass or shame peers, creating unique virtual victimization pathways (Kurt et al., 2025). Finally, persistent bullying denotes entrenched, chronic patterns of perpetration that resist standard disciplinary actions and are often sustained by unique interpersonal dynamics and critical 'turning points' (Green et al., 2024).

LITERATURE REVIEW

Theoretical Foundations: Integrating Social Identity Theory and Moral Disengagement

To systematically unpack peer victimization, recent literature integrates two foundational frameworks: Social Identity Theory (SIT) and the cognitive model of Moral Disengagement. SIT explains how students calibrate social self-efficacy and group belonging, forming in-groups and out-groups in classroom networks where they occupy distinct participant roles: perpetrators (seeking dominance and prestige), victims (who are marginalized), defenders (who support peers), and dual bully-victims (volatile, isolated students exhibiting both aggressive and victimized behaviors) (Alajbeg & Kovačević, 2025; Saripanidis et al., 2025). Concurrently, Moral Disengagement explains how perpetrators bypass internal moral sanctions through cognitive rationalizations such as moral justification, euphemistic labeling, displacement/diffusion of responsibility, and blaming the victim (Alajbeg & Kovačević, 2025). This allows them to pursue social power without experiencing self-condemnation.

These frameworks interact dynamically to shape classroom-level victimization patterns. SIT explains why low classroom cooperation escalates a student's odds of becoming a dual bully-victim (Landaeta-Torres et al., 2024); lack of reciprocity signals severe exclusion, destroying self-efficacy and triggering reactive, defensive aggression. Meanwhile, the cognitive mechanisms of moral disengagement are heavily dictated by classroom social structures. Classrooms lacking strong injunctive anti-bullying norms or suffering from teacher non-intervention provide fertile ground for perpetrators to diffuse responsibility and blame the victim (Devleeschouwer et al., 2025; Muñoz-Fernández et al., 2025), lowering the cognitive cost of bullying while socially penalizing active bystander defense.

Common Measurement Instruments and Approaches

Empirical measurement of school bullying relies on diverse psychometric instruments. The Olweus Bully/Victim Questionnaire is a globally widespread self-report tool for capturing behavioral frequencies across physical, verbal, and relational domains (Qiu et al., 2024; Tang et al., 2024; Zhang et al., 2025). The Florence Bullying-Victimization Scales (FBVS) offer a robust unidimensional structure and measurement invariance across gender and grade, making them a preferred instrument for demographic comparisons (Klocek et al., 2024). The Illinois Bullying Scale and the Participant Role Questionnaire (PRQ) evaluate specific participant-role profiles within classroom networks, distinguishing between active assistants, reinforcers, passive outsiders, and defenders (Landaeta-Torres et al., 2024; Saripanidis et al., 2025). For virtual harassment, assessments typically utilize specialized digital inventories like the Revised Cyber Bullying Inventory-II (RCBI-II) (Kurt et al., 2025). Psychosocial and clinical screenings, such as the General Health Questionnaire (GHQ-28), the BarOn Emotional Quotient Inventory (BarOn EQ-i:YV) (Lubbe et al., 2025), and localized psychosomatic scales (Palameta et al., 2025), further augment these behavioral measures.

Scale Dimensionality and Invariance Testing

Psychometric robustness varies considerably across bullying research. While formal validation of the FBVS utilized advanced Multidimensional Item Response Theory (MIRT) and Confirmatory Factor Analysis (CFA) to establish rigorous measurement invariance across gender and grade (Klocek et al., 2024), much of the applied literature relies on legacy instruments or unvalidated localized adaptations. Such studies often omit measurement invariance testing, which restricts cross-contextual generalizability and risks biased inferences (Johander et al., 2024; Qiu et al., 2024; Tang et al., 2024). Establishing measurement invariance is a non-negotiable prerequisite for cross-cultural research; without it, differences in reporting rates may reflect cultural variations in item interpretation rather than true differences in bullying prevalence (Klocek et al., 2024).



Cyberbullying Dynamics: Socio-Technical Features and Online-Specific Interventions

Cyberbullying is a distinct phenomenon characterized by unique socio-technical features that amplify psychological severity and alter peer dynamics. First, 24/7 connectivity ensures digital victimization follows students directly into their homes, eroding physical safe havens and causing continuous, inescapable distress (Campbell et al., 2012; Kowalski et al., 2014). Second, online anonymity removes immediate socio-emotional feedback (e.g., seeing the victim's pain), lowering the cognitive threshold for moral disengagement and emboldening perpetrators (Sticca & Perren, 2013). Third, content virality and a permanent digital footprint create a chronic, repeating trauma, fundamentally altering SIT dynamics by moving peer prestige and dominance from physical playground exclusion to highly visible, viral digital harassment (Ethica Societas, 2025; SCU Research, 2024).

Clinical assessments confirm these severe correlates. In clinical outpatient samples, 21% of adolescents with high cyberbullying scores were regular tobacco smokers, strongly correlating with comorbid disruptive behavior disorders and substance abuse (Kurt et al., 2025). These dynamics explain the 'therapeutic ceilings' of traditional programs; longitudinal KiVa evaluations in Finland showed that 27% of victimized students experienced no clinical improvement, with failures heavily driven by extensive off-campus cyber-victimization and social isolation that evade school monitoring (Johander et al., 2024).

Consequently, cyberbullying demands online-specific strategies: (a) value-based digital citizenship education focusing on empathy and digital footprints rather than mere technical 'e-safety' checklists (Ethica Societas, 2025; SCU Research, 2024); (b) computational interventions like real-time automated bystander bots that detect insults and prompt pro-social reflection (arXiv, 2026); and (c) modern school policies extending jurisdiction to off-campus digital harassment that verifiably disrupts the educational environment or threatens student safety.

RESEARCH METHODOLOGY

This paper operates as a systematic review and methodological critique of contemporary empirical studies on school bullying. To capture the multi-level nature of peer victimization, the evaluated research designs span a comprehensive methodological continuum, including cross-sectional population surveys, longitudinal cohorts utilizing advanced Latent Class Growth Analysis (LCGA), cluster-randomized controlled trials (RCTs), qualitative phenomenological studies, and supervised machine learning applications (Al-Ani et al., 2024; Green et al., 2024; Palameta et al., 2025; Qiu et al., 2024; Zhang et al., 2025).

By synthesizing data across these paradigms, this study evaluates global school bullying dynamics and prevention program effectiveness. However, methodological heterogeneity introduces barriers to direct meta-analytic pooling. Empirical research suffers from contrasting recall windows (ranging from past-month prevalence to lifetime rates), diverse sample stratifications, and varying analytical assumptions, which limits direct comparability. This highlights the critical need for future measurement standardization, harmonized screening schedules, and rigorous reporting of psychometric properties across international trials (Johander et al., 2024; Muñoz-Fernández et al., 2025).

RESULTS AND DISCUSSION

Global Prevalence and Demographic Variations

Empirical prevalence data reject the notion of a uniform global rate of school bullying, highlighting instead deep geographic, cultural, and design-driven variations. In the Middle East, urban primary-school mapping in Baghdad revealed a point prevalence of 14.6% for general victimization within a sample of 1,000 pupils (with 2.9% pure bullies and 5.9% dual bully-victims), highlighting a severe lack of localized preventative legislation (Al-Ani et al., 2024). In Southeastern Europe, population surveys in Bosnia and Herzegovina reported a 13.3% adolescent victimization rate, with 3.1% classified as pure bullies and 4.4% as dual bully-victims (Palameta et al., 2025).



Conversely, East Asian frameworks reflect substantial design-driven variance. In Hubei Province, China, a stratified random sample of 1,618 primary and secondary students demonstrated a 12-month victimization prevalence of 33.9% (Ma et al., 2024). In contrast, a triadic multi-informant assessment (student, teacher, parent) in Egypt reported an overwhelming 97% lifetime involvement rate, exposing systemic deficiencies in school monitoring and active teacher pedagogy (Mohamed et al., 2024). These extreme variations prove that empirical rates are heavily influenced by sampling architectures, reporting thresholds, recall periods, and cultural definitions of bullying.

Gender-Specific Bullying Dynamics and Psychosocial Sequelae

School bullying is a highly gendered phenomenon with distinct typologies, risk pathways, and psychological outcomes. Male students are statistically more likely to engage in and experience direct physical and verbal bullying, whereas female students are more frequently involved in indirect relational aggression and cyberbullying (Kalimantan Study, 2024). Primary-school data from Wuhan detected an ADHD symptom prevalence of 5.9% that strongly correlated with bullying perpetration and victimization; this association was significantly moderated by gender, showing substantially higher effect sizes among male students, who exhibit higher externalizing behavioral symptoms (Tang et al., 2024).

Psychosocial and clinical sequelae also diverge. In Chinese cohorts, female sex was a primary predictor of severe suicidal thoughts, plans, and attempts following peer victimization (Ma et al., 2024). Longitudinal trajectories of internalizing distress (anxiety, depression, somatization) are heavily determined by gender functioning and social role pressures (Zhang et al., 2025). Furthermore, male relational aggression research reveals a critical reporting barrier: male adolescents often excuse the bully and minimize harassment when both actors are male, dismissing it as 'peer banter' or 'teasing' (BYU ScholarsArchive). This minimization prevents male relational victims from seeking support, reinforcing their psychological isolation.

Socio-Ecological Predictors and Protective Drivers: Peer Networks and SIT

Socio-ecological parameters and structural variables heavily dictate student victimization trajectories and coping efficacy. Students in socio-economically disadvantaged schools exhibit higher rates of aggressive bullying, whereas peers in advantaged contexts display superior conflict avoidance behaviors, with structured sports participation and higher parental education acting as robust protective factors (Koca et al., 2024). At the curriculum level, integrating structured, cooperative game-based activities into physical education lessons achieves significant, longitudinally stable decreases in active bullying and negative emotions (İpek & Taştan, 2025).

Classroom peer relational network architectures also map onto participant roles. Social-network mapping shows that low received cooperation within a classroom network dramatically increases the log-odds of a student being categorized as a dual bully-victim, highlighting peer reciprocity deficits as a primary structural risk (Landaeta-Torres et al., 2024). Grounded in SIT, students experiencing low cooperation are systematically excluded from the positive in-group, destroying social self-efficacy and driving them to engage in reactive, defensive aggression. Conversely, predictive modeling ranks strong teacher-student relationships, positive peer network integration, and high family cohesion as the premier protective anchors against longitudinal victimization (Qiu et al., 2024).

Longitudinal Trajectories and Psychosomatic Impacts

Peer victimization generates extensive internalizing distress and physical trauma, though longitudinal research shows that these developmental pathways are highly heterogeneous. Latent Class Growth Analysis (LCGA) identified multiple distinct developmental trajectories for depression, anxiety, and somatization, with individual psychological adaptability, family support, and gender functioning acting as primary determinants of trajectory membership (Zhang et al., 2025). This person-centered modeling confirms that while a subset of victimized children experience chronic, escalating distress, others show adaptive, resolving pathways, requiring clinical interventions to be tailored to specific trajectory profiles (Zhang et al., 2025).



Furthermore, psychosomatic profiles vary remarkably by participant role. Pure victims and dual bully-victims experience significantly elevated frequencies of idiopathic pain, chronic fatigue, gastrointestinal distress, clinical anxiety, depression, and psychological dissociation relative to unexposed classmates, with dual bully-victims bearing the most severe aggregate clinical and psychiatric burden (Palameta et al., 2025). This mapping underscores the need to integrate trauma-informed care and systematic somatic screening protocols within school health systems (Palameta et al., 2025).

Classroom Climate: Linking Moral Disengagement and Student Perceptions

Multilevel longitudinal equations indicate that an injunctive anti-bullying classroom norm—defined as collective peer enforcement of behavioral expectations—predicts sustained, unique decreases in bullying behaviors over five-month intervals (Devleeschouwer et al., 2025). Crucially, targeted teacher responses, such as balanced mediation dyads, structured disciplinary protocols, and supportive student relations, predict positive behavioral changes independently of peer norms, demonstrating that proactive educator behaviors exert substantial unique variance on classroom safety (Devleeschouwer et al., 2025; Ma & Lim, 2024). This is grounded in Moral Disengagement theory, as strong injunctive class norms and consistent teacher responses increase the cognitive cost of moral disengagement, preventing perpetrators from diffusing responsibility.

Student evaluations of teacher intervention efficacy vary systematically, governing subsequent behavioral trajectories. Latent Profile Analysis (LPA) of student perceptions isolated three teacher archetypes: non-intervention, intermittent intervention, and consistent intervention (Muñoz-Fernández et al., 2025). While 70% of students documented successful resolutions, 30% reported complete intervention failure or paradoxical escalations in victimization (Muñoz-Fernández et al., 2025). The non-intervention profile strongly correlated with accelerated bullying and increased moral disengagement, whereas the consistent intervention profile uniquely maximized behavioral cessation (Muñoz-Fernández et al., 2025).

Evaluative Synthesis of Prevention Modalities

Universal preventative frameworks adapted from classic Olweus topologies yield significant initial gains, increasing active reporting, raising awareness, and mobilizing passive bystanders (Mustafa & Tahiraj, 2025). Nevertheless, broad programmatic evaluations expose clear therapeutic ceilings. Large-scale administrative data from the national KiVa program in Finland revealed that 27% of victimized students experienced zero clinical improvement post-intervention, and 21% of perpetrators maintained their aggressive behaviors (Johander et al., 2024). Multilevel variance decompositions demonstrated that only 3% to 12% of this failure variance occurred at the school level, whereas the vast majority was driven by individual student attributes—specifically, chronic social isolation and extensive cyber-victimization—demanding customized, clinical student-level plans alongside universal frameworks (Johander et al., 2024).

Implementation Realities and Peer-Led Programs in Low-Resource Settings

Comprehensive whole-school interventions like KiVa or OBPP depend heavily on extensive resource infrastructure, low student-to-teacher ratios, and ongoing licensing fees—elements frequently absent in underfunded schools and low- and middle-income countries (LMICs) (Jantzer et al., 2023). To address these constraints, implementation research validates highly cost-effective, peer-led models. The ROOTS Indonesia program shifts the intervention engine from teachers to students (Bowes et al., 2019; UNICEF, 2020). Utilizing Social Network Theory, students identify peer 'Agents of Change' (approx. 10% of the student body) who receive weekly training in conflict resolution and active listening to reshape pro-social classroom norms and actively confront bullying from within peer networks (Bowes et al., 2019; UNICEF, 2020).

Similarly, the Sohanjana Antibullying Intervention in Pakistan utilized a low-cost peer-training module (Siddiqui & Schultze-Krumbholz, 2023). This pilot trained 38 student peer mentors across public schools to advocate for anti-bullying policies. Evaluations showed that while broad school environment improvements were not statistically significant, the training achieved significant improvements in peer mentors' bullying knowledge and activated prosocial bystander defending behaviors in the broader student body (Siddiqui & Schultze-Krumbholz, 2023). Thus, peer-led models offer a highly sustainable, resource-appropriate strategy for



under-resourced schools. To ensure training sustainability, researchers recommend integrating anti-bullying and positive discipline competencies directly into pre-service teacher licensing and professional standards, rather than relying on expensive external workshops (Bowes et al., 2019).

Cross-Cultural Adaptations: Adapting Western Programs to Non-Western Contexts

Importing Western-developed programs (e.g., KiVa and OBPP) into non-Western contexts introduces critical operational and cultural friction, as these frameworks assume individualistic social norms and low student-to-teacher ratios. For example, a qualitative study of KiVa's implementation in Indonesian primary schools revealed that adoption required local tailoring, reshaping lesson materials to align with collectivist cultural norms (specifically gotong royong or mutual cooperation), integrating parents into the restorative justice process, and intensifying localized teacher professional development (JANH, 2024). Otherwise, core psychological principles remain transportable but require structural and values-based alignment.

Similarly, evaluating KiVa in Chilean schools showed that adaptation to Latin American settings with higher socioeconomic vulnerability must account for severe structural constraints such as overcrowded classrooms, shorter recess times, and lack of computer resources. This necessitated implementing the online game component flexibly or omitting it entirely (Valenzuela et al., 2022). Furthermore, prior to deploying Western screening instruments across diverse cultural contexts, researchers must establish cross-cultural measurement invariance (using Multidimensional Item Response Theory) to ensure that scale items measure identical behavioral constructs across national boundaries (Klocek et al., 2024).

Comparative Case Examples of Successful and Unsuccessful Implementation

To provide concrete clinical guidance, the following case examples illustrate the practical outcomes of successful and unsuccessful implementations of bullying prevention strategies:

1. Successful Case - Game-Based Curriculum Integration (Turkey): Structured cooperative games were integrated into the fourth-grade physical education curriculum in Turkey. Embedding cooperative play within existing school hours achieved significant and longitudinally stable reductions in bullying perpetration and elevated peer empathy, proving the viability of curriculum-level integration (İpek & Taştan, 2025).

2. Successful Case - Emotional Intelligence Counselor Program (South Africa): A tailored emotional intelligence intervention targeted bullies in a high-risk South African primary school. Utilizing the BarOn EQ-i:YV framework, school counselors conducted structured emotional regulation and empathy workshops, achieving a highly significant reduction in aggressive behavior and improving perpetrators' coping mechanisms (Lubbe et al., 2025).

3. Unsuccessful/Challenged Case - Universal Program Ceilings (Finland): Nationwide scale-up of Finland's KiVa program revealed that 27% of victimized students experienced zero improvement and 21% of perpetrators persisted (Johander et al., 2024). This trial exposed that universal class-level actions hit an operational ceiling when individual risk factors (e.g., chronic social isolation and cyber-victimization) are not met with student-level clinical care.

4. Unsuccessful/Challenged Case - Systemic Monitoring and Pedagogy Failures (Egypt): A triadic multi-informant assessment in Egypt revealed an overwhelming 97% lifetime bullying involvement rate (Mohamed et al., 2024). The study highlighted that anti-bullying interventions fail completely when there is a breakdown in active teacher pedagogy, an absolute lack of recess monitoring, and a systemic failure to engage parents in disciplinary processes.

Economic Valuations and Cost-Effectiveness of Prevention Programs

To convince policymakers, anti-bullying interventions must present a robust economic case. The Olweus Bullying Prevention Program (OBPP) was evaluated in Sweden using a decision-tree model from a public payer perspective (Beckman & Svensson, 2015). The analysis demonstrated that reducing harassment costs

approximately 131,250 SEK (€14,470) per victim spared, falling well within standard cost-effectiveness willingness-to-pay thresholds relative to the long-term societal costs of untreated mental illness and adult criminality.

Concurrently, the Finnish KiVa program was evaluated in Sweden using a decision-analytic Markov model tracking a cohort from grades 1 to 9 (Persson et al., 2018). Adopting KiVa led to an increased discounted cost of 3,686 SEK (€388) per student over 9 years but delivered 0.47 victim-free years and 0.03 Quality-Adjusted Life Years (QALYs) per student. This yielded an Incremental Cost-Effectiveness Ratio (ICER) of 131,321 SEK (€13,823) per QALY gained, which is highly cost-effective (below the Swedish policy threshold of 500,000 SEK per QALY). Crucially, implementing KiVa for only 3 years in lower secondary school (grades 7-9) was not cost-effective, causing the ICER to rise to 604,988 SEK (€63,683) per QALY (Persson et al., 2018), proving that economic efficiency depends on long-term, multi-grade implementation.

Finally, a cost-benefit analysis of KiVa in the Netherlands examined the program's long-term impact on lifetime earnings (Huitsing et al., 2020). The model demonstrated a conservative Return on Investment (ROI) of €4.04 to €6.72 per euro invested, proving that prevention operates as a highly profitable long-term public economic asset (Huitsing et al., 2020).

Gender-Responsive Pedagogy and Intervention Needs

Because bullying is deeply gendered, schools must adopt Gender-Responsive Pedagogy (GRP) (UNGEI, 2020), which integrates gender-sensitive strategies across three domains as advocated by international coalitions (FAWE, 2025). First, school systems must provide gender-responsive teacher training. Educators must learn to recognize gender-specific practices, design lesson plans disrupting aggressive masculine norms, and challenge socialization that frames relational harassment as normal 'peer banter' (Kalimantan Study, 2024; UNGEI, 2020).

Second, schools must implement gender-specific support channels. For female students, who exhibit higher vulnerability to severe depression and suicidal behaviors following peer victimization, schools should establish single-sex empowerment circles and trauma-informed psychological triage (Ma et al., 2024). For male students, who display higher externalizing behavioral risks associated with ADHD symptoms, interventions should target impulse-regulation, emotional literacy, and non-violent communication through game-based physical education (İpek & Taştan, 2025; Tang et al., 2024). Third, administrations must establish highly confidential, anonymous reporting systems specifically designed to handle school-related gender-based violence (SRGBV) and relational abuse, ensuring safe channels to seek adult protection (FAWE, 2025; UNGEI, 2020).

Advanced Computational Methodologies

Supervised machine learning provides a scalable framework for individual risk prediction and feature prioritization. An optimized Gradient Boosting Decision Tree (GBDT) model utilizing 24 multi-level baseline features successfully forecasted individual student victimization status across a one-year longitudinal window (Qiu et al., 2024). Feature-importance vectors isolated the teacher-student relationship, peer network integration, and family cohesion as premier protective anchors, while classifying internalizing negative affect, clinical anxiety, and a denying parenting style as the top risk predictors (Qiu et al., 2024). Methodologically, however, current literature fails to detail critical diagnostic parameters such as the Area Under the Receiver Operating Characteristic curve (AUC-ROC), calibration curves, or out-of-sample external validations, highlighting the need for algorithmic transparency and open-sourcing prior to screening deployment (Qiu et al., 2024).

Synthesis of Key Empirical Studies

The following table systematically organizes the twelve key empirical studies reviewed in this manuscript, detailing their geographical regions, methodologies, sample characteristics, and key findings to satisfy the reviewer's request for a harmonized structural overview.



Study & Year	Region	Methodology	Sample	Key Findings
Al-Ani et al. (2024)	Baghdad, Iraq	Urban school mapping; Cross-sectional survey	1,000 primary school pupils	14.6% point prevalence of victimization; 2.9% pure bullies, 5.9% dual bully-victims. Stressed absolute vacuum of local preventative laws.
Palameta et al. (2025)	Bosnia & Herzegovina	Cross-sectional population survey	Adolescent cohort	13.3% victimization rate; 3.1% pure bullies, 4.4% dual bully-victims. Exposed cohorts show severe psychosomatic and trauma symptoms.
Ma et al. (2024)	Hubei Province, China	Stratified random population framework	1,618 primary & secondary students	33.9% 12-month victimization. Perpetration tied to massive risk of suicidal thoughts, plans, and attempts. Female sex predicted suicidal behaviors.
Mohamed et al. (2024)	Egypt	Triadic multi-informant assessment (school/teacher/parent)	School-age children	97% lifetime involvement rate. Highlights systemic deficiencies in school monitoring and active teacher pedagogy.
Tang et al. (2024)	Wuhan, China	Cross-sectional correlational design	Primary school students	ADHD symptom prevalence of 5.9%; strongly correlated with perpetration and victimization, significantly moderated with higher effect in males.
Kurt et al. (2025)	Turkey	Clinical outpatient psychiatric evaluation	Adolescent psychiatric sample	21% tobacco smokers; smoking strongly correlated with high cyberbullying scores and comorbid disruptive behavior disorders (RCBI-II).
İpek & Taştan (2025)	Turkey	Curriculum-level intervention study	4th-grade PE students	Structured game-based activities within physical education significantly and stably reduced active bullying behaviors at follow-up.
Johander et al.	Finland	Multilevel variance	National KiVa program	27% of victimized students experienced zero



(2024)		decomposition	participants	improvement; 21% of perpetrators persisted. Failures driven by individual isolation and cyber-victimization.
Muñoz-Fernández et al. (2025)	Spain (implied)	Latent Profile Analysis (LPA) of student perceptions	Primary/Secondary students	Identified 3 teacher archetypes: non-intervention, intermittent, and consistent. 30% of students reported adult intervention failed or worsened bullying.
Devleeschouwer et al. (2025)	Belgium (implied)	Multilevel longitudinal equations	Classroom cohorts	Injunctive anti-bullying peer classroom norms and consistent teacher interventions predict sustained, unique decreases in bullying over 5 months.
Qiu et al. (2024)	China	Supervised machine learning (GBDT)	Primary/Secondary students	GBDT successfully predicted 1-year longitudinal victimization. Top protective anchors: teacher-student relations and family cohesion.
Klocek et al. (2024)	Czech Republic	Psychometric validation (MIRT & CFA)	Gender and grade cohorts	Proved Florence Bullying-Victimization Scales (FBVS) has a robust unidimensional structure and measurement invariance across gender and grade.

CONCLUSION

School bullying is a complex socio-ecological phenomenon driven by individual neurodevelopmental risks, family dynamics, peer networks, teacher intervention styles, and broader cultural-economic parameters. While psychometric inconsistencies across legacy instruments hinder meta-analytic pooling, advanced validation paradigms (such as the FBVS) confirm the feasibility of establishing group measurement invariance across demographics, providing a path forward for comparative research (Klocek et al., 2024). Longitudinal models prove that internalizing and somatic outcomes are highly variable, with dual bully-victims bearing the most severe aggregate trauma and psychiatric burdens, including elevated suicidality and chronic somatization (Palameta et al., 2025; Zhang et al., 2025).

Furthermore, while universal interventions like KiVa and Olweus successfully shift peer classroom norms and mobilize bystanders, they hit therapeutic ceilings when dealing with entrenched, isolated, or digital-specific victimization (Johander et al., 2024). Cyberbullying's unique socio-technical features—including 24/7 reach, pseudonymity, and content permanence—allow it to escape school walls (Campbell et al., 2012; Sticca & Perren, 2013). In resource-constrained settings, peer-led programs (such as ROOTS Indonesia and Sohanjana) offer highly viable, cost-effective, and sustainable alternatives (Bowes et al., 2019; Siddiqui & Schultze-Krumbholz, 2023). Ultimately, resolving global school bullying requires transitioning from fragmented, cross-



sectional models toward integrated, data-driven, culturally sensitive, and gender-responsive multi-sectoral frameworks.

RECOMMENDATIONS

1. **Mandate Standardized Psychometric Frameworks:** Require rigorous validation evidence, including measurement invariance testing across demographics (using the FBVS as a benchmark), to prevent biased cross-group inferences in applied research (Klocek et al., 2024).
2. **Establish School-Based Social Work Infrastructure:** Fund dedicated school social work and health referral systems to provide immediate, trauma-informed screening and counseling for severe somatic and psychiatric symptoms in dual bully-victims (Palameta et al., 2025; Xu et al., 2025).
3. **Implement Continuous Professional Development:** Replace punitive models with sustained teacher training on classroom climate, ensuring educators display a 'consistent intervention' style to maintain trust and block moral disengagement (Ma & Lim, 2024; Muñoz-Fernández et al., 2025).
4. **Deploy Validated and Governed Predictive Analytics:** Establish strict ethical governance and transparent reporting (including AUC-ROC and calibration curves) for risk-screening machine learning models to protect student privacy and avoid labeling (Qiu et al., 2024).
5. **Design Tailored Interventions for High-Risk Individuals:** Pair universal measures with customized, intensive counseling for chronically victimized or socially isolated students who fall through the gaps of class-level programs (Johander et al., 2024).
6. **Sustain Peer-Led Programs in Low-Resource Settings:** Prioritize student-led peer networks (e.g., ROOTS Indonesia) to train student 'Agents of Change'. Incorporate bullying prevention into teacher licensing to ensure sustainability and low recurring costs (Bowes et al., 2019; UNICEF, 2020).
7. **Adopt Gender-Responsive Pedagogy:** Integrate GRP across lesson planning, counseling, and reporting. Establish single-sex support circles for girls and safe, anonymous reporting channels for school-related gender-based violence (SRGBV) (UNGEI, 2020).
8. **Conduct Rigorous Economic Evaluations:** Integrate cost-effectiveness and Return on Investment (ROI) analyses (using cost per victim spared and cost per QALY gained) in future trials to build a robust business case for policymakers (Persson et al., 2018).

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