

Violence Prevention: School-based Anti-Bullying Interventions

Community Preventive Services Task Force Finding and Rationale Statement Ratified December 2021

Table of Contents

Context.....	2
Intervention Definition	2
CPSTF Finding.....	3
Rationale	3
Basis of Finding	3
Applicability and Generalizability Considerations	4
Data Quality Issues.....	5
Potential Benefits.....	6
Potential Harms	6
Reviews and Recommendations from Other Groups	6
Considerations for Implementation.....	6
Evidence Gaps	8
References	8
Disclaimer.....	10

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CPSTF Finding and Rationale Statement

Context

Bullying is a form of youth violence and an adverse childhood experience (Gladden et al. 2014). CDC defines bullying as, “any unwanted aggressive behavior(s) by another youth or group of youths who are not siblings or current dating partners that involves an observed or perceived power imbalance and is repeated multiple times or is highly likely to be repeated” (Gladden et al. 2014). Bullying may occur directly via face-to-face interactions (traditional bullying) or indirectly via the use of technology (cyberbullying).

Bullying is a common behavioral problem that is prevalent at all school levels (Diliberti et al. 2019). In 2019, 22% of U.S. students aged 12 to 18 years (6th to 12th graders) reported being bullied at school (Irwin et al. 2021) and 16% of high school students reported being cyberbullied in the past 12 months (Basile et al. 2020). Students most often reported being bullied because of physical appearance, race/ethnicity, gender, disability, religion, or sexual orientation (U.S. Department of Education 2019).

Bullying has been associated with serious short- and long-term effects, physical and mental health problems for perpetrators (Zych et al. 2017; David-Ferdon et al. 2016; Sigurdson et al. 2015; Gini et al. 2009; Srabstein et al. 2006), victims (Singham et al. 2017; David-Ferdon et al. 2016; Baldwin et al. 2016; Gladen et al. 2014; Gini et al. 2009; Srabstein et al. 2006), and youth who witness bullying (Domas et al. 2020; Rivers et al. 2009). Exposure to bullying is also related to adverse effects on academic achievement, employment status, and social relationships (Wolke et al. 2015).

Bullying among school-age youth is most often reported to have occurred on school property (Wang et al. 2020). Schools can have an important role in bullying prevention efforts, which may contribute to a safe and supportive environment for learning (Public Health Service 2021). School-based interventions may complement family- and community-based prevention efforts to reduce bullying both inside and outside of school (David-Ferdon et al. 2016; Hahn et al. 2007).

Intervention Definition

School-based anti-bullying interventions aim to prevent bullying experiences among students inside and outside of school. Interventions include activities for students, teachers, counselors, school staff, administrators, or a combination of these groups; they also may include parents and caregivers. Interventions focus on traditional bullying, cyberbullying, or both.

Most interventions include group education sessions for students to change the ways they think and feel about violence and enhance interpersonal and emotional skills. These skills include communication, problem-solving, empathy, emotional awareness and regulation, conflict management, and teamwork. Group education may be universal (delivered to all students in a particular grade or school), or it may be selectively delivered to students at higher risk of bullying behavior or victimization. Interventions may train teachers and counselors to deliver these sessions.

Some interventions aim to enhance school anti-bullying policies and practices by providing the following:

- Professional consultation to school administrators and staff on evidence-based policies and practices
- Training for teachers, counselors, and staff on how to identify and respond to aggressive or bullying behaviors or signs of victimization

Interventions may also include:

- School-wide activities and media events
- Student assignments and letters from school administrators to engage parents and caregivers

CPSTF Finding (December 2021)

The Community Preventive Services Task Force (CPSTF) recommends school-based anti-bullying interventions based on strong evidence of effectiveness for small but meaningful reductions in self-reported bullying perpetration and victimization and improvements in student’s mental and behavioral health symptoms (e.g., depression, anxiety, insomnia, suicidality, loss of wellbeing). Interventions focused on cyberbullying were effective in reducing cyberbullying perpetration and victimization.

Rationale

Basis of Finding

CPSTF selects and evaluates recently published systematic reviews to provide program planners and decision-makers with effective intervention options. A team of specialists in systematic review methods and subject matter experts in youth violence prevention selected and evaluated the following published review:

Fraguas D, Diaz-Caneja CM, Ayora M, Duran-Cutilla M, Abregu-Crespo R, et al. Assessment of school anti-bullying interventions: a meta-analysis of randomized clinical trials. *JAMA Pediatrics* 2021;175(1):44-55.

The team also abstracted information from the included studies and conducted additional analyses. The CPSTF finding is based on results from the published meta-analyses, additional analyses of data from the 19 studies conducted in the United States or Canada, and expert input from team members and CPSTF.

The Fraguas et al. meta-analysis included 69 studies (search period through February 2020) that evaluated school-based anti-bullying interventions. The studies evaluated intervention effectiveness for one or more of the following outcomes: bullying perpetration, bullying victimization, cyberbullying perpetration, cyberbullying victimization, and mental health symptoms. Comparison groups were schools that either did not receive an intervention or received an alternative intervention. Results of their analyses are summarized in Table 1.

Table 1. Intervention Effects on Student Self-Reported Bullying and Mental Health Outcomes

Outcome	Number of Studies	Effect Estimate Cohen’s D (95% CI)	Direction of Effect (Magnitude of Effect)
Traditional bullying perpetration	35	-0.11 (-0.15, -0.08)	Favors intervention (Small)
Traditional bullying victimization	32	-0.16 (-0.23, -0.09)	Favors intervention (Small)
Mental health symptoms	20	-0.21 (-0.28, -0.13)	Favors intervention (Small)
Cyberbullying (combined effect estimates for perpetration and victimization)	5	-0.13 (-0.20, -0.07)	Favors intervention (Small)

CI: Confidence interval

For the subset of five studies from the Fraguas et al. review that focused on cyberbullying, CPSTF examined effect estimates for bullying perpetration and victimization separately. Results are summarized in Table 2.

Table 2. Intervention Effect Estimates on Cyberbullying

Outcome	Number of Studies	Median Study Effect Estimate Cohen's D	Direction of Effect (Magnitude of Effect)
Cyberbullying perpetration	5	-0.13 (IQR: -0.32 to -0.07)	Favors intervention (Small)
Cyberbullying victimization	4	-0.22 (Range: -0.55 to -0.05)	Favors intervention (Small)

IQR = interquartile interval

Fraguas et al. used methods developed by Furukawa (2011) to translate summary effect estimates into Population Impact Numbers (PIN), or “need-to-treat” estimates. With an assumed background bullying prevalence of 20%, Fraguas et al. reported a PIN of 105-155 for bullying perpetration or victimization. Between 105 and 155 students would need to receive the intervention to prevent one case of bullying perpetration or victimization. The PIN for student self-report of mental health symptoms was 80, meaning 80 students would need to receive the intervention to prevent one student self-report of mental health symptoms.

CPSTF conclusions incorporate 1) the substantial body of evidence on effectiveness (69 randomized controlled trials), 2) small, but consistent and statistically significant reductions across bullying and mental health outcomes, 3) impact numbers that are meaningful for interventions involving group-based activities implemented at the level of an entire school or grade, and 4) potential that favorable bullying and mental health effects contribute to long-term benefits.

Applicability and Generalizability Considerations

CPSTF assessment included results from the Fraguas et al. meta-analysis and additional analyses focused on the subset of studies conducted in the United States or Canada (19 studies).

Fraguas et al. used meta-regression to determine how intervention effectiveness varied by specific study, intervention, or student characteristics. Analyses did not find significant effect differences based on study quality or size, intervention duration, length of follow-up, intervention approach (delivered to all students or students at higher risk of bullying perpetration or victimization), or student age or gender.

Intervention Settings

Most of the included studies were conducted in Europe (31 studies) and North America (17 studies from the United States, 2 from Canada). Remaining studies were from Australia (3 studies), China (4 studies), South Africa (3 studies), Brazil (2 studies), Chile, Indonesia, Israel, Iran, New Zealand, Turkey, and Zambia (1 study each).

Most studies from the United States and Canada were conducted in urban and suburban (8 studies) or urban (5 studies) communities. One study each was conducted in rural or suburban communities alone with favorable results; four studies did not provide information about school location.

The CPSTF finding is applicable to U.S. schools in urban and suburban communities, and it is likely applicable to schools in rural settings as well.

Population Characteristics

Population characteristics are based on studies from the United States or Canada. Studies primarily focused on students in elementary schools (10 studies), middle schools (5 studies), or both (2 studies). Only one study was conducted in high

school and one study evaluated students in preschool or kindergarten. Twelve studies provided data on gender and reported a similar distribution of females (median 50.2%) and males (median 49.8%).

Study participants self-reported as White (median 51.5%; 14 studies), Black or African American (median 16.0%; 14 studies), Hispanic or Latino (median 25.5%; 14 studies), or Asian (median 7.6%; 7 studies); or Other (median 10%, 11 studies). None of the studies provided information for students who self-identified as LGBTQI+¹. None of the included studies provided stratified assessments of effectiveness by these characteristics.

Seven studies reported information about household socioeconomic status (SES) and found a median of 40% of students participated in school-level free or reduced lunch programs. One study assessed intervention effectiveness for students with disabilities and found favorable results for bullying perpetration.

The CPSTF finding is applicable to elementary and middle schools, and likely applicable to preschool, kindergarten, and high schools in the United States. The CPSTF finding is applicable to schools in racial and ethnic minority communities, and likely applicable to schools in communities with lower household incomes.

Intervention Characteristics

Studies included in the Fraguas et al. review focused on traditional bullying (64 studies) or cyberbullying (5 studies). Studies examined effectiveness of universal interventions (58 studies) or interventions delivered to students at higher risk of bullying behavior or victimization (11 studies). Mean duration of intervention was 29.4 weeks (range 1 to 144 weeks).

CPSTF considered additional intervention details from the subset of 19 studies conducted in the United States and Canada. Six studies focused on traditional bullying, and one additional study included a component on cyberbullying. Seven studies that focused on violence prevention more broadly included a bullying component. Five studies conducted in preschools or elementary schools focused on reducing aggressive behaviors or enhancing pro-social behaviors. Results were generally favorable for outcome effects related to bullying.

Almost all of the interventions in the subset of studies from the United States or Canada were multicomponent (18 studies) or delivered group education to students (18 studies). Additional interventions included professional consultation (7 studies), and training for teachers or counselors (7 studies).

The CPSTF finding is applicable to multicomponent interventions that focus on traditional bullying or cyberbullying and include group education sessions for students. This includes interventions delivered to all students or students at higher risk of bullying perpetration or victimization.

Data Quality Issues

The CPSTF assessment adopted the data quality methods and findings from the Fraguas et al. review. Included studies were restricted to randomized controlled trials. Study quality was evaluated using a modified Cochrane risk of bias assessment tool (Higgins et al. 2017), which has six domain-specific assessments. The most common domains rated as high risk of bias were participants and personnel (45 studies) and outcome assessment (17 studies). None of the studies were excluded from analyses in either the published review or the CPSTF assessment based on assigned risk of bias rating.

¹ Lesbian, gay, bisexual, transgender, queer, intersex, nonbinary or otherwise gender non-conforming

Potential Benefits

Fraguas et al. did not examine or report evidence on additional benefits from the studies included in the review. Potential additional benefits described in the broader published literature include reductions in school disciplinary actions (David-Ferdon et al. 2016), developmental progression to future delinquent and violent behaviors (David-Ferdon et al. 2016; Kelly et al. 2015; Stoddard et al. 2011; Hahn et al. 2007), and adolescent and adult risk behaviors such as drug and alcohol use (David-Ferdon et al. 2016; Kelly et al. 2015; Hahn et al. 2007).

Potential Harms

Fraguas et al. examined whether interventions might have had results that were the opposite of the intended effect (e.g., increased bullying) by looking at before-after change in students exposed to the intervention. None of the included studies observed increases in either bullying perpetration or victimization at either the end of the intervention or follow-up. Likewise, mental health symptoms also improved for every intervention group.

A 2016 report from the National Academy of Sciences described several school anti-bullying policies and practices as ineffective and potentially harmful. These approaches included zero tolerance policies, suspension, peer mediation, and programs that encouraged victims to fight back. The panel raised concerns that use of these policies and practices might increase bullying or generate additional harms among perpetrators and victims. CPSTF notes these approaches were not components of school anti-bullying interventions included in this review.

Reviews and Recommendations from Other Groups

Two additional systematic reviews provide broader assessments of the effectiveness of school anti-bullying interventions.

- Gaffney et al. (2021a) examined the evidence on effectiveness of school-based interventions to reduce traditional bullying (88 studies including 45 randomized controlled trials published through 2016). Anti-bullying interventions were significantly associated with a reduction in bullying perpetration (18% to 19%) and victimization (15% to 16%).
 - A second Gaffney et al. paper (2021b) based on the same systematic search for studies found that certain intervention components (e.g., whole-school approach, anti-bullying policies, classroom rules, information for parents, informal peer involvement, work with victims) were significantly associated with larger effect sizes for perpetration. Informal peer involvement and information for parents were associated with larger effect sizes for victimization. Evidence did not indicate a significant relationship between effectiveness and the number of intervention components included in a program.
- Gaffney et al. (2019) evaluated the evidence on effectiveness of school-based interventions to reduce cyberbullying (24 studies published through 2018, 15 of which were randomized controlled trials). Evidence showed reductions in cyberbullying perpetration (10% to 15%) and victimization (14%).

Considerations for Implementation

The following considerations for implementation are drawn from studies included in the existing evidence review, the broader literature, and expert opinion, as noted below.

- Violence and violence prevention efforts in the school setting should be considered within the broader context of violence and drivers of violence in the community (David-Ferdon et al. 2016).
- Bullying is a developmental precursor to multiple forms of violence (e.g., sexual violence, physical assault). Addressing bullying among students may help prevent bullying as well as other forms of community violence

(e.g., youth violence, police-involved violence). As community violence disproportionately affects youth and young adults of color, anti-bullying interventions may advance health equity (David-Ferdon et al., 2016; Loeber et al. 1994).

- Program planners may find it helpful to conduct assessments of school and community violence prevention needs, resources, and readiness in selecting appropriate interventions for implementation.
- Studies included in this review indicate school-based interventions reduce cyberbullying, much of which occurs outside of school. Schools may want to engage in cyberbullying prevention, as they are an important setting for intervention.

Several free, publicly available resources provide guidance on the implementation of school-based anti-bullying interventions.

- [A Comprehensive Technical Package for the Prevention of Youth Violence and Associated Risk Behaviors](https://www.cdc.gov/violenceprevention/pdf/yv-technicalpackage.pdf) [https://www.cdc.gov/violenceprevention/pdf/yv-technicalpackage.pdf]. This technical package from CDC's Division of Violence Prevention represents a select group of strategies based on the best available evidence to help communities and states sharpen their focus on prevention activities with the greatest potential to prevent youth violence and its consequences.
- [Assessing Prevention Capacity & Implementing Change: An evidence-informed and evidence-based Bullying Prevention Capacity Assessment and Change Package](https://mchb.hrsa.gov/sites/default/files/mchb/MaternalChildHealthInitiatives/MCHB_ChangePkg_8-24-17_sxf.pdf) [https://mchb.hrsa.gov/sites/default/files/mchb/MaternalChildHealthInitiatives/MCHB_ChangePkg_8-24-17_sxf.pdf]. This resource from the Health Resources and Services Administration Maternal and Child Health Bureau provides tools to help state health departments and others identify gaps and priority areas in their bullying prevention efforts. When used over time, this tool can help organizations measure their progress.
- [StopBullying.gov](https://www.stopbullying.gov) [https://www.stopbullying.gov]. This website from the U.S. Department of Health and Human Services provides definitions and prevention guidance from various government agencies on what bullying is, what cyberbullying is, who is at risk, and how you can prevent and respond to bullying.
- [Protecting Youth Mental Health: The U.S. Surgeon General's Advisory](https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf) [https://www.hhs.gov/sites/default/files/surgeon-general-youth-mental-health-advisory.pdf] outlines a series of recommendations to improve youth mental health across eleven sectors, including young people and their families, educators and schools, and media and technology companies.
- [STRYVE Action Council - Safe States Alliance](https://www.safestates.org/page/STRYVEAC) [https://www.safestates.org/page/STRYVEAC]. The Striving to Reduce Youth Violence Everywhere (STRYVE) Action Council is a multidisciplinary consortium of organizations collaborating across sectors and systems to build safe, healthy, inclusive, and equitable communities that allow youth from every background to thrive. STRYVE leverages the work of its partners to prevent injuries and violence in communities.
- [National Center on Safe Supportive Learning Environments](https://safesupportivelearning.ed.gov) [https://safesupportivelearning.ed.gov] offers resources and technical assistance to states, districts, schools, institutions of higher learning, and communities focused on improving school climate and conditions for learning.
- [Children's Safety Network](https://www.childrenssafetynetwork.org/child-safety-topics/bullying-prevention) [https://www.childrenssafetynetwork.org/child-safety-topics/bullying-prevention] provides technical assistance to state and jurisdiction health departments to increase their capacity to address childhood injuries and violence.

- [Health Alliance for Violence Intervention \(HAVI\)](https://www.thehavi.org) [https://www.thehavi.org] supports connections between communities and systems of care including violence intervention specialists, doctors, health administrators, and researchers, and provides resources to enhance new and existing network programs.

Evidence Gaps

CPSTF and Fraguas et al. identified several areas that have limited information. Additional research and evaluation could help answer the following questions and fill remaining gaps in the evidence base.

CPSTF identified two areas for priority research:

- Most of the included studies reported small effects on bullying outcomes. Studies are needed to identify intervention content, components, and combinations of components that are capable of achieving a greater impact on bullying outcomes. Research is needed for both programs designed for all students and programs for students at higher risk of bullying behaviors.
- Studies are needed to examine the effectiveness of interventions for groups of students who disproportionately experience bullying such as students who self-identify as LGBTQI+, have disabilities, or are overweight (Fraguas et al. 2019; National Academy of Sciences 2016).

The following questions identify additional research needs identified in this review:

- How effective are school-based anti-bullying interventions when implemented in the following settings?
 - High schools
 - Charter or private schools
 - Rural communities
 - Communities with lower incomes
- What are the effects of school-based anti-bullying interventions on the following outcomes?
 - Specific mental and behavioral health outcomes (e.g., depression)
 - Educational outcomes and attainment
 - Bystander action
 - Number of students who witness bullying perpetration on others
 - Risk behaviors
 - Other forms of violence and delinquent behavior

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Disclaimer

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