How Effective are Bullying Interventions in Reducing Perpetration and Victimization Among School-Aged Children? A Systematic Meta-Analysis.

Ann Marie Hornack, Nova Southeastern University,
Abraham S. Fischler School of Education, USA

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Abstract
Education administrators, policy makers, and community workers need clarifications of school-based bullying interventions when making informed decisions concerning bullying prevention resources and funding. In the past decade, bullying strategies and intervention programs have increased significantly from the original strategies and interventions of Olweus Bullying Prevention Program. The purpose of this systematic meta-analysis is to contribute to the knowledge base of effective bullying interventions expanding on Merrell, Gueldner, Ross, and Isava's (2008) research of behavior intervention studies. Searches were conducted through electronic databases, journals, and article references from 2005 through 2012. Search inclusion and exclusion criteria checklists guided the study selection process. Lipsey and Wilson's (2001) meta-analysis techniques were used to measure standardized mean difference effect size. Results from effect size determined anti-bullying program effectiveness. Implications for future meta-analysis research of anti-bullying effectiveness are discussed.

Keywords: Bullying, Intervention, Peer Victimization, Schools/Programs

Introduction

Olweus (1979/1993), a Norwegian researcher, recognized bullying as an issue among school-aged children when three bullied Swedish teenagers committed suicide. Acknowledging the incident Olweus reacted to this universal bullying phenomenon developing a bullying prevention program for schools which is used throughout the world today. Olweus (Bendixen & Olweus, 1999; Olweus, 1979/1993) defined bullying as an intentional repetitive aggressive act meant to intimidate, threaten, or harm an individual. A bullying aggressor (e.g., bully, bullies) could be one person or a group of people creating domination or an imbalance of power toward the victim or victims (Nansel, Overpeck, Pilla, Ruan, Simons-Morton, & Scheidt, 2001). According to Olweus (Bendixen & Olweus, 1999; Olweus, 1979/1993), bullying involves the bully, the victim, and the bystander.

Media reported (Bell, 2011) that a 10-year-old girl committed suicide, after she was "bullied to death" at school. According to the Centers for Disease Control and Prevention (CDC, 2012) the third leading cause of death among youth is suicide (i.e., 10–24 years old). National media reports on student victimization and suicide rates among students in the United States suggest a link between childhood victimization and teenage suicide. Preventative behavioral intervention has become the critical concern to school systems' efforts to reduce bullying perpetration and victimization among school-aged children. Rose, Monda-Amaya, and Espelage (2011) agreed with Seita and Brendtro (2005) that persistent victimization may promote student isolation resulting in aggressive behaviors or school violence. Although anti-bullying programs have shown a 20% to 23% decrease in aggressive behaviors, relative to bullying and victimization in schools (Ttofi & Farrington, 2009), intervention programs can be expensive and ineffective (Stuart-Cassel, Bell, & Springer, 2011; Ttofi & Farrington, 2009). Education administrators, policy makers, and the community need to know the effectiveness of bullying interventions when making informed decisions concerning bullying prevention resources and funding (Stuart-Cassel et al., 2011; Ttofi & Farrington, 2009). In the past decade, bullying strategies and intervention programs have increased significantly from the original strategies and interventions of the Olweus Bullying Prevention Program (Bendixen & Olweus, 1999; Hong & Espelage, 2012; Merrell, Gueldner, Ross, & Isava, 2008; Olweus, 1979; Ttofi & Farrington, 2009).

Merrell et al. (2008) researched the effectiveness of bullying programs and found no significant effects from bullying programs that influenced bullying or victimization behaviors. The purpose of this systematic meta-analysis is to contribute to the knowledge base of effective bullying interventions expanding on Merrell et al.'s research of behavior intervention studies. Merrell et al.'s systematic meta-analysis evaluated 16 bullying intervention studies from 1980 through 2004. Merrell et al. suggested the results measured student, teacher, and community knowledge of and awareness of bullying behaviors, attitudes and perceptions of bullying, rather than reductive measures of bullying behaviors. Merrell et al. concluded that measuring the effects of bullying intervention programs was dependent on variable interpretations of bullying behaviors.

Methodology

The targeted population was school-aged children attending public or private schools from kindergarten through 12th grade, globally located, and including both male and female students. Bullying intervention studies included elementary-, middle school-, and high school-based interventions that addressed at least one characteristic of the bullying phenomenon (e.g., bully, victim, bystander). Qualitative studies were not included in this study. Bullying intervention comparisons between pre- and post-measurements (e.g., pre-questionnaires and post-questionnaires) were analyzed. Bullying intervention program comparisons were quasi-experimental study measurements. Fundamental to this systematic review of bullying interventions and relative to victimization and perpetration in a school setting the following inquiries are central to this study.

1. How effective are bullying interventions in reducing perpetration and victimization among school-aged children?

2. What bullying intervention strategies are associated with reducing perpetration and victimization among school-aged children?

3. What differences were found in this meta-analysis compared to Merrell et al.'s (2008) meta-analysis?

Dependent outcome measures were categorized for specific measures from student, teacher, and administration self-reports. The measurement method, such as student self-reports were analyzed for standardized mean difference effect size (ES_{sm}) outcome results. Data results were developed into table formats depicting measurement methods and classification categories, such as dependent variables and effect sizes.

Searches included scholarly published, peer-reviewed, empirical studies from 2005 through 2012. The time period for this study was selected as a continuum of research synthesis of school-based bullying intervention programs which Merrell et al. concluded in 2004. Educational database searches were conducted through the secured Alvin Sherman Library server located at Nova Southeastern University in Miami, Florida. Search words used were: bullying, intervention, peer victimization, schools, programs (Merrell et al., 2008). Searches were also conducted in several Internet search engines (i.e., Google, Google Scholar, and Bing) to locate sources. References listed within selected studies were evaluated for additional studies. The initial word search produced 154 articles, of which 46 were duplicates. Empirical studies were included based on an initial criteria check lists(Appendix A) evaluating each study's abstract. After the initial eligibility criteria checklist was implemented, 67 articles were eliminated, and 41 articles remained for final eligibility criteria evaluation. Final criteria checklist (Appendix B) evaluated full text for inclusion or exclusion. After the final evaluation criteria were applied to the remaining 41 studies, six eligible studies were included in this study. The six eligible studies were analyzed for specific measures. Effective size data (i.e., means, standard deviations, and number of participants) were collected for further evaluation.

Instruments. Initial and final selection criteria checklist forms were developed for the inclusion/exclusion study selection process (Appendix A and B). Other instruments developed for coding levels (Appendix C) were Merrell et al.'s (2008) Description of Studies Used in Meta-Analysis (Table C1), variations of Merrell et al.'s Results of Meta-Analysis: Summary of Post Effect Sizes by Assessment Method and Classification Variable (Table C2), Results of Meta-Analysis: Summary of Follow-up Effect Sizes by Assessment Method and Classification Variable (Table C3), Record of Coded Studies and Pretest Measurements (Table C4), Record of Coded Studies and Measurements: Posttest Experimental and Control Group Comparison Effect Size (Table C5), and Record of Coded Studies and Measurements: Follow-up Experimental and Control Group Comparison Effect Size (Table C6). These instruments are the coding forms established from Lipsey and Wilson's (2001) meta-analysis procedures for effect size, and Merrell et al.'s (2008) recommendations for an intervention meta-analysis.

Quantitative data analysis. Outcome results for meta-analysis techniques (Lipsey & Wilson, 2001) evaluated effect size (ES) of each study included in this systematic evaluation. The measurement method used for effect size analyzed the standardized mean difference for effect size (ES_{sm}) outcome results. Data results were developed into table formats listing measurement methods and classification categories, such as dependent variables and effect sizes. The equations (Lipsey & Wilson, 2001) used to calculate ES_{sm} are listed below:

$$s_{pooled} = \sqrt{\frac{(n_1-1)s_1^2 + (n_1-1)s_2^2}{n_1+n_2-2}}$$

$$ES_{sm} = \frac{\overline{\overline{X}}_2 - \overline{\overline{X}}_1}{s_{pooled}}$$

Standard deviation pooled is represented as s_{pooled}. The number of participants (e.g., n) in the experimental group is n_1 and the control group is n_2. Standard deviation is represented as s with the subscript 1 for the experimental group and subscript 2 for the control group. Mean is represented as x with the subscript of one for the experimental group and a subscript of two for the control group. Standardized mean difference effect size is represented as ES_{sm} (Lipsey & Wilson, 2001). Positive and negative ES_{sm} representations of bullying behaviors were evaluated to show the effects of each intervention (Table C2, Table C3). Positive measures indicated a favorable effect and negative measures indicated an unfavorable effect. Cohen's (1977/1988) scale for effect size was used to measure the level of significance. Record of coded studies and measurements included in Table C4, Table C5, and Table C6 are available upon request.

Limitations of the study. The amount of literature available pertaining to bullying intervention programs was initially extensive. Although, every effort was extended to use methodical procedures to evaluate the data, human error is a factor to the validity and reliability of this study. The degree of experience in coding research is also a limitation that should be considered, since this was the first attempt at coding.

Delimitations of the study. This study is designed to analyze the effectiveness of anti-bullying interventions. Limits established for this study were determined as a

continuation of Merrell et al.'s (2008) meta-analysis which evaluated the effectiveness of anti-bullying interventions from 1980 through 2004.

Results

Meta analysis results for the effects of bullying interventions included six quasi-experimental studies: Curriculum-based anti-bullying program, S.S.GRIN, Lunch Buddy mentoring program, Steps to Respect, KiVa, and Multimedia intervention program (Andreou, Didaskalou, & Vlachou, 2008; DeRosier & Marcus, 2005; Elledge, Cabell, Ogle, & Newgent, 2010; Frey, Hirschstein, Snell, Edstrom, MacKenzie, & Broderick, 2005; Kärnä, Voeten, Little, Poskiparta, Kaljonen, & Salmivalli, 2011; McLaughlin, Laux, & Pescara-Kovach, 2006). Two of the six studies included longitudinal follow-up tests (Andreou et al., 2008; Kärnä, 2011). Merrell et al.'s (2008) Description of Studies Used in Meta-Analysis (Table C1) summarizes the six studies that met the inclusion and exclusion criteria for this study. A variation of Merrell et al.'s Results of Meta-Analysis Summary of Post Effect Sizes by Assessment Method and Classification Variable is included for post results (Table C2) and for follow-up results (Table C3). A record of coded studies and measurements based on Lipsey and Wislson's (2001) outlines for pretest measurement results (Table C4), measurements for posttest experimental and control group comparison effect size (Table C5), and measurements for follow-up experimental and control group comparison effect size (Table C6) are available upon request.

Discussion

Meaningful effective intervention results were indicated at post meta-analysis for student victimization, bullying, peer-aggression, depression, anxiety, self-esteem, and leadership (Table C2). Students and teachers reported 30% of posttest intervention outcomes to have meaningful (i.e., significant) positive effects. These significant results suggest effective school interventions improve student behavior, self-esteem, and student confidence. However, effective results diminished over time. Follow-up results (Table C3) confirmed a diminishing intervention effectiveness of 7%. Decreasing meaningful, positive average effects for follow-up results of 23% indicate bullying interventions may need to continue well after the first implementation period. Results at post analysis found a 9% meaningful negative effect from school bullying interventions. The most meaningful negative effect (i.e., $ES_{sm} = -.54$) was recorded from teachers reported post results of student victimization. Perhaps, teachers were able to recognize bullying behaviors as a result of attending bullying intervention training sessions. An increase in peer reported student victimization could have resulted from student awareness of bullying behaviors. Post results indicated 30% significant effects from six bullying programs. Follow-up results indicated 23% significant effects from two bullying interventions. Comparisons from post to follow-up results found that 61% to 76% of the outcome variables indicated no evidence of intervention effectiveness.

Research Questions

Research question 1. How effective are bullying interventions in reducing perpetration and victimization among school-aged children? Post and follow-up

results indicated effective bullying intervention outcomes. However, the overall majority of effect size measures found no significant effect or small effect size results from bullying prevention programs. The degree of intervention effectiveness does not indicate a reduction in perpetration or victimization.

Peer and teacher reported post results showed an increased occurrence of victimization among intervention students, while student reported victimization among intervention students decreased. Follow-up results showed less effective meaningful results for students being bullied. Reduced effective measures among student self-reported post and follow-up victimization results could suggest intervention programs are less effective over time. On the other hand, self-reported results after the implementation of an intervention may be deceiving. Sawyer, Bradshaw, and O'Brennan (2008) suggest that student self-reported questionnaires may reveal how the students felt about being bullied, rather than the actual occurrences of student victimization (Sawyer et al., 2008). Although post and follow-up results are not sufficient enough to conclude that bullying interventions effectively reduce perpetration and victimization among school-aged children, bullying intervention strategies do support a reduction in bullying behaviors with continuous support overtime.

Research question 2. What bullying intervention strategies are associated with reducing perpetration and victimization among school-aged children? Olweus Bullying Prevention Program (OBPP) is an effective and globally recognized research-based program to reduce the rates of bullying. Olweus' bullying program implementation strategies include teacher training, a school-wide introduction assembly, intervention curriculum for the classroom, and supportive materials for parent meetings (Bendixen & Olweus, 1999; Olweus, 1979/1993). During Fekkes, Pijpers, and Verloove-Vanhorick's (2006) longitudinal study, effective decreases of bullying behaviors and reduced student health related complaints were realized in the first year of implementing the OBPP. Student victimization among the intervention group was reduced at a rate of 25% less, when compared to the control group (Fekkes et al., 2006). However, intervention activities did not continue during the second year of the study. The second year results revealed no difference between the intervention group and the control group. Fekkes et al. (2006) study results indicated that educators seeking longevity of effective anti-bullying school policy may consider continued support well after an anti-bullying prevention program is implemented for sustained positive effects.

Bully Busters is a universal bullying prevention program focused on educating teachers on effective and efficient strategies to reduce bullying and victimization behaviors among students. Newgent, Higgins, Lounsbery, Behrend, & Keller (2011) studied the effects of a modified Bully Busters program. Professional development for teachers on bullying awareness, intervention, prevention, and victimization coping strategies are major components of Bully Buster's half day training program. Newgent et al. found the program's teacher training to be an efficient and effective strategy for educators to create a safe learning environment. Creating a safe school environment is the main objective of an anti-bullying intervention program, Bully Proof Your School (BPYS), which was developed for the Colorado public elementary and middle schools (Menard, 2009; Menard & Grotpeter, 2011). BPYS used whole-school strategies focused on reducing bullying occurrences and preventing school

violence. Teacher training developed teacher awareness and teacher recognition of bullying behaviors. Strategies included a bullying curriculum for students in the classroom. Intervention social skills, student bullying discussions, classroom expectations, and clear bullying prevention rules developed a safer learning environment for the students and the teachers. Menard and Grotpeter (2011) suggest that teacher training and classroom bullying prevention lessons are effective strategies to promote the reduction of victimization and perpetration among elementary school students.

Creating a Peaceful School Learning Environment (CAPSLE) and School Psychiatric Consultation (SPC) are two anti-bullying intervention programs developed for nine elementary schools located in the midwestern United States. Fonagy, Twemlow, Vernberg, Nelson, Dill, Little, & Sargent (2009) found that whole-school efforts to understand the roles of bullying behaviors, and developing empathy for the bully, victim, and bystanders were effective strategies to reduce perpetration and victimization. Another whole-school intervention program, Creating A Safe School (CASS), was developed for middle school students to reduce student victimization and aggressive behaviors. Incorporating implementation team members (i.e., consultants, teachers, parents and school administration) is the key strategy used for the development of this program. An added feature of this team training was to include adolescent development along with the bullying behavioral awareness training. Parents were encouraged during training sessions to become facilitators. Whole community strategies administered adult facilitators to train high school students. The high school students then mentored middle school students during classroom sessions. Nixon and Werner (2010) recommend CASS as an effective intervention program for students at high risk for harmful effects from relational aggression and relational victimization.

Fun with Empathic Agents to achieve Novel Outcomes in Teaching (FearNot!) is a strategic software program developed to build the student's knowledge of bullying, and to develop the student's bullying coping skills (Sapouna, Wolke, Vannini, Watson, Woods, Schneider, & Aylett, 2010; Watson, Vannini, Woods, Dautenhahn, Sapouna, Enz, Schneider, Wolke, Hall, Paiva, André, & Aylett, 2010). FearNot!'s Virtual Learning Environment (VLE) is a safe environment for students to learn and respond to bullying behaviors. Students attentive to the virtual sessions experienced a reduction in victimization. Sapouna et al. point out the program's ability to build the student's confidence and knowledge of strategies to deal with bullying behaviors.

McLaughlin et al.'s (2006) study analyzed a multimedia intervention program on bullying and victimization among third graders. Results showed a decrease in bullying and victimization events. Three 8-week multimedia interventions included once-a-week counseling, video scenarios, and an interactive software program called Push and Shove. The parameters of the study (McLaughlin, 2006) indicated a quasi-experimental study. However, McLaughlin et al. determined that it would be unethical to deny any student the opportunity to participate in an anti-bullying intervention. As a result, the control group participated in the counseling intervention. Data analysis could not determine the most effective intervention. Even though the results were unclear, McLaughlin et al. suggested that educators consider the cost effective elements of the counselor and teacher intervention as a valuable resource for school districts on a limited budget.

Kiusaamista Vastaan (KiVa) is a Finnish anti-bullying program similar to the original ideas and principles of the well-known Norwiegn anti-bullying program, Olweus' Bullying Prevention Program (OBPP). Additional components of KiVa, incorporated features comparable to FearNot!'s virtual learning and CAPSLE's classroom curriculum. KiVa's program includes supportive guidelines for students, teachers, and parents. The whole-school intervention program develops KiVa team support, teacher training, student bullying awareness, and parent bullying awareness (Kärnä et al., 2011). Kärnä et al. (2011) expressed belief in the program's effectiveness, as a result of program preparation, government support, and teacher training. Effective elements of the KiVa program are evident through the students' academic success and desire to go to school. Effective elements, which indicate significant positive social environment and positive behavioral changes, support KiVa as a successful intervention program to prevent bullying in the classroom (Williford, Boulton, Noland, Little, Kärnä, & Salmivalli, 2012).

Teachers reported positive effects on student behaviors and academic improvements from the implementation of the Lunch Buddy (LB) mentoring program (Elledge et al., 2010). LB mentoring program is largely successful with identified students who have been victimized. Parent, teachers, students, and mentors indicated satisfaction with the quality of the mentoring program and the non-evasive approach to bullying prevention. LB mentoring program is certainly affordable. Trained college students mentor elementary students during the elementary student's lunch period. The program offers educators a low cost intervention to reduce student victimization among elementary school students.

LB mentoring program supported the relationship between the mentor and the mentored student. Social Skills Group Intervention (S.S.GRIN) is a school-based intervention program focused on student social peer relationships (DeRosier & Marcus, 2005). Small group counseling sessions are conducted in a group setting for 8 weeks. Like LB, S.S.GRIN was developed to build positive relations and emotional skills rather than focusing on bullying behavior. Positive intervention effects were found to increase student social acceptance, heighten self-esteem, and lessen depression.

In the last decade, several studies have researched the effects of the bullying prevention program, Steps to Respect (Frey, Hirschstein, Edstrom, & Snell, 2009; Frey et al., 2005; Hirschstein, Edstrom, Frey, Snell, & McKenzie, 2007; Low, Frey, & Brockman, 2010). Steps to Respect is another school-wide anti-bullying program that is focused on building social skills, bullying awareness, and relationships. Strategies include teacher training, policies and procedures teacher manual, classroom materials, and lessons for implementation in the classroom. The community is included in the implementation process. The parents are also provided with an anti-bullying policy and procedures manual and support materials to use at home. The Steps to Respect goal is to decrease bullying behaviors on the playground and in the classroom. Direct results of the Steps to Respect program include decreased playground victimization, increased teacher responsiveness to bullying behaviors, decreased bystanders (Hirschstein et al., 2007), increased student confidence, and decreased relational aggression (Frey et al., 2005/2009; Low et al., 2010). Although, assumptions on social skills among the researchers (Frey et al., 2005; Frey et al., 2009; Hirschstein et al., 2007; Low et al., 2010) assumed that friendships would reduce victimization, this

assumption was not supported. Frey et al. (2009) concluded that Steps to Respects was an effective program to reduce victimization among students with retaliatory aggression present prior to the implementation of a bullying prevention program.

Walk away, Ignore the bully, Talk it out and Seek help (WITS) is the basis of the WITS bullying prevention program (Leadbeater & Hoglund, 2006). Concepts involve supportive strategies for the whole community, and are included in the simple aspects of this intervention. WITS teaches students from kindergarten through fifth grade social strategies to avoid bullying behaviors and concepts to confront bullying behaviors. Just as the acronym states, the students are taught to Walk away, Ignore the bully, Talk it out and Seek help. Strategies and resource materials are provided to support classroom teachers, librarians, school counselors, policemen, firemen, paramedics, family members, and friends to develop the WITS program in their community.   The WITS manual is posted at www.youth.society.uvic.ca and is available for schools, community workers, and families to establish safe environments for children.

Denver, Colorado public elementary schools implemented a bullying prevention program named Youth Matters (YM). Jenson, Dieterich, Brisson, Bender, and Powell (2010) studied the effects of the 2-year trial period (i.e., 2005–2007) of YM. The curriculum-based program objective is to develop the student's social skills. Classroom lesson objectives teach the students coping and social strategies for application to aggressive behaviors. Student activities include classroom discussions, classroom projects, and school-wide projects.   Although victimization decreased during the first year, results of bullying between the intervention group and the control group did not show a significant difference. However, Jenson et al. (2010) found results that indicate classroom and school-wide interventions overtime (i.e., second year of implementation) are more effective than a year or less anti-bullying program. Jenson et al. suggest that educators and policy makers consider duration results, when deciding on an anti-bullying intervention to reduce bullying and victimization among school-aged students.

Research question 3. What differences were found in this meta-analysis compared to Merrell et al.'s (2008) meta-analysis? This meta-analysis of school-based bullying interventions was structured after Merrell et al.'s meta-analysis process to determine bullying intervention effectiveness among school-aged children.   Although this systematic literature review evaluated six studies over an eight year period compared to Merrell et al.'s analysis of 16 studies over a 25-year period, the results are similar. Table 1 is a chart comparing meaningful average effects of bullying interventions from Merrell et al.'s meta-analysis results, and the current meta-analysis results (Hornack, 2013).

Table 1
Bullying Intervention Study Comparison Percentages

Author and date	Positive meaningful average effects	Negative meaningful average effects	No meaningful average effect
Merrell et al. (2008)	36	4	60
Hornack (2013)	30	9	61

Note. Based on post meta-analysis results in Table C2.

Similar to Merrell et al.'s results, distribution of significant effect size results had no obvious pattern. Results from this study indentified effective outcomes from anti-bullying interventions that were meaningful for students victimization, bullying, depression, feelings of anxiety, self-esteem, leadership, and peer aggression. As Merrell et al. concluded, some bullying interventions show a small percentage of effectiveness. This study indicates similar effects. For this study, positive meaningful effects were evident for 36% of the outcome variables possible from six bullying interventions. The greater majority of outcomes for this study were associated with no significant or meaningful connection to school bullying intervention effectiveness. Parallel to Merrell et al.'s meta analysis a small portion of the outcome variables had negative implications toward bullying intervention programs. Negative outcomes could signify harmful effects from intervention program strategies. Educators should not ignore the possible negative effects, but use caution (Merrell et al., 2008). While harmful effects are important to consider, Fonagy et al. (2009) found that CAPSLE and SPC were more effective than treatment-as-usual(TAU). Simply said, some positive intervention tools and strategies are better than no intervention strategies.

Andreou et al. (2008) studied the effects of a curriculum-based anti-bullying intervention program. Results revealed an effective decrease in bullying and victimization during the first posttest. Positive outcomes indicated that curriculum-based lessons increased student efficacy and gave students the confidence needed to intervene during a bullying situation. These effective results diminished after the intervention lessons discontinued (Andreou et al., 2008). S.S GRIN (DeRosier & Marcus, 2005) increased the implementation time of a social skills based anti-bullying curriculum from Andreou et al.'s implementation time of 4-weeks to 8-weeks. Longer implementation time results indicated students' experienced increased self-efficacy, increased self-esteem, lowered social anxiety, and reduced depression.

Another implication Merrell et al. (2008) explain that the lack of significant effects are related to acquired knowledge. Although Merrell et al.'s average effect size for student self-reported bullying and teacher self-reported effects were less than significant compared to the present study's small significant results, the concept is the same. As Merrell et al. stated, "the average teacher actually reported more bullying after intervention than before" (2008, p. 39). Evidence in Merrell et al.'s study and the present study's findings suggests students and teachers were able to recognize bullying behaviors after bullying prevention knowledge was acquired from interventions.

Conclusions

An extensive systematic review of bullying prevention programs found significant bullying prevention effects for students and teachers. Student-reported victimization, bullying, peer-aggression, depression, anxiety, self-esteem, and leadership were found to be meaningful effective intervention results. Students and teachers realized significant intervention outcomes at a rate of 30% effectiveness, after the first implementation of an intervention. Conclusions from these significant results suggest effective school interventions improve student behavior, self-esteem, and student confidence. Decreasing average effects from follow-up results conclude that bullying interventions may need to continue well after the first implementation period.

Teachers expressed an increase in student victimization following an anti-bullying program. Ultimately, teachers may have been able to recognize bullying behaviors as a result of bullying intervention training sessions. Teacher training developed teacher awareness and teacher recognition of the bullying phenomenon (Menard, 2009; Menard & Grotpeter, 2011). Similar to the teachers, increased peer-reported student victimization may have resulted from student bullying awareness.   Meta-analysis results from this study agree with Merrell et al.'s (2008) study signifying that bullying interventions may raise the awareness of bullying behaviors.   Significant positive results indicate teacher training programs, student-based anti-bullying curriculum, and student discussions may have educated students and teachers to recognize bullying. In addition to recognizing bullying, students and teachers sustain positive effects from anti-bullying intervention implementation which are continued throughout the school year (Fekkes et al., 2006).   Negative results should certainly be considered as a precaution, but should not dissuade the positive effects of anti-bullying programs.

Recommendations for Future Research

Results from this meta-analysis are informative and resourceful for educators to consider for recommendations of effective and efficient school-based bullying interventions that may offer a safer environment for school-aged children. However, future studies relative to bullying interventions are needed to develop significant research with increased considerations to the sample size, eligibility criteria, and coding experience.

Sample size considerations for future meta-analysis evaluations on the effectiveness of bullying interventions should select studies with comparable sample size participants. The mix of studies used in this meta-analysis had various levels from a small number of participants (i.e., fewer than 100 participants) to a large number of participants (i.e., greater than 1,000 participants).   Future studies should limit participant sample size variations for decreased biased results.   Effect size requirements for future meta-analysis inclusion and exclusion criteria should expand the acceptable measures used to calculate effect size. Accepting percentages, odds ratios, significance levels, degrees of freedom, standardized regression coefficient may possibly increase the number of acceptable studies. In reference to coding reliability, Lipsey and Wilson (2001) recommend more than one coder. In this relative small study, only one coder was responsible for coding. Future meta-analyst should be advised to avoid judgmental influences which may affect the results from study to study, when only one coder is involved in the meta-analysis.

Future researchers may consider other issues surrounding the bullying phenomenon. Indications of predictive factors of bullying behaviors among students include witnessing of violent or neglected behavior, family conflict, or peer victimization. The U.S. Department of Health and Human Services at the state and local levels of Child Protective Services acknowledged 3.3 million child abuse or neglect complaints in 2008. In a study on bullying behavioral relationships between family resolutions and middle school student conflict resolutions, Brubacher, Fondacaro, Brank, and Brown (2009) found a strong correlation between the parents bullying attitudes and behaviors, and the child's bullying attitudes and behaviors. Future systematic reviews are needed to evaluate interventions that apply to the family environment, as well as the school environment, and address changes in behavioral attitudes.

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Contact email: ah893@nova.edu

Appendix A

Initial Criteria Checklist

Title:_____

Author(s):_____

Date:

__Abstract School - based Intervention

__Bullying behaviors (bullies, victims, or bystanders)

__Language used:
      __English
      __Other

__Publication 2005-2012

Appendix B

Final Eligibility Criteria
__Identified school-based bullying intervention Quasi-experimental
      __experimental group
      __controlled group
__Identified Bullying Behaviors
      __Bully
      __Victim
      __Bystander
      __Other
__Statistical analysis
      __Effect size
      __Mean
      __Standard deviation
      __Sample size (n) experimental group
      __Sample size (n) controlled group

Appendix C

Tables

Table C1

Description of Studies Used in Meta-Analysis

Study	Gender	Age Range (grade lev.)	Location	Intervention Prog./Duration	Measure. Type	Dependent Variable	Research Design	Outcome Summary
Andreou, Didaskalou, & Vlachou, (2008)	454 (249 boys, 205 girls)	Ages 10-12 (Grades 4-6)	Greece	Curriculum-based anti-bullying intervention program/ 4 weeks (2 hours each week)	Student self-report	bullying, victimization, pro-bully, pro-victim, self-efficacy, intention, behavior scales)	Quasi-experimental (Pretest/posttest 1, posttest 2)	Significant decrease in bullying, and victimization incidents after posttest 1. Increase in self-efficacy and intent to intervene. No significant intervention effect after posttest 2. Results indicated overtime the intervention effects had no significant difference between the experimental group and the control group.
DeRosier, & Marcus (2005)	Overall 536 students-187 identified treatment group (TX), 194 control identified group (CO)/ fairly equal proportions of male to female students	3rd grade	11- primary schools in Wake County, North Carolina	S.S. GRIN (Social Skills Group Intervention)/ eight consecutive weeks-one hour lesson each week	Student self-report, student peer-report	Self-efficacy, self-esteem, social outcome expectancy, social anxiety, depression,	Quasi-experimental, pre and posttest	Student self-reported results for the treatment group indicated increased self-efficacy, self-esteem, and lower social anxiety and depression. Peer reported results for the control group showed no difference. Long term results indicate an effective social skills intervention program.

(table continues)

Table C1 (*continued*)

Study	Gender	Age Range (grade lev.)	Location	Intervention Prog./Duration	Measure. Type	Dependent Variable	Research Design	Outcome Summary
Elledge, Cabell, Ogle, & Newgent, (2010)	36 students	9-10 years, 4-5th grade	Four US public elementary schools	Lunch Buddy mentoring program/4 months, twice a week during student's scheduled lunch	Student-report, peer-reported, teacher-report	Peer victimization, student victimization, Mentoring relationships, parent perspectives, teacher perspectives	Quasi-experimental, pre and posttests	Significant decrease in peer victimization among the mentored students. Mentors and mentored students indicated a positive experience. High approval ratings among teachers and parents.
Frey, Hirschstein, Snell, Edstrom, MacKenzie, & Broderick, (2005)	1,023 Students	8-11 years, 3rd-6th grade	Six suburban Pacific Northwest elementary schools	Steps to Respect school-wide anti-bullying program/12-14 week anti-bullying curriculum-ten one-hour lessons	Student-report, teacher-report	Bullying, encourage bullying target bullying, non-bullying aggression, agreeable social, argumentative social, perceived social, perceived difficulty of responding assertively to bullying	Quasi-experimental, random assignment, pre and posttests	Teachers reported results indicated a reduction in bullying behaviors. Student self-reported higher occurrences of victimization among the intervention group. Overall, there were no significantly effective results. However, results did suggest positive changes in bullying behaviors, bullying beliefs, and student social skills.

(*table continues*)

Table C1 (continued)

Study	Gender	Age Range (grade lev.)	Location	Intervention Prog./Duration	Measure. Type	Dependent Variable	Research Design	Outcome Summary
Kärnä, Voeten, Little, Poskiparta, Kaljonen, & Salmivalli, (2011)	8,166 students, (50.1% girls, 49.9% boys)	9-11 years/ 4-6th grade	78 comprehensive Finland schools	KiVa, a national (Finnish) whole-school anti-bullying program/ 20 hour program includes classroom lessons, discussions, cooperative activities, bullying videos, and virtual interactive games	Student-report, peer-report	Victimization, bullying, assisting, reinforcing, defending, anti-bullying attitudes, victim empathy, self-efficacy, well-being at school	Quasi-experimental, intervention group to control group (different time periods), 2-pretests, posttests randomized assigned	Students in the intervention group were more likely than the control group to intervene and look after victims. Bullying was reported less and student confidence was higher in the intervention group compared to the control group at wave-2 and wave-3 periods. At wave-3 the intervention and control students did not show a significant difference to intervene or show sympathy for the victim. Effect size results indicate a significant reduction in bullying and victimization among the intervention group. Intervention participants showed evidence of changing attitudes and behaviors.

(table continues)

Table C1 (continued)

Study	Gender	Age Range (grade lev.)	Location	Intervention Prog./Duration	Measure. Type	Dependent Variable	Research Design	Outcome Summary
McLaughlin, Laux, & Pescara-Kovach, (2006)	110 students	Average age of 8.8 years (3rd grade)	Three urban Midwest school district	Multimedia Interventions (internet activities, video interventions, software interactive intervention)/ Intervention implementation one-hour sessions weekly for eight weeks, identified bullies and victims received individual counseling once a week for 30 minutes during implementation	Student self-report	Bullying, victimization	Quasi-experimental pre and posttest	Indications among the 3 intervention groups showed a reduction in victimization and bullying. However, results from implementations could not be correlated since all groups participated in at least one multimedia intervention. Educators may consider the cost effective elements of the counselor and teacher intervention as a valuable resource for school districts on a limited budget.

Table C2

Results of Meta-Analysis: Summary of Post Effect Sizes by Assessment Method and Classification Variable

Method/Classification Variables	No. of Studies	No. of Effect Size	Avg. Effect Size	No. of Sig. Positive Effects	No. of Sig. Negative Effects
Student self-report					
Antisocial affiliation/rejection/withdrawal	1	3	.09	0	0
Being bullied (victim, victimization)	6	6	.26	2	0
Bullying others (bully, bullying)	5	6	.25	3	0
Well-being at school	1	1	-.15	0	0
Depression	1	1	.21	1	0
Feelings of anxiety (social anxiety-general, new)	1	2	.37	2	0
Global self-esteem	1	1	.37	1	0
Ignore/refuse to join bullying (anti-bullying attitudes)	1	1	.16	0	0
Intervene to stop bullying (intention, bystander responsibility)	3	3	.10	0	0
Leadership	1	1	.23	1	0
Positive attitude toward bullying (Pro-bully)	1	1	.19	0	0
Self-efficacy (defending)	3	3	.08	1	0
Social outcome expectancy (expected-acceptance of bullying)	2	2	.19	0	0
Sympathy for victims (Pro-victim)	2	2	.04	0	0
Teacher action/response (adult responsiveness)	1	1	-.13	0	0
Teacher self-report					
Efficacy of intervention skills (interaction skills)	1	1	-.01	0	0
Teacher report of child behavior					
Student Victimization	1	1	-.54	0	1

(table continues)

Table C2 *(continued)*

Method/Classification Variables	No. of Studies	No. of Effect Size	Avg. Effect Size	No. of Sig. Positive Effects	No. of Sig. Negative Effects
Peer report					
Identified aggressors (aggression)	1	1	.25	1	0
Identified victims (victimization)	2	3	-.24	0	1
Participation in bullying	1	1	.09	0	0
Participation in bullying roles-assisting	1	1	.11	0	0
Participation in bullying roles-reinforcing	1	1	.09	0	0
Participation in bullying roles-defending	1	1	-.14	0	0

Table C3

Results of Meta-Analysis: Summary of Follow-up Effect Sizes by Assessment Method and Classification Variable

Method/Classification Variables	No. of Studies	No. of Effect Size	Avg. Effect Size	No. of Sig. Positive Effects	No. of Sig. Negative Effects
Student self-report					
Being bullied (victim, victimization)	2	2	.20	2	0
Bullying others (bully, bullying)	2	2	.14	0	0
Well-being at school	1	1	-.15	0	0
Ignore/refuse to join bullying (anti-bullying attitudes)	1	1	-.13	0	0
Intervene to stop bullying (intention,, bystander responsibility)	1	1	-.28	0	1
Positive attitude toward bullying (Pro-bully)	1	1	.22	1	0
Self-efficacy (defending)	2	2	-.15	0	0
Sympathy for victims (Pro-victim)	2	2	-.13	0	0
Peer report					
Identified victims (victimization)	1	1	.21	1	0
Participation in bullying	1	1	.15	0	0
Participation in bullying roles-assisting	1	1	.14	0	0
Participation in bullying roles-reinforcing	1	1	.12	0	0
Participation in bullying roles-defending	1	1	-.13	0	0