Strengthening teachers in their role to identify and address bullying among students in elementary schools

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CHAPTER 2

Effects of Antibullying Programs
on Teachers' Interventions in Bullying Situations:
A Meta-Analysis

ABSTRACT

Even though teachers are key figures of a program's effectiveness, most intervention studies have not focused explicitly on the effects of antibullying programs at the teacher level. We conducted a meta-analysis into the effects of school-based antibullying programs on determinants of teacher intervention, including teachers' attitudes towards bullying, their self-efficacy and knowledge regarding intervention strategies, and the effects on teachers' bullying intervention itself. Following PRISMA guidelines, 13 peer-reviewed papers were retrieved that reported outcomes on teachers, staff, and students (N = 948, 2,471, and 138,311, respectively). Antibullying programs had a significant moderate effect on determinants of teacher intervention (g = 0.531) and a significant small to moderate effect on teacher intervention in bullying situations (g = 0.390). Results of the meta-analysis indicate that the effectiveness of antibullying programs may increase when components are included to reinforce teachers' attitudes, subjective norms, self-efficacy, knowledge, and skills towards reducing bullying in the school.

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INTRODUCTION

As bullying is a serious issue in schools, much research has been done in the past decade on the effectiveness of antibullying programs. In line with the objectives of antibullying programs, experimental research has mainly focused on the effects of programs on the bullying behavior and wellbeing of students. Reviews of experimental studies have shown that such interventions can be effective in reducing bullying behavior (Evans et al., 2014; Jiménez-Barbero et al., 2015; Ttofi & Farrington, 2011). However, some other review studies revealed smaller effects (Lee et al., 2015; Vreeman & Carroll, 2007; Wilson et al., 2003), or reported no effects at all (da Silva et al., 2017; Merrel et al., 2008; Park-Higgerson et al., 2008). The most positive outcomes so far have been produced by comprehensive whole-school antibullying interventions (da Silva et al., 2017; Farrington & Ttofi, 2009; Smith et al., 2004; Whitted & Dupper, 2005). This type of intervention often consists of a combination of classroom rules, school policy, teacher training, classroom curriculum, conflict-resolution training, individual counseling, information provided to parents, and increased supervision at the playground (da Silva et al., 2017; Vreeman & Carroll, 2007).

Even though teachers are key determinants of a program's effectiveness (Durlak & DuPre, 2008), most intervention studies have not explicitly focused on the effects of antibullying programs at the level of teachers (Veenstra et al., 2014). An important role of teachers is to intervene in bullying situations when it occurs, or immediately afterwards, in order to stop this behavior. Teachers therefore need to have the right skill to identify bullying situations and to intervene appropriately. Failing to do this, can make victims feel helpless and isolated. It can also reinforce bullying behavior because the bullies are not reprimanded (Yoon, 2004; Yoon & Kerber, 2003). Teachers can also influence bullying behavior through other strategies, such as by reinforcing students' antibullying norms, by activating students to act in accordance with these norms (Veenstra et al., 2014, p. 1136) and by modeling positive behavior (Dedousis-Walace & Shute, 2009; Gorsek & Cunningham, 2014; Saarento et al., 2015; Smith & Low, 2013).

There is some preliminary evidence that teacher bullying intervention affects students' behavior and wellbeing. Less peer victimization was reported in classrooms where teachers actively stand against bullying (Veenstra et al., 2014), whereas higher levels of peer victimization were reported in classrooms in which teachers avoid to address students' aggressive behavior (Hektner & Swenson, 2012; Marachi et al., 2007). Further, students who were highly victimized by their peers experienced higher levels of anxiety, but only when their teacher reported lower levels of self-efficacy to handle bullying situations, or when antibullying classroom rules were absent or rarely enforced (Guimond et al., 2015). Finally, reduced levels of both self- and peer-reported peer victimization were found in classrooms where students more strongly believed that their teacher

disapproved of bullying. These perceptions of teacher attitudes mediated the effects of the KiVa antibullying program at student level (Saarento et al., 2015).

Although little research has been done into effective intervention strategies, there are indications from previous studies that separating students is the most consistent strategy to reduce peer victimization (Ladd & Pelletier, 2008; Troop-Gordon & Ladd, 2015). Other strategies, such as advocating assertion to victimized students and reprimanding aggressors, yielded mixed effects for girls and boys (Troop-Gordon & Ladd, 2015; van der Zanden et al., 2015). According to former victims of bullying behavior, school staff interventions were effective in ending the bullying, and responding more assertive in bullying situations was also found to diminish the bullying (Frisén et al., 2012). It is possible that teachers choose different intervention strategies depending on the degree of bullying in the classroom, the bullying situation, and characteristics of the child (Hektner & Swenson, 2012; Troop-Gordon, 2015; Troop-Gordon & Ladd, 2015). The effectiveness of intervention strategies should therefore always be investigated in conjunction with such factors.

The importance of training teachers in addressing bullying in their classrooms was shown in several studies. Teachers have reported that they feel unprepared to intervene in bullying situations (Bauman & Hurley, 2008; Benitez et al., 2009) and they would like additional training (Bauman & Hurley, 2008; Bradshaw et al., 2012). Teachers who had attended training in dealing with bullying felt more competent to intervene in bullying situations effectively than teachers who did not participate in such a training activity (Byers et al., 2011). It is therefore important to investigate whether teachers are sufficiently supported by antibullying programs in order to reduce bullying.

The most common way to evaluate teacher intervention is through teachers' self-reports or through student reports. Teachers are asked to indicate to what extent they feel capable of dealing with bullying situations (Guimond et al., 2015) or to what extent they would use certain intervention strategies (Hektner & Swenson, 2012). When students are involved as informants, they are usually asked to indicate to what extent their teacher can reduce bullying or how often their teacher intervenes when bullying occurs (Veenstra et al., 2014). In addition, students are sometimes asked to estimate to what extent their teacher thinks bullying is good or bad (Veenstra et al., 2014; Saarento et al., 2015).

Whether teachers intervene in a bullying incident is determined by different factors, such as teachers' own beliefs, attitudes and their self-efficacy to intervene (Yoon et al., 2014). These factors are derived from the theory of planned behavior (TPB, Ajzen, 2012). The TPB proposes that behaviors are preceded by intentions, and that these intentions are influenced by three determinants: attitudes, subjective norms, and perceived behavioral control toward that behavior (Ajzen, 2012). This theory has been used previously as a theoretical framework to investigate bullying behavior (Heirman

& Walrave, 2012; Pabian & Vandebosch, 2014), teacher attitudes and behavior toward children with social, emotional and behavioral difficulties (MacFarlane & Woolfson, 2013), and teacher intervention in bullying situations (Boulton et al., 2014; Yoon & Bauman, 2014). Following this line of study into factors related to bullying intervention by teachers, we used the TPB as a theoretical framework in our study.

Attitudes toward behavior are determined by one's beliefs about the behavior and by the perceived probability that the behavior will produce a certain outcome. Several studies found that teachers were more likely to intervene in bullying situations when they considered bullying as a serious event that needs to be stopped (Byers et al., 2011; Dedousis-Wallace et al., 2014). Beliefs towards bullying also determines how teachers respond to a bullying situation. For instance, teachers who find bullying inherent in the development of children were more likely to tell students to deal with bullying on their own, to ignore or avoid aggressive students, and were less likely to discipline the bully (Troop-Gordon & Ladd, 2015), while these strategies are not consistent with best practices to prevent bullying (Whitted & Dupper, 2005).

The subjective norm concerns an individual's perception whether he or she should exhibit a specific behavior. This can be influenced by significant others or by norms and values of the social environment. Teachers' perspective of whether or not to intervene in bullying situations was found to be affected by the extent to which they received school support in applying a whole-school response to bullying (Migliaccio, 2015). With school support, teachers were more willing to take responsibility to change the bullying culture in the classroom and in the school. In addition, it is likely that school support also contributes to the support among teachers in the team to be involved in the program and to perceive the intervention as an effective way to stop bullying. Teachers who perceived an intervention as effective, implemented the program adequately (Domitrovich et al., 2008), which in turn was linked to more positive program outcomes (Durlak & DuPre, 2008). These findings underline the importance of school support and program implementation for a shared subjective norm among teachers.

Perceived behavioral control refers to an individual's perceived ability to perform a certain behavior, which is strongly related to Bandura's concept of self-efficacy (Bandura, 1977). Several studies found that teachers who perceived themselves as capable to address bullying are more likely to intervene successfully in bullying situations (Dedousis-Wallace et al., 2014; Williford & Depaolis, 2016; Yoon et al., 2014). Moreover, when teachers were considered by their students as more effective to handle bullying situations, lower rates of peer victimization were reported in their classrooms (Novick & Isaacs, 2010; Veenstra et al., 2014; Yoon, 2004).

The concept of knowledge is often included as a determinant of intention and behavior to the framework of TPB. In case of bullying, knowledge refers to understanding the symptoms of bullying and victimization (Nicolaides et al., 2002), knowing which
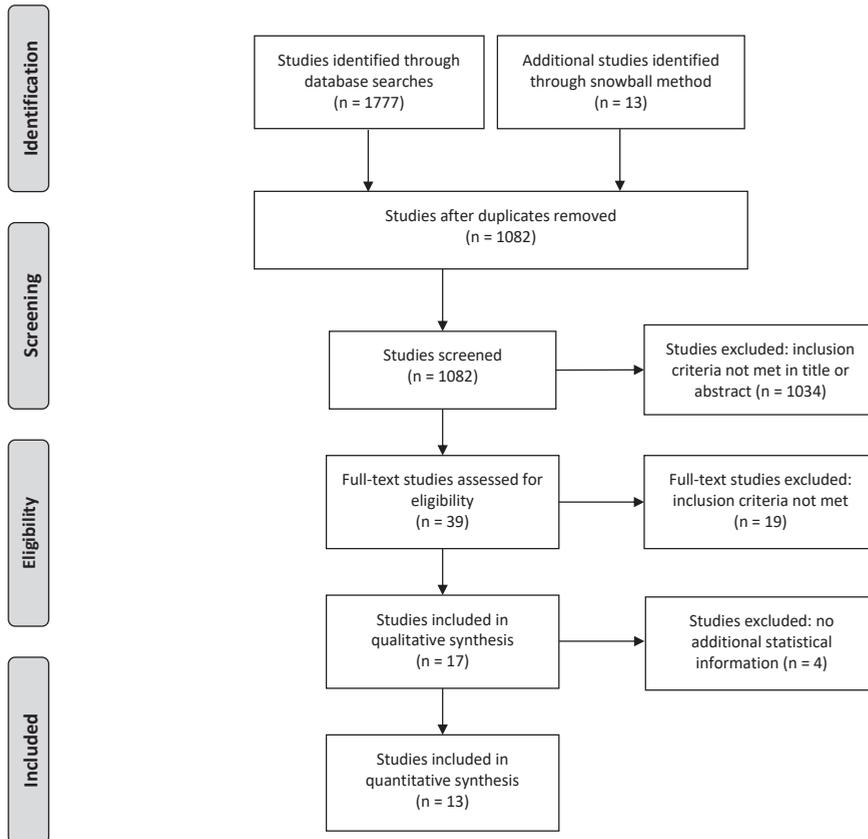
Figure 1. Flow diagram of search strategy.

incidents of bullying take place (Oldenburg et al., 2016), and knowing what actions can be done to intervene (Dedousis-Wallace et al., 2014; Lester et al., 2018). Even though evidence for the link between knowledge and teacher intervention is limited, it has been shown that lower levels of victimization have been reported when teachers were aware of victimized students in the classroom (Serdiouk et al., 2015).

It remains unclear what the effects are of antibullying programs on teachers their knowledgebase, attitudes and subjective norm towards peer victimization, their self-efficacy, and their interventions in practice. Currently, there is no comprehensive overview available of experimental studies conducted that have addressed the antibullying program effects at a teacher level. In the current meta-analysis, we aim to fill this gap of knowledge by investigating whether antibullying programs show this effect on teachers' intervention practices in bullying situations. In addition, we investigated the effects of antibullying programs on determinants of teacher intervention to stop bullying, i.e., attitudes, subjective norms, self-efficacy, and knowledge.

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METHOD

Selection of Studies

We conducted a systematic search for peer-reviewed papers in English in five databases: Cochrane, ERIC, PsycINFO, PubMed, and Web of Science. We included all years of publication up till September 2018. We used variations of the following keywords and terms for each category: 1) bullying or peer victimization; 2) school or education; 3) teacher or school professional 4) intervention or program, and 5) (quasi-)experimental design or randomized controlled trial (see Appendix A for a complete overview). To exclude results on bullying at the workplace and associations, we added 'NOT workplace NOT associat*' to each search string. The composite search with all keywords combined generated 1,777 studies. Reference lists of relevant studies were scanned and produced thirteen additional studies to include. After deletion of duplicate articles, the composite search yielded 1,082 studies (see Figure 1 for our search strategy and selection procedure).

Titles and abstracts were initially screened based on the following inclusion criteria: (a) the publication concerned an intervention study that measured the effectiveness of a school-based universal antibullying program at the level of teachers or other school professionals; (b) the evaluated intervention was explicitly focused on the prevention or reduction of bullying behavior among students; (c) outcome variables reflected teachers' responsiveness to prevent or reduce bullying, including determinants of behavior (e.g., teachers' attitudes, self-efficacy); (d) outcome variables were measured with quantitative methods in order to calculate effect sizes; (e) the study should be published in peer-reviewed scholarly journals and be available in English. If one or more of these criteria was not met, the study was excluded.

Of the 1,082 studies, most were identified as intervention studies evaluating the effectiveness of a program on students or classrooms. A large part of the studies were non-experimental studies examining relations between teacher characteristics and peer victimization. This led us to exclude 1,041 studies from our study, resulting in 39 studies to assess for eligibility.

Based on the same inclusion criteria, full text records of the remaining studies were evaluated in detail. After further inspection, 21 studies did not meet the inclusion criteria and were excluded. The majority of these studies evaluated programs focused on the broader social development of students instead of specific antibullying programs. The remaining studies used qualitative measures to evaluate effects of antibullying programs. With regard to the quantitative synthesis, seven out of the 17 studies did not report all statistical data to calculate effect sizes. We contacted the corresponding authors of these studies by e-mail. Three authors responded with additional statistical information and their studies were included. Eventually, we included 13 studies for the meta-analysis (see Appendix B).

Coding of Studies

For the descriptive part of this study, a coding scheme was used to extract relevant information from the included studies. Each study was independently rated by two reviewers on the following components: 1) research methodology 2) program components and 3) teacher outcomes measures. After the coding procedure, the reviewers (three in total) compared the ratings and discussed discrepancies to reach a final decision for each study.

We assessed the research methodology with the following study characteristics: sample of schools, study sample (i.e., teachers, students, or staff), procedure (e.g., program implementation), and research design (i.e., research design and allocation of participants). We used the Quality Assessment Tool for Quantitative Studies (Evans et al., 2015) to assess the methodological quality of all included studies. This tool contains the six following criteria: a) selection bias; b) study design; c) confounders; d) blinding; e) data-collection method; and f) withdrawal and dropouts. Blinding was not included in our quality assessment, as it is uncommon in this field of educational research. Guidelines include criteria to rate each category as 'weak', 'moderate' or 'strong'. Studies were rated as 'strong' if all criteria have been assessed as satisfactory, 'moderate' in case of one unsatisfactory criterium, and 'weak' in case of two or more unsatisfactory criteria. After discussion between both reviewers on any discrepancies with respect to the ratings for each category, a final decision of both reviewers was given. This resulted in a global rating for each study of 'strong', 'moderate' or 'weak' (= .75). 'Strong' studies had no major sources of possible bias, whereas 'weak' studies implied low confidence in true treatment effects.

Programs were coded into the following categories: bullying assessment, classroom activities, teacher training, program manual, coordinator, school policy, parent activities, and individual actions, other (= .81). These categories were based on dominant themes from the literature related to universal antibullying programs (see Ansary et al., 2015; Lee et al., 2015; Vreeman & Carroll, 2007). We classified program components into four levels, based on the categorization described by Farrington and Ttofi (2009): a) individual level (e.g., talks with bullies and victims); b) classroom level (e.g., student curricula); c) school level (e.g., teacher and staff training); and d) other. Assuming that teacher or staff training most likely focused on improving staff and teachers' responsiveness to bullying, focus of training was coded into the following categories; increasing teacher knowledge or awareness, improving teacher beliefs or attitudes, enhancing skills or competencies, and other. Also, the hours allocated to training were coded.

Outcome variables were coded into three categories according to the TPB model (= .84). The first category refers to determinants which are assumed to precede teacher intervention: a) teacher attitudes or beliefs toward bullying (i.e., bullying is a normative behavior); b) teachers' subjective norms regarding the antibullying intervention being implemented within the school context (i.e., perceptions toward the intervention); and

c) teacher sense of self-efficacy to handle bullying (i.e., feeling capable to handle bully-ing situations); and d) teachers' knowledge on bullying and intervention strategies. The second category refers to teachers' intentions to respond to a bullying incident (i.e., willingness to intervene). The third category refers to teachers' responses to bullying (i.e., teacher intervention). The way of measuring each outcome variable was coded as 'self-report', 'student-report', or 'other'.

Statistical Analysis

Effect sizes (Hedges' g) were extracted from differences between post test scores from experimental and control groups, or change scores from pre- and posttest on teacher outcome measures using Comprehensive Meta-Analysis software (Borenstein et al., 2006). Intervention effects were integrated into a summary effect sizes for determi-nants of teacher intervention and for teacher intervention. As teachers' willingness to intervene in bullying cases was evaluated in only one study, we were unable to calculate an aggregated effect size for this category.

   The selected studies for meta-analysis consisted of a mixture of repeated measures designs and independent group designs. Standard errors for repeated measures design were determined on the basis of the work of Morris and DeShon (2002). The variance for effect sizes of the within-design studies was estimated using the large-sample approxima-tion formula (no. 13) of Becker (1988). As correlation between the pretest and posttest was not usually available, a conservative estimate of $r = .50$ was therefore used as default to determine the variance of the effect sizes of the repeated measure design studies.

   We applied a robust variance estimation model for the aggregated analysis using IBM SPSS Statistics 24 (IBM Corp., 2016), which is particularly suited for meta-analyses with a relatively small number of studies (Hedges et al., 2010; Tanner-Smith & Tipton, 2013). We used the correlated effects method as some studies included multiple measurements at teacher level. We performed leave-one-out sensitivity analyses for each category (i.e., determinants, intentions, and behavior) by iteratively removing one study at a time and recalculating the summary effect size.

RESULTS

Description of Studies

The included studies ($n = 13$) examined a total of eight antibullying interventions: KiVa (originated in Finland), Bully Busters (UK), Olweus Bullying Prevention Program (Norway), I DECIDE (UK), Steps to Respect (US), ViSC Social Competence Program (Austria), the Sheffield project (UK), and Expect Respect (US). Almost all studies were conducted in the country where the program was developed, except three studies from the US that

Table 1 *Study Characteristics of Included Studies*

Author	Program	Grade	Informant	Total Sample ($N_{exp} + N_{con}$)	R/ NR$_a$	C$_b$	Pre	Post	FU$_c$	Q$_d$
Athola et al. (2012)	KiVa	1-6	Teachers	238 (128+110)	R	X	-	X	-	S
Bell et al. (2010)	Bully Busters	5-6	Teachers	50	NR	-	X	X	-	M
Black and Washington (2008)	OBPP	3-7	Students	2,631	NR	-	X	X	X	W
Boulton (2014)	I DECIDE	2-6	Teachers	249 (≈124+≈125)	NR	X	X	X	X	S
Brown et al. (2011)	Steps to Respect	3-5	Staff	1,296 (≈648+≈648)	R	X	X	X	-	S
			Students	2,940 (≈1,470+≈1,470)	R	X	X	X	-	
Frey et al. (2005)	Steps to Respect	3-6	Students	1,126 (≈563+≈563)	R	X	X	X	X	S
Howard et al. (2001)	Bully Busters	7	Teachers	11	NR	-	X	X	-	W
Limber et al. (2018)	OBPP	3-12	Students	120,608	NR	-	X	X	X	M
Newman-Carlson and Home (2004)	Bully Busters	7	Teachers	30 (≈15+≈15)	NR	X	X	X	-	S
Pepler et al. (2004)	OBPP	3-7	Students	369 (186+183)	NR	X	X	X	X	W
Schultes et al. (2014)	ViSC	5-7	Teachers	370	NR	-	X	X	-	W
Smith et al. (2004)	Sheffield project	3-10	Students	8,874 (7033+1841)	NR	X	X	X	-	W
Whitaker et al. (2004)	Expect Respect	5	Staff	1,175 (666+509)	R	X	X	X	-	W
			Students	1,763 (929+834)	R	X	X	X	-	

Note. Limber et al. (2018) conducted an extended age cohort design. Black and Washington (2008) and Pepler et al. (2004) conducted a longitudinal design.
$_a$R = Randomized, NR = Non-randomized.
$_b$C = Control group.
$_c$FU = Follow up.
$_d$Q = Quality of methodology (S = Strong, M = Moderate and W = Weak).

examined effects of the Olweus Bullying Prevention Program (OBPP, see Black & Washington, 2008; Limber et al., 2018; Pepler et al., 2004). Table 1 provides an overview of the study characteristics of the included studies.

Five studies applied an experimental design with randomized allocation of schools to conditions. One study randomized at both school and teacher level. Four studies used a quasi-experimental design with non-randomized assignment of participants and another four studies

applied a non-experimental design without a comparison group. The methodological quality was 'strong' for five studies, 'moderate' for two studies, and 'weak' for six studies.

Overall, data from 948 teachers, 2,471 staff members, and 138,311 students were included in the meta-analysis. Six studies contained teachers as informants for measuring teacher outcomes, two studies used reports of staff members, and reports of students were examined in seven studies. Eleven programs were implemented in elementary and middle schools and two studies were conducted across elementary, middle and high schools.

Antibullying Program Components and The Role of Teachers. Analysis of the program descriptions indicated that teachers were involved in several components of antibullying programs. Table 2 shows a descriptive overview of the intervention levels targeted by the various program components of the evaluated antibullying programs. KiVa, OBPP, Steps to Respect, the Sheffield project, and the Expect Respect program were described as whole-school, programs with multiple components targeted on different levels in the school (i.e., school, class, individual level, and sometimes community level). Bully Busters, I DECIDE, and the ViSC Program consisted of an extensive training session for teachers and a component with student lessons. Bully Busters was described as a 'school-based program', and I DECIDE and ViSC Social Competence Program were based on specific principles (i.e., cognitive-behavioral approach and social-deficit model respectively). In addition, these programs focused more on the role of teachers compared to other programs. The training methods of these programs were dependent on the way teachers can transfer the specific program principles to their students. This is in contrast with the school-wide programs, that contained more components.

Table 2 *Anti-bullying Programs: Components at School, Classroom and Individual Level*

Program	School level	Classroom level	Individual level	Other
KiVa	Staff training Coordinating team Program manual Student survey	Student curriculum	Guidelines for working with students involved in bullying	
Bully Busters	Staff training Program manual	Classroom discussions	Guidelines for working with students involved in bullying	
OBPP	Staff training Coordinating team Student survey Supervision high risk areas Policy development	Student curriculum Classroom discussions Enforcing school-wide rules against bullying	Guidelines for working with students involved in bullying	Parent involvement Collaboration with community members
I DECIDE	Staff training	Student curriculum		
Steps to Respect	Staff training Program manual	Student curriculum	Guidelines for working with students involved in bullying	
ViSC	Staff training Coordinating team	Student curriculum		
Sheffield project	Staff training Policy development Supervision high risk areas Redesigning playground environment	Student curriculum	Guidelines for working with students involved in bullying	
Expect Respect	Staff training Policy development	Student curriculum	Guidelines for working with students involved in bullying or sexual harassment	Parent involvement

At school level, all programs provided a teacher or staff training package with a component aimed at strengthening teachers' awareness and responsiveness towards bullying. Other components at school level included the development of a coordinating team that was responsible for the implementation of certain program components (i.e., KiVa, OBPP, ViSC); the use of a student questionnaire to measure the degree of bullying behavior at school (i.e., KiVa, OBPP); increased supervision in 'high risk areas', such as the playground (i.e., OBPP, Sheffield project); and policy development at school level (e.g., development of an antibullying protocol; i.e., OBPP, Sheffield project, Expect Respect).

All programs contained components at classroom level, including a student curriculum (i.e., all programs except Bully Busters), classroom discussions (i.e., Bully Busters and OBPP), and guidelines to enforce school-wide rules in the classroom (i.e., OBPP). During a teacher training session, teachers received guidelines to implement these classroom activities. Some programs also provided a program manual to support teachers in the implementation of the classroom activities. Six antibullying programs (i.e., all programs except I DECIDE and ViSC) included program components aimed at individual students involved in bullying situations. In these programs, teachers were provided with guidelines to signal bullying and victimization, and then how to address bullying itself. Finally, two programs (OBPP, Expect Respect) contained parent involvement components.

Training Components. All programs provided a face-to-face workshop for teachers. The training component of KiVa was primarily aimed at members of the coordination team, but teachers and other staff members were invited to voluntary participate in the training as well. The Bully Buster, I DECIDE and ViSC training components were only aimed at teachers, while the training workshops of OBPP, Steps to Respect, and Expect Respect involve other staff members as well. Three programs (i.e., KiVa, Bully Busters, and Steps to Respect) also offered a program manual in addition to the face-to-face training sessions. As an illustration, the program manual of Bully Busters described the seven modules on which the training sessions were based. The OBPP-program and one of the Bully Busters' evaluations also described on-site support and ongoing consultation by certified program trainer-consultants, who helped school professionals to address challenges and to maintain program integrity.

All training components of antibullying programs were aimed at improving teacher and staff awareness and responsiveness to bullying situations. In five programs (i.e., KiVa, Bully Busters, Steps to Respect, ViSC, and Expect Respect), teacher and staff awareness was cultivated by providing knowledge information on bullying and victimization (e.g., a definition of bullying or a model on how to recognize bullying). In order to increase teacher and staff responsiveness to bullying, all programs offered teachers and staff a model for how to respond effectively to witnessed or reported incidents. Further, based

on the program descriptions in the studies, the focus of the training in a number of programs seemed broader than just strengthening the teacher in their competencies to reduce bullying. For instance, the training components of KiVa, Steps to Respect, and the Sheffield project included instructions on the overview of the program and practical issues for an effective program delivery as well.

A theory of change, in which the mechanisms that are understood to contribute to increased teachers' responsiveness to bullying, was described in the evaluation of Bully Busters program (Bell et al., 2012) and the KiVa program (Athola et al., 2012). The authors of the Bully Busters evaluation explained that each teacher support group session focused on strengthening different aspects of teacher intervention, such as increasing awareness, recognizing the bully and victim, intervention strategies for bullying behavior and for helping victims, and the role of prevention, relaxation and coping skills. Besides, teachers were facilitated with materials to reduce aggressive and bullying behavior through classroom discussions and to improve basic social skills related to managing conflict through classroom activities. With regard to the KiVa program, it was argued that teaching students the principles of bullying, is likely to change or refine their own view of bullying as well. It was also expected that school team members' experiences improve teacher's self-efficacy and competence in tackling bullying.

Although other program evaluations did not explicitly describe the effect on teachers' awareness and responsiveness, it is often implicitly assumed that increased awareness and responsiveness among teachers can have positive effects on students. In the evaluations of Bully Busters, ViSC, Expect Respect, OBPP, and Steps to Respect it was suggested that strengthening the teacher ultimately leads to a change in the school climate in which bullying is not tolerated and a support system for victims and bullies. In addition, the program supports teachers with student lessons with corresponding goals. For example, the lessons of Bully Busters are aimed at promoting prosocial norms and behaviors in the classrooms and increasing students' social-emotional skills.

In contrast to the other programs, the Sheffield Project is primarily aimed at facilitating the implementation of the various components in the classroom without a clear focus on strengthening the teacher.

In summary, whereas I DECIDE and Bully Busters are–based on the assumption that change in teachers was established through a specific teacher training, KiVa is based on the notion that teachers learn by delivering the program. The remaining programs do not seem to have a clear theoretical framework to strengthen the teacher.

Some programs provided training of 1 or 2 days, while others delivered training in 15 training units of 45 minutes each. Except for the Bully Busters, I DECIDE, and ViSC program, all programs offer different training sessions for specific school professionals, such as an additional workshop for the coordinating committee, or a curriculum training for teachers.

Results of the Meta-analysis

A total of 24 effect sizes were extracted from the thirteen studies included in our meta-analysis. Table 3 gives an overview of outcome measures for determinants of behavior (i.e., attitude, subjective norms, self-efficacy, and knowledge), intention to perform behavior (i.e., willingness to intervene), and behavior (i.e., teacher or staff intervention to handle bullying cases).

Table 3 *Outcome Measures Categorized Into TPB Framework*

Author	Program	Informant	Outcome measure	Categorization
Determinants				
Athola et al. (2012)	KiVa	Teachers	Teacher understanding of bullying as a malleable phenomenon	Attitude
Athola et al. (2012)	KiVa	Teachers	Teacher confidence in program effectiveness.	Subjective norms
Athola et al. (2012)	KiVa	Teachers	Teacher competence to tackle bullying	Self-efficacy
Bell et al. (2010)	Bully Busters	Teachers	Teacher self-efficacy for working with students who exhibit bullying or victimization behaviors	Self-efficacy
Boulton (2014)	I DECIDE	Teachers	Perceived effectiveness of cognitive-behavioral approaches	Subjective norms
Boulton (2014)	I DECIDE	Teachers	Teacher self-efficacy for using the strategies offered by the intervention program	Self-efficacy
Howard et al. (2001)	Bully Busters	Teachers	Teacher knowledge of bullying intervention techniques	Knowledge
Newman-Carlson and Home (2004)	Bully Busters	Teachers	Teacher knowledge of bullying intervention techniques.	Knowledge
Schultes et al. (2014)	ViSC	Teachers	Teacher ability to stop violence among students in the long term.	Self-efficacy
Intentions				
Brown et al. (2011)	Steps to Respect	Students	Teacher willingness to intervene in observed acts of bullying	Willingness
Brown et al. (2011)	Steps to Respect	Staff	Teacher willingness to intervene in observed acts of bullying	Willingness
Perceived behavior				
Black and Washington (2008)	OBPP	Students	Frequency of teachers trying to put a stop on bullying	Intervention
Brown et al. (2011)	Steps to Respect	Students	Whether teachers and staff are doing the "right things" to prevent bullying	Intervention
Frey et al. (2005)	Steps to Respect	Students	Perceived adult responsiveness	Intervention
Howard et al. (2001)	Bully Busters	Teachers	Teacher use of bullying intervention techniques	Intervention
Limber et al. (2018)	OBPP	Students	Students' perceptions that their teacher had addressed bullying	Intervention
Newman-Carlson and Home (2004)	Bully Busters	Teachers	Teacher use of bullying intervention techniques	Intervention
Pepler et al. (2004)	OBPP	Students	Teacher intervention	Intervention
Schultes et al.	ViSC	Teachers	Teacher behavior change in bullying situations	Intervention
Smith et al.	Sheffield	Students	Teacher stops bullying	Intervention
Whitaker et al.	Expect Respect	Staff	Staffs' typical actions to physical bullying	Intervention
Whitaker et al.	Expect Respect	Staff	Staffs' typical actions to verbal bullying	Intervention
Whitaker et al.	Expect Respect	Students	Students' perceptions to staffs' actions upon witnessing physical bullying	Intervention
Whitaker et al.	Expect Respect	Students	Students' perceptions to staffs' actions upon witnessing verbal bullying	Intervention

Effects on Determinants of Teacher Intervention. The meta-analysis on antibullying programs and determinants of teacher intervention was based on six studies that provided nine effect sizes for a total of 948 teachers (see Table 4). Experimental outcomes, based on teachers' self-reports, ranged from no effects (Hedges' g = -0.018) to very large positive effects (g = 1.668). Under the assumption of a correlated effects model, there was a significant moderate positive effect of antibullying programs with regard to

Table 4 *Mean Effect Sizes For TPB Variables*

Author	Program	Category	Hedges g	SE	95% CI Lower limit	95% CI Upper limit
Determinants						
Athola et al. (2012)	KiVa	Attitude	0.007	0.130	-0.21	0.30
Athola et al. (2012)	KiVa	Subjective norms	-0.018	0.130	-0.27	0.24
Athola et al. (2012)	KiVa	Self-efficacy	0.324*	0.130	0.07	0.58
Bell et al. (2010)	Bully Busters	Self-efficacy	0.532*	0.198	0.14	0.92
Boulton (2014)	I DECIDE	Subjective norms	0.490*	0.132	0.24	0.74
Boulton (2014)	I DECIDE	Self-efficacy	0.840*	0.128	0.58	1.10
Howard et al. (2001)	Bully Busters	Knowledge	1.668*	0.476	0.59	2.49
Newman-Carlson and Home (2004)	Bully Busters	Knowledge	0.827*	0.370	0.02	1.50
Schultes et al. (2014)	ViSC	Self-efficacy	0.375*	0.091	0.20	0.55
Combined *ES*			0.531*	0.142	0.19	0.87
Intentions						
Brown et al. (2011)	Steps to Respect	Willingness	0.122*	0.040	0.05	0.19
Brown et al. (2011)	Steps to Respect	Willingness	-0.039	0.060	-0.15	0.07
Perceived behavior						
Black and Washington (2008)	OBPP	Intervention	0.075*	0.025	0.03	0.13
Brown et al. (2011)	Steps to Respect	Intervention	0.137*	0.137	0.06	0.21
Frey et al. (2005)	Steps to Respect	Intervention	0.131	0.131	-0.33	0.59
Howard et al. (2001)	Bully Busters	Interventiom	1.061*	0.455	0.32	1.80
Limber et al. (2018)	OBPP	Intervention	1.250*	0.004	1.24	1.26
Newman-Carlson and Home (2004)	Bully Busters	Intervention	1.291*	0.401	0.41	1.97
Pepler et al. (2004)	OBPP	Intervention	0.028	0.104	-0.18	0.23
Schultes et al. (2014)	ViSC	Intervention	0.208*	0.091	0.03	0.39
Smith et al. (2004)	Sheffield Project	Intervention	0.000	0.017	-0.03	0.20
Whitaker et al. (2004)	Expect Respect	Intervention	0.000	0.059	-0.12	0.12
Whitaker et al. (2004)	Expect Respect	Intervention	0.088	0.059	-0.03	0.20
Whitaker et al. (2004)	Expect Respect	Intervention	-0.000	0.059	-0.10	0.08
Whitaker et al. (2004)	Expect Respect	Intervention	-0.055	0.059	-0.13	0.05
Combined *ES*			0.390*	0.164	0.02	0.80

* = significant effect ($p < .05$).

determinants of teacher and staff intervention, $g = 0.531$; *SE* $= 0.142$; $p = .013$; Qe (5) $= 20.68$; $\tau^2 = .080$.

After iteratively removing one study at a time, the summary effect sizes remained stable, varying between $g = 0.445$ (leaving out Howard, Horne, & Jolliff, 2001) and $g = 0.625$ (leaving out Schultes, Stefanek, Schoot, Strohmeier, & Spiel, 2004). These findings suggest that the meta-analytic results on the determinants on teachers' intervention are not heavily influenced by deviant outcomes of a single study.

Effects on Teachers' Willingness to Intervene. Brown et al. (2011) evaluated the effects of the Steps to Respect program on teacher willingness to intervene in observed acts of bullying and found a significant but negligible effect ($g = 0.122$), based on student reports, and no effect ($g = -0.039$), based on staff members' reports (see Table 4). *Effects on Teacher and Staff Intervention.* The meta-analysis on antibullying programs and teacher and staff intervention was based on ten studies that provided thirteen effect sizes (see Table 4), involving 138,311 students, 411 teachers and 1,175 staff members. Experimental outcomes, based on both self-reports and student-reports, ranged from no effects ($g = 0.00$) to very large effects ($g = 1.29$). An aggregated small to moderate effect of antibullying programs was found with regard to teachers' and staff intervention in bullying cases, $g = 0.390$; $SE = 0.164$; $p = .042$; $Q_e(9) = 14,223.80$; $^2 = .622$.

Applying the leaving-one-out analysis results in statistically significant summary effect sizes varying between $g = 0.095$ (leaving out Limber et al., 2018) and $g = 0.435$ (leaving out Smith et al., 2004). Removing the study of Howard et al. (2001) and Newman-Carlson and Horne (2004) results in non-significant summary effect sizes. The impact of antibullying programs on teachers became negligible when the study of Limber et al. (2018) was removed from the dataset, indicating that our findings related to teacher interventions seems to be influenced by the outcomes of this large-scale study.

Due to the relatively small number of studies, it was not possible to examine possible relations between determinants and teacher outcomes in a moderator analysis with adequate statistical power.

DISCUSSION

Teachers play a pivotal role in most antibullying programs, but they have not always been included in studies on the effectiveness of these programs. The results of this meta-analysis indicate that antibullying programs can have a positive effect on determinants of teacher intervention and teachers' responsiveness to bullying behavior in schools. We found the largest effects on determinants of bullying intervention that were directed to improving teachers' self-efficacy and knowledge. Smaller effects were found regarding students' perceptions that their teacher had addressed bullying, and self-reported use of bullying intervention techniques.

This meta-analysis supports the findings of Athola et al. (2012) that antibullying programs can enhance teachers' self-perceived abilities to intervene in bullying situations. Previous research has shown that teachers' sense of self-efficacy, empathy toward the victim, and their perceptions of the seriousness of bullying incidents are related to teacher intervention (Dedousis-Wallace et al., 2014; Novick & Isaacs, 2010; Yoon,

2004). Also, it was found that teachers' beliefs regarding peer victimization were predictive of their efforts to advice victims how to cope with peer harassment (Troop-Gordon & Ladd, 2015). As several studies have hypothesized that teacher intervention is preceded by teachers' self-efficacy and perceived seriousness of a bullying situation (Byers et al., 2011; Dedousis-Wallace et al., 2014), our study shows that antibullying programs can positively contribute to these important teacher variables and thereby, may increase the level of teacher interventions.

One distinct finding concerned the wide variation in effect sizes for both determinants of teacher intervention and teacher intervention. This finding triggers the question which factors are responsible for program effects on teachers. A possible explanation for finding different effect sizes might be that antibullying programs differ in terms of focus, number of program components, and training dosage. Perhaps, a clear focus on the role of teachers in antibullying programs is decisive, as the largest effects on determinants of teacher intervention were found for studies that evaluated the Bully Busters and I DECIDE program. These programs both include a clear and defined teacher component aimed to strengthening the teachers. Except for Bully Busters, I DECIDE, and KiVa, most programs do not describe a clear theoretical framework for the expected teacher changes. Another possible explanation for the wide variation in effect sizes is that certain teacher outcomes are perhaps more malleable than others. For instance, it has been argued that attitudes are difficult to change compared to skills or competencies (Borg, 2006). This indicates that certain determinants may be more important to target than others and reaffirms the importance of examining these variables separately. In addition to these possible moderators at outcome level, the differences in effect sizes can also be related to differences in the research design and interventions (Higgins et al., 2003). For instance, the study of Limber et al. (2018) heavily influenced the summary effect size due to the exceptionally large sample. More primary studies are needed to conduct an analysis in which moderating variables can be identified with adequate statistical power.

As teachers are key figures in the reduction of bullying, we aimed to fill the gap of knowledge by examining the effects of antibullying programs on teachers. Furthermore, we used a theoretical framework to distinguish between teachers' determinants and behavior concerning teacher bullying intervention.

Limitations

There are a number of reasons why the findings from this meta-analytic review should be interpreted with some caution. To begin with, our meta-analysis consisted of a small number of studies, which precluded a moderator analysis. Previous studies have shown that methodological and contextual factors play an important role in the effectiveness of antibullying programs (Farrington & Ttofi, 2009; Inthout et al., 2015), but it was not

possible to investigate variables that possibly influence outcomes, such as the method-ological quality of the included studies. Furthermore, it was not possible to investigate the relation between specific program elements or training activities and effects on teacher outcomes.

All evaluated programs included a teacher training component aimed at strengthen-ing teachers' awareness and responsiveness to bullying. Our meta-analysis may have been influenced by a selection bias towards studies with an explicit focus on teacher competencies in both program and research design, and therefore, our findings cannot be generalized to all other antibullying programs.

It should also be noted that our descriptive results are based on the program de-scriptions provided in the included study reports. The program descriptions provided only little information on the content of the training sessions. Future research could therefore also include a more substantive analysis of additional materials, such as tech-nical program manuals or teacher guidelines. Relatedly, only a single study reported the extent to which program components were implemented by schools in the intervention groups, although program fidelity and commitment to implementing a program have been found to be moderating factors for program outcomes (Athola et al., 2012; Durlak & DuPre, 2008; Hirschstein et al., 2007; Kallestad & Olweus, 2003; Pepler et al., 2004).

Another limitation of this study was that an insufficient number of studies investi-gated teachers' intentions to intervene in bullying behavior (e.g., teacher willingness to intervene). Therefore, it was not possible to synthesize an aggregated effect size for this category, which we distinguished in our theoretical TPB framework.

Finally, there is a much larger number of experimental studies that reported outcomes on student level but not on teacher level. Our meta-analysis, which only examined stud-ies that reported outcome measures at teacher level, may not be representative for all antibullying programs.

Conclusions

Our meta-analysis indicates that antibullying programs can have a positive effect on teachers' attitudes, subjective norms, self-efficacy, knowledge of intervention strategies regarding bullying, and the actual bullying intervention of teachers and staff in the school. It is therefore important that antibullying programs include a strong component that will strengthen and enable teachers to intervene in bullying situations. More re-search is needed into the specific elements of antibullying programs that are specifically aimed at strengthening the teacher. Future research should gain more insight into the effective components of an intervention program and the way in which these compo-nents influence teachers' knowledge, skills, and beliefs regarding bullying behavior.

The outcome measures used in the included evaluation studies are closely aligned with the TPB, although the terminology as such is not explicitly used in the studies

themselves. Only the evaluation study on I DECIDE makes explicit use of the TPB terminology as a result of the fact that this program also uses this theoretical framework. The TPB model is a very useful and applicable framework for future research because it offers the possibility for a systematic and comprehensive evaluation of teacher variables. Furthermore, as teachers play an important role in the reduction of bullying behavior in schools, it is surprising that so few studies have included teacher outcomes as part of their program evaluations. Future research could focus more on the effects of antibullying programs on teachers and measure effects on teacher variables that are targeted by the intervention or training component. Related to this, more research is needed to chart the hypothesized sequence from individual determinants that increase teachers' willingness to intervene, leading to more intervening in classroom practice. Finally, it is not only important that teacher intervene more often in bullying situations, but also that teachers use strategies that have proven to be effective. More research is needed on which strategies of teacher intervention are effective and in which circumstances. Bullying of students in education is a serious problem that affects the wellbeing and mental health of students and also affects professional staff. It is therefore important to support teachers with practical tools for noticing, preventing and reducing bullying behavior in the classroom. The current meta-analysis indicates that training programs should explicitly focus on important determinants of teacher behavior in relation to bullying, such as teacher' attitude towards bullying, their subjective norms regarding the principles of an antibullying program, and their believe in their ability to intervene effectively in bullying situations. Investments in the professional development of teachers may significantly strengthen the impact of antibullying interventions. These investments in the professional development of teachers may, in turn, strengthen teachers who are regularly confronted with bullying in their classrooms.