STRENGTHENING TEACHERS IN THEIR ROLE TO IDENTIFY AND ADDRESS BULLYING AMONG STUDENTS IN ELEMENTARY SCHOOLS

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Strengthening Teachers in Their Role to Identify and Address Bullying among Students in Elementary Schools

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General introduction

INTRODUCTION

In the last decade, teachers have been more and more involved in bullying prevention in schools in the Netherlands. Since 2015, bullying prevention has been formally defined in the School Safety Act (Ministry of Education, 2016), which obliges schools to ensure a safe school climate and prevent bullying. Teachers, therefore, play an important role in identifying and addressing bullying at an early stage. However, teachers do not always feel able to adequately identify and deal with bullying in their classes and school. This thesis investigates how elementary school teachers can be strengthened in identifying and addressing bullying and the effects on students' bullying behavior. Central questions are whether antibullying programs affect teachers' competences to deal with bullying, which bullying situations they find difficult, which strategies they use to deal with them, and the effects of the revised PRIMA antibullying program on both the teacher competences and, ultimately, the bullying behavior of students.

SCHOOL BULLYING – A SERIOUS AND GROWING CONCERN IN POLICY AND AN URGENT CALL FOR ACTION IN ELEMENTARY SCHOOLS

Bullying is a common problem in elementary school. Both practitioners and policymakers consider bullying a serious problem that requires effective action from novice and experienced teachers and stresses the importance of effective antibullying interventions. The Ministry of Education has been undertaken initiatives to ensure that all schools have an (effective) antibullying policy (Dekker, 2014). This initiative led to the School Safety Act, in which schools are committed to counter bullying and improve and enhance a socially safe environment at school (Ministry of Education, 2016). This law requires teachers' specific competencies: they must be able to identify bullying behavior at an early stage and then intervene adequately.

In 2015, around the start of this thesis, the field of education indicated that teachers do not feel well equipped to deal with bullying behavior and need new applied knowledge to expand their repertoire to reduce and prevent bullying effectively. For example, the Plan of Action against Bullying (Dekker & Dullaert, 2013) stated that 'schools do not have a good idea of what is effective against bullying. Teachers cannot always identify and act effectively, and parents and students sometimes do not know where to turn with bullying problems. This finding corresponds with outcomes of studies in countries like Spain and the USA, where teachers indicate that they do not feel well prepared to deal with bullying (Bauman & Hurley, 2008; Benitez et al., 2009) and would like additional training (Bauman & Hurley, 2008; Bradshaw et al., 2012). Dutch school counsels also indicated that 'teachers must be better equipped to prevent, identify, and handle

bullying' (van Helvoirt & Smeets, 2014), and emphasized the importance 'of adopting a preventive, school-wide and integrated approach to bullying and of examining the effectiveness of antibullying programs that foster such an approach'.

In 2015, an independent national committee of experts concluded that ten antibullying programs in the Netherlands were promising in reducing bullying, including the PRIMA antibullying program (Wienke et al., 2015). In the Netherlands, PRIMA is one of the school-wide programs, together with the KiVa program (Salmivalli et al., 2011), specifically aimed at bullying prevention and reduction. Both programs have originated in Scandinavia: the PRIMA program is based on the Swedish Olweus Bullying Prevention Program (Limber, 2011; Olweus, 1993), and the original KiVa program is developed in Finland (Salmivalli et al., 2011). PRIMA consists of separate components, allowing schools to choose only the components that best fit their specific situation and needs. This modular setup fits well with the educational practice's need to independently apply "tailor-made" antibullying activities (PO-Raad, 2014 However, schools have indicated to the developer of PRIMA that the program needs some adjustments to be more in line with professionals' practical needs in education.

Catering to the need for further professionalization in preventing, identifying, and addressing bullying, a Raak-Pro application was submitted by the Centre for Applied Research in Education of the Amsterdam University of Applied Sciences and approved (Slotman, 2015). The current thesis was part of this research project. The Amsterdam University of Applied Sciences conducted the project within a consortium with VeiligheidNL, the PRIMA antibullying program developer and owner, several elementary school boards in Amsterdam, TNO, and the University of Amsterdam.

A WIDER PERSPECTIVE ON BULLYING

Bullying is defined as systematic, intentional aggressive behavior against a victim who cannot easily defend him or herself (Olweus, 1993, 2013). Although prevalence rates of bullying vary, as there are differences between studies in definitions, study design, and instruments to measure bullying, the prevalence of bullying increases during elementary school age (Hymel & Swearer, 2015). A national survey of 1,588 elementary school pupils in the upper grades of primary education shows that one in ten children is being bullied regularly (Nelen et al., 2018). These children report having been subjected to bullying at least once a month, and more than three percent report being bullied weekly. At the time of the start of this thesis, the percentage of children being regularly bullied was around 14% (Nelen et al., 2018). This percentage is lower than the average of 23% of children who reported being bullied regularly across the OECD countries (OECD, 2019). The prevalence rates are highest in upper elementary and lower secondary education

(Craig et al., 2009; Nelen et al., 2018), but bullying starts in the early school years (Jansen et al., 2012). It is therefore important to intervene early on in the case of bullying.

Bullying is a major problem for students related to many health problems. Students who are bullied are more likely to develop health problems such as depression, anxiety problems, and psychosomatic complaints (Fekkes et al., 2005; Overbeek et al., 2010; Reijntjes et al., 2010). Bullying can also reduce school performance and dropouts (Goossens & Vermande, 2012). Students in the class who are not directly involved in bullying can also experience negative consequences of bullying; they feel less safe and can be afraid to become the next victim (Nishina & Juvonen, 2005). It appears that students who bully others are more likely to show delinquent or anti-social behavior later in life (Dake, Price, & Telljohann, 2003, as cited in Baar, 2012). These results show that bullying is a severe problem that needs intervention.

Bullying is not only something that happens between the bully and the victim. Current scientific insights show that bullying is a group process in which all students in the class play a role in the bullying situation's persistence. In addition to the bullies and victims, there are also other roles in the classroom. Students can be involved as assistants, reinforcers, defenders, and outsiders (Huitsing et al., 2012; Salmivalli et al., 1996). From that point of view, bullying prevention and intervention should focus on bullies and victims and should also address the role of assistants, reinforcers, defenders, and outsiders. These other students can, to a large extent, determine the norm of bullying in the group. Assistants and reinforcers directly support the bullies, while outsiders' non-intervention can also be a form of approval. Therefore, an important part of an antibullying policy is to make teachers and students stand up against bullying and support victims. Such a policy contributes to the reduction of rewards for bullies, like a higher social status in the group, which reduces their motivation to bully others (Polanin et al., 2012).

In addition to the roles that children may have in the classroom, there are places and adults outside the classroom that influence bullying behavior, such as the playground, parents, caregivers, and school staff (Hong & Espelage, 2012). Therefore, it is important to prevent and address bullying behavior at different levels: at the individual level, as well as at the classroom and school level, and together with parents.

SCHOOL-BASED INTERVENTIONS TO REDUCE SCHOOL BULLYING: IN SEARCH OF EVIDENCE

Several antibullying programs have been developed internationally and nationally, including Olweus' internationally widely used program (Olweus, 1993), which has been translated into the PRIMA program for the Dutch context. During this research project, a

study in the Netherlands on the effectiveness of different available antibullying programs indicated that PRIMA was one of the three effective programs in reducing bullying and victimization (Orobio de Castro et al., 2018). International meta-analytical research also revealed that school-based antibullying programs could be effective in reducing bullying behavior and victimization, with decline rates between 15-20% (Gaffney et al., 2019; Ttofi & Farrington, 2011). Antibullying programs also have been related to positive effects on emotional skills (e.g., self-efficacy, self-esteem) and interpersonal skills (e.g., problem-solving, social skills), and to declines in internalizing (e.g., depression, anxiety) and externalizing problem behavior (e.g., aggression, attention problems) (de Mooij et al., 2020). These studies show that antibullying programs are important instruments to support teachers and school principals to reduce bullying in their schools.

Many of these programs provide a school-wide focus, in which all students and staff are targeted to enhance a safe school environment. Ttofi and Farrington's meta-analysis (2011) is the first and influential meta-analysis of the effects of programs on bullying in the classroom and demonstrated that programs containing a school-wide approach were significantly related to lower bullying rates. School-wide programs usually consist of a combination of universal and selective program components (Ansary et al., 2015). Universal components often include preventive measures to enhance a positive school environment (for example, posters for the school or supervision at the playground), providing antibullying student lessons, teacher and staff coordination and implementation training, and systematic monitoring of the results. Selective or indicated components often contain measures to address bullying incidents, such as teacher and staff training to address bullying and bullying-related guidelines or policies. In studies investigating these programs' effectiveness, these components are often analyzed together, making it unclear which components contribute to the effects found (Menesi & Salmivalli, 2017). Ttofi and Farrington's meta-analysis (2011) showed correlational evidence for specific program components' effectiveness, such as disciplinary methods for bullies, teacher training, and parents' meetings. Although these correlative findings suggest that some specific program components may mediate the positive results of school-wide bullying programs, there is still a lack of causal evidence from experimental research for these individual components' effectiveness.

This meta-analysis also revealed that long-lasting and intensive programs were related to positive program effects (Ttofi & Farrington, 2011), indicating that schools must implement such programs on a structural basis. Teachers play a crucial role in implementing most components of school-wide antibullying programs (Kallestad & Olweus, 2003), especially when they implement student lessons related to bullying behavior. Student lessons are a central component because teachers address bullying in the classroom with all students, and students are actively engaged in classroom discussions and strategies to reduce bullying together. However, day-to-day practice is delicate. Several studies

have shown that programs' implementation is often weak in regular practice (Ansary et al., 2015; Orobio de Castro et al., 2018). Possible causes for suboptimal program implementation need to be investigated. Some studies suggest that individual and contextual factors play a role, such as teachers' self-efficacy to implement a program, the classroom environment, or factors such as workload and school staff changes (Domitrovich et al., 2008; Orobio de Castro et al., 2018). These findings raise the question of which factors at teacher, class, and school-level influence the implementation of individual program components by teachers and how the level of implementation of various components affects bullying and victimization at the student level.

THE IMPORTANT ROLE OF TEACHERS IN BULLYING PREVENTION

Teachers play an important role in preventing bullying. As educators and socialization agents at school, teachers are critical to promote pro-social relationships between students and prevent negative interactions (Yoon & Bauman, 2014). Teachers are often nearby when bullying occurs, and they are often the first adults where students can report bullying behavior (Wachs et al., 2019).

However, bullying often goes unnoticed because students are afraid to report bullying (Burger et al., 2015; Fekkes et al., 2005; Newman & Murray, 2005) and because bullying behavior often happens out of the teachers' sight (Demaray et al., 2013; Marshall, 2012). A recent study among 1,996 German students aged between 12 and 15 showed that in 28% of recalled bullying situations, teachers did not find out about the bullying and showed limited strategies to find out about it (for example; observing the bullying, and ignoring and dismissing the bullying) (Wachs et al., 2019). Similar findings were obtained by Oldenburg et al. (2016) among Dutch elementary school teachers in an explorative study, where most victimized students reported not having informed their teacher about the bullying, and teachers did not give victimization nominations to self-reported victims. These findings suggest that teachers overlook many bullying situations.

If teachers ignore or dismiss bullying, students may infer that bullying is acceptable, and students can become less inclined to report bullying behavior (Burger et al., 2015; Wachs et al., 2019). Lack of teacher intervention is related to higher reported bullying levels in the school (Hektner & Swenson, 2012; Marachi et al., 2007). Conversely, teacher intervention has been associated with positive outcomes in previous research. If teachers intervene in bullying situations, students are less likely to justify bullying (Campaert et al., 2017), and lower levels of bullying in the classroom have been found in classes where students perceived their teachers as efficacious to handle bullying (Crothers et al., 2006; Goldweber et al., 2013; Veenstra et al., 2014; Waasdorp et al.,

2011). These studies show that the teacher's behavior reduces the bullying behavior of children in the classroom.

Recent studies have revealed some teacher variables which determine whether a teacher intervenes or not in case of bullying. For example, teachers who see bullying as a serious matter that needs to be stopped are more likely to intervene (Bauman & Del Rio, 2006; Kochender-Ladd & Pelletier, 2008), while teachers who see bullying as normal behavior have been shown to intervene less likely (Hektner & Swenson, 2012). Also, teachers who feel empathy for the victims and teachers who consider they can obtain any reductions in bullying are more likely to intervene in bullying situations (Collier et al., 2015; Dedoudis-Wallace et al., 2014; Yoon & Kerber. 2003; Williford & Depaolis, 2016). Moreover, teachers are unlikely to intervene if they believe that the behavior is not bullying (Blain-Arcaro et al., 2012), as is sometimes the case with relational bullying (Pšunder, 2010). There is also evidence that teachers do not feel efficacious in handling bullying situations (Bradshaw et al., 2013; Bauman & Hurley, 2008; Benitez et al., 2009; Oldenburg et al., 2016). A recent meta-analysis that examined the relationship between teachers' self-efficacy and their responses showed that teachers' self-efficacy seems to be connected to the likelihood to intervene in bullying situations and to the number of intervention strategies they will use, but not to which specific intervention strategies they will employ (Fischer et al., 2020).

At the onset of this study, there was little research on teacher responses in bullying situations. Some studies indicated that some teachers choose strategies that are not likely to be effective, such as advising victims to handle the bullying on their own (assertiveness) or to avoid the bully (avoidance) without further assistance or monitoring (Troop-Gordon & Ladd, 2015). Also, teachers did not seem to know which strategies they should use to prevent and reduce bullying (Hektner & Swenson, 2012; Marshall, 2012), and especially novice teachers do not feel well prepared to reduce bullying effectively (Begotti et al., 2018; Lester et al., 2018; Macaulay et al., 2019). These studies suggest that teachers could use help in preventing and addressing bullying behavior. However, little is known about what teachers themselves experience as difficult bullying situations to prevent and address. In addition, antibullying programs have several components that can potentially support teachers in preventing and counteracting bullying. However, it is unknown to what extent teachers are implementing these different components and whether they are strengthened in addressing bullying behavior by using them. Also, these programs are primarily aimed at preventing and addressing bullying at the level of children. At the same time, they also have the potential to strengthen, as a kind of in-service training, teachers' strategies for addressing bullying and the determinants needed to intervene (e.g., attitude, self-efficacy). As schools have indicated to the developer of PRIMA that the program needs adjustments to be more in line with the practical needs of professionals in education, this program is central to

this research project. This research project has been conducted based on these gaps and the need for renewal of the PRIMA program. In this thesis, we aim to gain insight into teachers' experiences with difficult bullying situations and the impact of antibullying programs, specifically the renewed PRIMA program, on teachers' intervention behavior and, eventually, students' peer victimization and bullying behavior. These insights can then serve as input for developing or adapting antibullying programs that better meet teachers' needs.

THE FURTHER DEVELOPMENT AND EVALUATION OF THE PRIMA ANTIBULLYING PROGRAM

The current thesis is based on a comprehensive study that was undertaken to support the development and evaluation of a renewed version of the PRIMA program during three phases. The program's further development was aimed at better alignment with teachers' needs and underpinning the program based on the most recent scientific insights about bullying.

The PRIMA program is an integral and school-wide antibullying approach aimed at preventing and reducing bullying behavior and based initially on the Bullying Prevention Program (Olweus, 1993), including the following components on three levels:

- At school level: developing a 'Core Team Bullying' of school professionals who coordinate all antibullying activities in the school, developing an antibullying policy, providing e-learning for all school professionals, organizing parent meetings to inform them about the antibullying policy, organizing school-wide meetings with all students, and conducting questionnaires among teachers and parents about bullying and antibullying activities.
- At group level: conducting the Olweus Bully/Victim Questionnaire (OBVQ, Olweus, 1996) translated into Dutch, making agreements about bullying in the group, and providing student lessons about bullying in grades 5 and 6.
- At student level: measures to stop bullying, including a method to investigate bullying actively, and guidelines to talk with students directly involved in bullying situations.

Several years ago, teachers and school principals using the PRIMA program indicated the need for a more comprehensive program, including student lessons for all grades in elementary schools, a more preventive approach to the curriculum, more user-friendly tools to identify and address bullying, and an updated version of the e-learning module (Hoekstra et al., 2007; Kreutzer, 2013). These concerns led to this further development and evaluation of the PRIMA program in a project with three phases (see below).

First phase: Mapping needs of teachers and summarizing current scientific insights

In the first phase, in 2015-2016, we interviewed 43 teachers and seven school principals or coordinators to identify their needs regarding antibullying measures more precisely. Semi-structured interview guidelines were used to identify teachers' experiences with difficult bullying situations (chapter 2), the need for protocols for bullying situations, and experiences with one of the PRIMA program's core components (screening method, e-learning, training, or student lessons).

We also conducted a systematic literature review to substantiate each core component scientifically with international peer-reviewed studies on effective approaches and interventions on bullying behavior in elementary schools. These interviews and literature study resulted in recommendations for further developing and expanding the PRIMA program (van Verseveld & Fekkes, 2016).

Second phase: Developing and extending the PRIMA program

The results of both the literature review and the qualitative study have led to several recommendations for further developing the various PRIMA program components. The role of the research team was to make recommendations based on the knowledge gained during phase 1. VeiligheidNL subsequently carried out the development and extension of the program in the year 2016-2017. Below we discuss the most important recommendations by the research team that has been followed up by VeiligheidNL.

1) *Screening of bullying problems at school.* From both national and international studies, it appears that many teachers have no insight into the bullying incidents that take place at their school (Fekkes et al., 2005; Oldenburg et al., 2016). These findings emphasize the importance of a suitable screening instrument to gain insight into school bullying. The meta-analysis of Farrington and Ttofi (2009) showed that screening methods to identify bullying contribute to reducing bullying behavior. Therefore, a screening method can contribute to the need for schools to identify bullying at their school.

   The screening method of PRIMA was based on the validated OBVQ (Olweus, 1996). Teachers indicated that they would like to use a shorter questionnaire since many questions were not applicable to most students. It was recommended to shorten the questionnaire using the general question about victimization from the revised QBVQ (Olweus, 1996) and by combining bullying questions in different situations into one question with multiple answers. It was also recommended to apply a multi-informant approach to measure bullying and victimization (Cornell et al., 2006; Crothers & Kolbert, 2004; Frey, 2005). Based on the Participant Roles Questionnaire (Kärnä et al., 2013; Salmivalli et al., 1996), two items were added to measure peer-reported bullying and victimization. Also, other participant roles in

bullying situations were added to the questionnaire, such as reinforcer, defender, and outsider. Teachers also reported that they would like the screening method to be non-anonymized. Teachers indicated that they could not intervene well because they had no idea which children were involved in the reported bullying situations. A study by Chan and colleagues (2005) among 562 elementary school students (grades 1-8) showed no significant difference in students' reporting behavior on the incidence of either bullying or victimization, regardless of whether they were required to identify themselves. Therefore, the instrument is made non-anonymous while emphasizing that the confidentiality of the results is essential. A sociogram was also integrated measuring bullying-related variables, such as social status, friendships, and pro-social behavior. In this way, teachers get a clearer picture of the peer relationships in the classroom that form the context of bullying behavior.

2) ***Protocols for bullying situations.*** Research on bullying shows that many students are reluctant to tell their teacher that they are being bullied and that when teachers do know about it and try to stop it, the bullying problem remains the same or even worsens (Fekkes et al., 2005; Newman & Murray, 2005). Not all teachers have effective strategies to stop bullying (Wachs et al., 2019). Also, teachers do not always intervene when they notice bullying (Atlas & Pepler, 1998; Wachs et al., 2019). Furthermore, teachers only intervene in a bullying situation when they estimate that they could influence it (van Hattum, 1997). Protocols with guidelines to solve the bullying situation could strengthen teachers' beliefs that they can influence the bullying situations and their level of intervening.

   Teachers indicated difficulties in specific bullying situations. For the renewed version of PRIMA, six protocols for specific bullying situations were developed, such as cyberbullying, lonely and victimized students, and relational bullying. Also, twelve protocols were developed and linked to the screening method's results, involving both protocols on the class level (e.g., group support method) and protocols on the individual level (e.g., shared concern method).

3) ***E-learning training teachers and school management.*** As teachers overlook many bullying situations, it is vital to make teachers more aware of bullying and how to identify bullying. In addition, teachers should be trained in how to deal with bullying situations. 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; van Hattum, 1997). Also, it is important to focus training on strengthening other teacher variables, such as teachers' attitudes (e.g., perceived seriousness of bullying and empathy for victims) (Collier et al., 2015; Dedoudis-Wallace et al., 2014; Yoon & Kerber. 2003; Williford & Depaolis, 2016).

Teachers indicated that the previous version of the e-learning contained information that they already knew and would like to learn new information about methods to reduce bullying. Based on the recommendations, the e-learning was extended with scientific insights on the group process of bullying, the effects of creating antibullying group norms, and the teachers' role (e.g., modeling and reinforcing positive pro-social behavior). Furthermore, the e-learning provided teachers with methods to identify and deal with bullying (e.g., methods of the PRIMA program) and to practice these skills with fictional cases of bullying.

4) *Face-to-face staff training.* Research shows that training and guidance can positively impact a program's effectiveness (Vernberg & Gamm, 2003). During face-to-face training, teachers and school leaders can be further strengthened in their attitudes, self-efficacy, and knowledge of identifying and handling bullying situations (Collier et al., 2015; Dedoudis-Wallace et al., 2014; Yoon & Kerber. 2003; Williford & Depaolis, 2016). The training is also an important tool to embed PRIMA in the school's safety policy by customizing it to the school's needs during the training.

   After e-learning, customized training is provided by a certified PRIMA coach at school. Based on the recommendations, the certified PRIMA coach reflects with the school professionals on the themes discussed in the e-learning and examines whether any factors may hinder the implementation of the different program components. Teachers' knowledge and skills are deepened, and teachers' current bullying cases in the class are considered. In addition to giving face-to-face training, the certified PRIMA coach also guides the school coordinator to implement and coordinate the PRIMA program.

5) *Student lesson for each grade.* The group's process of bullying, which plays an important role in bullying conflicts (Huijtsing et al., 2012), usually starts in grade 3. Therefore, it is crucial to start the student lessons about bullying in grade 3 so that students become aware of the roles that they can take on in the bullying process. Previous studies also indicate that bullying develops early (3-6 yrs.), and early intervention is needed (Repo, 2015). This finding provides scientific support for teachers' desire to start student lessons about bullying in Kindergarten and create a continuous learning line.

Based on new scientific insights, the student lessons focus on three principles: 1) making students aware of the group process of bullying and its consequences; 2) creating antibullying group norms; 3) promoting pro-social skills. The lessons are interactive, and various work forms are used, including video clips, physical exercises, role-playing, and puzzles. Students from grade 2 onwards work with a workbook to make group-, or individual exercises. In line with the teachers' need for ready-made lessons due to lack of time, the teacher receives a manual of the 'ready-to-use' lessons. Specific student lessons are developed for each group, taking into account the different development stages of students.

Third phase: Conducting a randomized controlled trial to evaluate PRIMA

In the third phase, in the school year 2017-2018, we conducted a cluster randomized controlled trial to investigate the renewed PRIMA program's effectiveness on students and teachers in grades 3-6. More specifically, we examined the effects of implementing multiple PRIMA components on teachers' intervention behavior (chapter 4) and students' bullying behavior, and peer victimization (chapter 5). In a preventive approach, student lessons are a key component in which both students and teachers learn about bullying behavior. However, a more teacher-centered approach is also possible, in which the focus is on teacher support in identifying and addressing bullying.

This trial was set up with two experimental research groups and a control group to investigate whether the student curriculum has added value to the rest of the PRIMA program. In the first experimental group, teachers receive all PRIMA core components, including the student lessons (hereafter: PRIMA-L^{+} schools). In the second experimental group, teachers receive all components except the lesson series (hereafter: PRIMA-L^{-} schools). The control group carries out their 'care as usual' policy and included schools that did not use a school-wide antibullying program. This design makes it possible to investigate the student lessons' added value, strengthening both teachers and students. In addition, the extent to which teachers implemented each component has been examined, so that insight can be gained into the effect of stacking program components. This information is vital for the development of antibullying programs and training in school-based antibullying programs. Especially novice teachers can benefit from guidance in handling bullying situations because these kinds of practice-oriented skills are often only trained after several years of teaching.

RESEARCH QUESTIONS

The current thesis is based on studies that are part of the comprehensive study on further developing and evaluating the PRIMA program, as described above. This thesis aims to deepen our understanding of teachers' needs in bullying prevention and improve their competencies. The research provides teachers and school management with theoretically underpinned and practice-based tools to reduce bullying behavior in elementary school students through a school-wide approach. The central research question is: How can elementary education teachers be strengthened in their role to identify and reduce bullying behavior? In this thesis, we aim to answer the following questions:

1. To what extent do antibullying programs affect teachers' interventions in bullying situations?
   a. What are the effects of antibullying programs on teachers' attitudes, subjective norms, self-efficacy, and knowledge to stop bullying?
   b. What are the effects of antibullying programs on teacher intervention to stop bullying?
2. What are difficult bullying situations for teachers, and how do they respond to these situations?
   a. What are teachers' views concerning bullying behavior, and what do they consider as difficult bullying situations?
   b. What strategies do teachers report to deal with these situations?
   c. What are the barriers experienced by teachers in identifying and addressing bullying?
3. What teacher- and context variables are related to teacher intervention, and what are the effects of a school-wide antibullying program on teachers' competencies to intervene in bullying behavior?
   a. What is the relation between teachers' attitudes and self-efficacy, and their likelihood to intervene and intervention behavior?
   b. What are the PRIMA antibullying program's effects on teachers' determinants of intervention (perceived seriousness, empathy, and self-efficacy), likelihood to intervene, and their intervention behavior?
4. What are the effects of implementing multiple components in a school-wide antibullying program on victimization and bullying among 3-5th grade students (in Dutch: groep 5 t/m 8)?
   a. What are the effects of implementing only teacher-focused components of PRIMA versus teacher- and student-focused components?
   b. What are the effects of stacking multiple universal components of PRIMA?

OUTLINE OF THE DISSERTATION

This thesis contains six chapters. Following this introduction, chapters 2 reports a meta-analytical review of experimental studies, and the chapters 3, 4, and 5 each report an empirical study. Chapter 6 involves the integration of the main findings of the different studies into a general discussion.

Chapter 2 (research question 1) presents a meta-analysis on the effectiveness of antibullying programs on teachers' intervention behavior in bullying. The objectives of this meta-analytical review were: 1) to describe whether and how antibullying program focus on the role of the teachers and whether the program consists of a training component for teachers; 2) to examine the effects of antibullying programs on teachers' determinants of teacher intervention (i.e., attitude, social norms, and self-efficacy), teachers' willingness to intervene, and teachers' frequency of intervening. The content of the programs and training component for teachers of 17 peer-reviewed papers were systematically coded. Further, the relation between these variables and program outcomes for 13 studies was examined using a robust variation analysis, resulting in effect sizes of antibullying programs on the different outcome variables.

Chapter 3 (research question 2) reports a qualitative study exploring which bullying situations teachers experience as difficult, how they responded to these situations, and what barriers they encountered. This study's objective was to provide an innovative insight into difficult bullying situations' main characteristics from the teacher's perspective. Insights from this exploratory research can then serve as input for developing or adapting antibullying programs that better meet teachers' needs. These topics were investigated by conducting individual in-depth interviews with 38 elementary school teachers.

Chapter 4 (research question 3) reports on an experimental study that evaluated predictors of teacher intervention and the effectiveness of the PRIMA program on teacher intervention among 3-5 grade schoolteachers. The objectives of the study were: 1) to investigates the relationship between behavioral determinants and the self-reported strategies used by teachers in the classroom (universally) and individually (selectively); and 2) the effects of the use of different components of the PRIMA approach on teachers' determinants of teacher intervention (i.e., attitude, social norms, and self-efficacy), teachers' willingness to intervene, and teachers' frequency of intervening. Furthermore, this study explored the relationship between teacher, class, and school variables and teachers' use of program components. The relations and effects were investigated using logistic regression models.

Chapter 5 (research question 4) involves a cluster randomized controlled trial to evaluate the effectiveness of implementing different PRIMA program components on bullying behavior and victimization among students from 3-5th grade. It was examined

whether PRIMA influenced students' self- and peer-reported bullying and victimization by comparing two experimental conditions (a school-wide program with student lessons and a school-wide program without these lessons) to a control group and investigating the effect of stacking of different program components. This study further explored the effects of the PRIMA program on students' participant roles in bullying (i.e., reinforcer, outsider, and defender).

Chapter 6 integrates and discusses the four studies' main findings, followed by suggestions for future research and implications for educational practitioners and program developers.

The four studies included in this thesis have been written as stand-alone articles. Therefore, there is some overlap in the introductory sections. The studies reported in chapters 2, 3, and 5 have been published in peer-reviewed international journals. The study reported in chapter 4 has been submitted.

CHAPTER 2

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

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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.

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

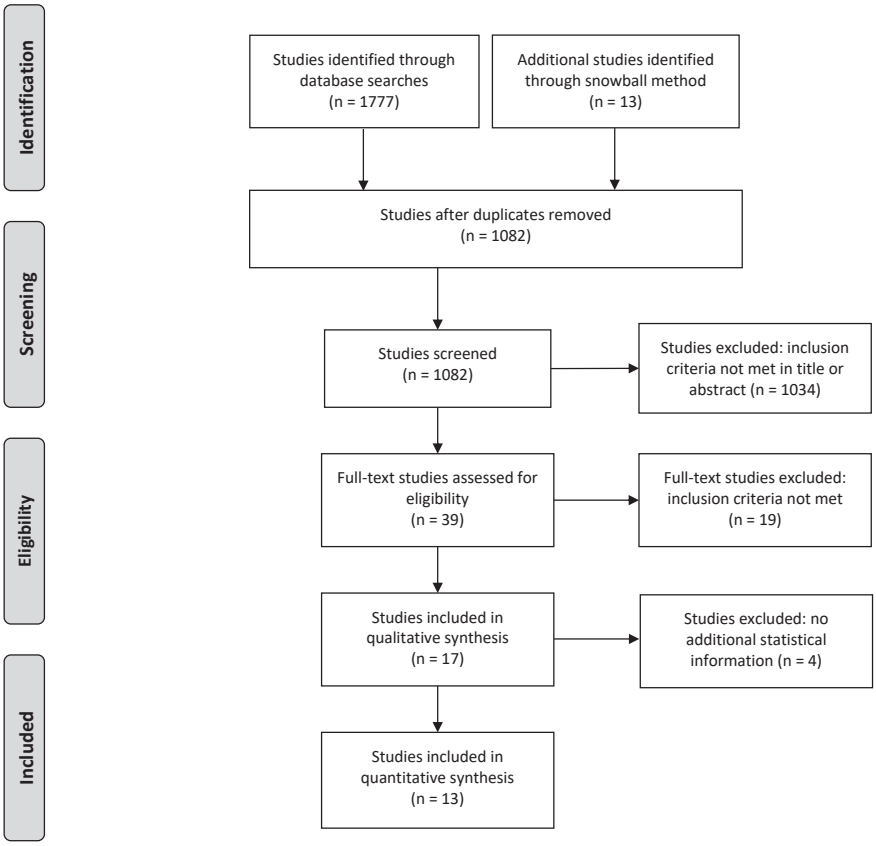

Figure 1. Flow diagram of search strategy.

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.

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' ($\kappa = .75$). '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 ($\kappa = .81$). 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 ($\kappa = .84$). 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 bullying 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 determinants 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 approximation 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; κ^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 methodological 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 strengthening 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 descriptions 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 technical 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 investigated 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 studies 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 research 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 components 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.

CHAPTER 3

Teachers' Experiences with Difficult Bullying Situations in the School: An Explorative Study

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ABSTRACT

Although antibullying programs often include a component that focuses on strengthening teachers' abilities in identifying and addressing bullying, it is not clear which bullying situations teachers find difficult to address and what type of support is needed. In the current qualitative study, we investigated what teachers considered difficult bullying situations, how they responded to these situations, and which barriers they encountered. We used data from individual in-depth interviews conducted with 38 Dutch elementary school teachers. Qualitative analysis showed that teachers experienced difficulties in (1) identifying bullying that happens out of sight; (2) estimating the seriousness of a reported incident; (3) addressing persistent aggressive and bullying behavior; and (4) finding solutions with parents to reduce bullying. Teachers used a variety of strategies in their efforts to address these situations. The results give insight into teachers' needs regarding specific training and support in antibullying programs and pre-service teacher programs.

INTRODUCTION

Although a decline in the prevalence of bullying has been noticed in many countries across Europe and North America in the past decade, bullying is still a common problem in primary and secondary schools (Cosma & Hancock, 2010; OECD, 2017). School bullying is often defined as intentionally harmful behavior from one student towards another, includes an imbalance of power between the bully and the victim and happens repetitively (Olweus, 1993). The decline in bullying behavior in schools is most probably related to the development of antibullying programs and policies and their increased implementation in practice (Evans et al., 2014).

Most positive outcomes have been achieved with programs that are based on the whole-school approach (Ttofi & Farrington, 2011; Vreeman & Carroll, 2007). These consist of multiple components, such as school-wide rules, classroom curricula, teacher training, and indicated actions for students involved in bullying situations (Ansary et al., 2015). These programs are founded on the social-ecological framework of bullying that takes the different contexts in which bullying occurs into account. The characteristics of the child, family, peers, school professionals, and the complex interplay between them, all influence the establishment and maintenance of bullying behaviors together with culture and values and norms within these contexts (Swearer et al., 2010).

Teachers play an important role in many programs aimed at reducing school bullying. They are responsible for the implementation of most program components (Crothers & Kolbert, 2004; Newman-Carlson & Horne, 2004; Salmivalli et al., 2013), and need to adequately identify and respond to bullying situations (Byers et al., 2011; Kochenfelder-Ladd & Pelletier, 2008; Migliaccio, 2015). Teachers need to be aware of what bullying is, be knowledgeable about the negative consequences of bullying for the victim, feel capable of handling bullying situations, and know which strategies to use in such situations (Kokko & Pörhölä, 2009; Oldenburg et al., 2016). In addition to this, teachers need to be aware of the group process of bullying. Students may not only be involved in a bullying situation as a victim or bully, but can also be involved indirectly, e.g., as an assistant of the bully, reinforcer of the bully, defender of the victim, or outsider (Salmivalli et al., 1996).

Studies in several countries have demonstrated that teachers who possess the necessary knowledge, skills, and attitudes, are more likely to intervene (Begotti et al., 2017; Frisén et al., 2012; Williford & Depaolis, 2016; Yoon & Bauman, 2014). Also, teachers who actively stand against bullying have been associated with lower levels of bullying in the classroom (Veenstra et al., 2014). However, previous research also indicates that teachers are not always well-prepared for this task. For instance, teachers are not always aware of bullying in the classroom (Demaray et al., 2013; Oldenburg et al., 2016; Marshall, 2012; Wachs et al., 2018), or do not always take bullying reports seriously

(Bauman & Del Rio, 2006). Further, teachers lack the confidence to intervene in bullying situations (Bradshaw et al., 2013; Bauman & Hurley, 2008; Benítez et al., 2009). Teachers who do not perceive bullying as a serious issue, or who believe they do not have adequate skills, are less likely to intervene in bullying situations (Bauman & Del Rio, 2006). Ignoring bullying can enhance feelings of loneliness and isolation on the part of the victim. Also, by not intervening, teachers implicitly condone the bullying, which may, in turn, discourage victimized students from reporting bullying (Pepler et al., 1994), and discourage students who witness the bullying to intervene (Burger et al., 2015). In addition, teachers do not seem to know which strategies they should use (Hektner & Swenson, 2012; Marshall, 2012). Although minimal research on teacher responses in bullying situations have been conducted, some teachers choose strategies that are not likely to be effective, such as advising victims to avoid the bully or advising the victim to handle the bullying on their own (Troop-Gordon & Ladd, 2015).

Most school-based antibullying intervention programs include some core components to support teachers, such as staff training to address and prevent bullying incidents; systematic assessment of bullying behavior; and antibullying student lessons or lessons to promote students' social-emotional competencies (Ansary et al., 2015; Gaffney et al., 2019; Marshall, 2012). Teacher and staff training aim to increase teachers' awareness of bullying by providing information on what constitutes bullying or a model to recognize bullying. These training sessions also aim to increase teachers' responsiveness to bullying by offering them a model on how to respond to acute bullying cases. Systematic assessment of bullying supports teachers in identifying bullying incidents and in monitoring the effectiveness of the antibullying efforts being implemented (Ansary et al., 2015). Student lessons may support teachers because of the 'learning by teaching' mechanism. By teaching students about the mechanisms of bullying and by teaching them skills to intervene when it occurs, teachers are expected to be strengthened in their ability to deal with bullying as well. A study by Athola and colleagues (2012) showed that teachers felt more able to deal with bullying behavior after participation in antibullying activities in which teaching students about bullying played a major role. Although these components of antibullying programs can support teachers in their efforts to reduce and prevent bullying, little is known about teachers' own experiences with addressing bullying behavior in their classes. More specifically, little is known about what teachers find difficult bullying situations and how they deal with these situations in their classrooms. To provide teachers with better support, we need to know what obstacles teachers encounter in this area. Moreover, several studies have shown that novice teachers do not feel well prepared to reduce bullying effectively (Begotti et al., 2018; Lester et al., 2018; Macaulay et al., 2019). Therefore, it is imperative to understand the particular challenges faced by less experienced teachers in order to provide them the additional training and support they need to combat bullying effectively.

In summary, previous research shows that teachers do not have sufficient tools to reduce bullying effectively and beginning teachers, in particular, need extra support. In addition, it is not well understood whether existing programs are well adapted to the needs of teachers. In the present study, we, therefore, aimed to investigate which bullying situations teachers consider 'difficult' and how they deal with these situations. Furthermore, we examined whether background variables such as experience and previous antibullying efforts are connected with teachers' experiences related to difficult bullying situations. The results aim to provide an innovative insight into key characteristics of difficult bullying situations from the teacher's perspective. Insights gained from this explorative study can subsequently serve as input for the development or adjustment of antibullying programs that better meet the needs of teachers. In our study, we aimed to answer the following research questions:

1. What do teachers consider difficult bullying situations?
2. What strategies do teachers use to deal with these difficult bullying situations?
3. What barriers do teachers encounter when they use these strategies when addressing difficult bullying situations?

METHOD

Participants

For this study, we used interview data obtained from 38 Dutch elementary school teachers (*M* teaching experience = 12.1 years, *SD* = 9.69) from 36 classrooms in 21 schools. The sample comprised 25 teachers recruited in the urban area of Amsterdam and 13 teachers recruited in smaller cities and rural regions across the Netherlands. The urbanization level of schools varied widely; teachers in urban schools reported more socio-cultural and income-related diversity in their student population compared to teachers in smaller cities and rural areas.

Most teachers were female (72.5%) and had more than ten years of teaching experience (*n* = 25, 57.5%), reflecting the population of primary school teachers in the Netherlands (Traag, 2018). Participating teachers were active in each grade of elementary school: Kindergarten (5%), Grade 3 (5%), Grade 4 (7.5%), Grade 5 (15%), and Grade 6 (30%), Grades 1-3 (27.5%), and Grades 4-6 (10%).

Procedure

An open sampling procedure was used to recruit teachers for this study. Teachers received an information letter about the goals and content of the study and were made aware of the possibility of withdrawing themselves from the study at any given time. Active consent was obtained from each participant. Interviews were conducted individually

between May and July 2016 by members of a research group, including the principal researcher and five research assistants. The assistants were social science bachelor and master students who received a two-hour training session by the principal researcher covering interview techniques (e.g., asking open questions, having a neutral attitude and being aware of the extent to which questions may evoke socially acceptable answers by teachers) and the introduction to an interview guide for the structured interviews (Seidman, 2019). Research assistants were also trained to ask clarifying questions, if necessary, to explore teachers' experienced difficulties in greater depth. The interviews lasted 60 minutes on average. Schools received a fee or a gift voucher for participating in the study. Recorded interviews were anonymized and transcribed for analysis.

Design

Since we aimed to gain familiarity with a relatively new phenomenon in this field of research, we adopted a phenomenology approach as a research design. Phenomenology is a qualitative research design aimed at exploring individuals' experiences of a concept of which there is little knowledge (Creswell, 2009; Haradhan, 2018). This approach enabled us to make a first exploration and description of the daily experiences, difficulties, and needs of teachers regarding specific difficult bullying situations. As we investigated a subjective phenomenon, we based our descriptions on how teachers define the concept of a difficult bullying situation. This information is also important to understand teachers' responses to bullying. For example, teachers with normative beliefs about bullying are less inclined to intervene in bullying situations (Hektner & Swenson, 2012).

A semi-structured interview guideline was developed, consisting of four topics. After some opening questions to start a comfortable conversation (i.e., the role of the teacher in the school their teaching experience), we asked four main open-ending questions. The first question was how teachers defined bullying. The second question concerned whether teachers had experienced a difficult bullying situation in the last three months, and why they considered this to be a difficult situation. In the third question, we asked teachers to describe how they responded to this situation. The fourth question referred to whether they experienced any barriers during their response. Finally, some inventory questions were asked about what antibullying measures teachers have used in the previous years.

Analysis

We conducted a thematic analysis of the data to identify what teachers experienced as difficult bullying situations and how they responded to these situations. Thematic analysis is a data-driven type of analysis that allowed us to explore reoccurring themes, patterns, and concepts (Guest et al., 2012). To identify themes related to how teachers define bullying and what difficult bullying situations teachers experienced, the princi-

pal researcher coded sections of text. The research team, consisting of the principal researcher and three senior researchers, systematically compared sections of text and marked similarities and differences between sections and then refined the codes. This process resulted in 74 codes for how teachers defined bullying. Most of the codes (65) could be related to the widely used bullying definition of Olweus (1993) and have been categorized in the following themes: 1) intention, 2) duration, and 3) an imbalance of power. The remaining codes (9) were categorized into the category 'Other'. For the first research question, we initially identified 28 themes, including themes as: 'students' reluctance to report bullying' to 'parents who disagree with antibullying interventions of the teacher.'. Several themes overlapped, resulting in a more compact categorisation of 15 themes. For example, some themes were related to bullying happening out of the teachers' sight (i.e., in the hall, playground, or cyberbullying) and were grouped into one theme 'Bullying out of the teachers' sight.'.

Next, we combined these categories into four overarching themes and compared categories to find relations between teachers' experiences and background variables, such as teaching experience or antibullying activities in the school. This process included constant comparisons between individual codes and across transcripts during the analysis. To investigate whether there is a relationship between some background variables and the difficult situations experienced by teachers, we compared teachers in different categories. Regarding the background variable 'teaching experience', teachers were divided into five categories: 0-5 years, 6-10 years, 11-15 years, 16-20 years, and > 20 years. Concerning the background variable' antibullying methods', teachers were asked whether they used one or more of the following methods: 1) a screening questionnaire, 2) teacher or staff training, 3) lessons for students, or 4) none of these methods. Next, we explored whether the percentages of teachers in the categories' teaching experience' and 'antibullying methods' varied among teachers for each difficult situation experienced.

We used the whole school approach as a heuristic framework (Ansary et al., 2015; Espelage & Swearer, 2004) to help us categorize the strategies that teachers mentioned to deal with difficult bullying situations. We categorized teachers' responses into four overarching categories: 1) responses involving individual students; 2) responses involving a larger peer group; 3) responses involving actors or places throughout the school; and 4) responses involving the parents. Data were analysed using the qualitative data analysis software program MAXQDA (version 18.1.0; VERBI Software GmbH, 2018).-

RESULTS

When asked how they defined bullying, the majority of the teachers (71%) reported that bullying is characterized by systematic negative behavior towards a specific student. Examples given by teachers are 'repeated', 'over a long period', or involves 'continued negative behavior'. Secondly, teachers see a distinction between 'teasing and 'bullying' (45%) and identify bullying as a situation in which the victim experiences the behavior as negative or harmful. Thirdly, teachers defined bullying when there is an intent on the part of the bully to hurt someone (21%). Fourthly, a small proportion of the teachers mentioned that bullying is not something that happens solely between a bully and a victim, but that multiple students are involved in such a situation (5%), or that bullying is about physical aggression (5%). The majority of the teachers (71%) mentioned two or three of the above characteristics.

Of all 38 teachers, 21% had 0-5 years of teaching experience, 21% 6-10 years, 24% 11-15 years, 3% 16-20 years, and 29% had more than 20 years of teaching experience. Information about the number of years of teaching experience was missing for one teacher. The majority of the teachers (92%) indicated that they used several methods in the school to prevent and reduce bullying behavior. Teachers reported using self-report questionnaires to identify bullying and victimization (40%), a bullying prevention training for teachers (24%), and student lessons about bullying (29%). None of the participating teachers used a structured antibullying program, such as a whole-school program, to prevent and reduce bullying.

What do Teachers Consider Difficult Bullying Situations?

Our first research question focused on what teachers find difficult bullying situations. Thirty-two teachers reported a bullying situation that they considered to be difficult. From this, four themes emerged: 1) identifying bullying behavior that happens out of sight, 2) estimating the seriousness of a bullying incident, 3) addressing persistent bullying behavior, and 4) finding solutions with parents to reduce bullying behavior (see Table 1).

Six teachers reported that they did not experience any difficult bullying situations. There was no relation between teachers who did not experience any difficult bullying situations and their teaching experience or antibullying methods in place when compared to teachers who did experience difficulties. Below, we will only discuss those teachers who have experienced difficulties in dealing with bullying situations and do this separately for each theme.

Identifying bullying behavior. Teachers reported difficulties in identifying bullying behavior. In some cases, this was caused by students' reluctance to report bullying. In most cases, however, teachers experienced difficulties because bullying occurred at

Table 1 *Teachers' Experiences with Difficult Bullying Situations (N = 32)*

Themes (number of teachers)	Sub-themes (number of quotes)
Identifying bullying (14)	Bullying in WhatsApp groups of which the teacher is not a member to monitor students (7) Bullying out of the teacher's sight: in the hall, at PE, and during after-school-care (6) Students are reluctant to report bullying behavior (4)
Estimating seriousness of bullying (11)	Students over-report victimization (5) Conflicting stories of involved students (5) Determining whether a situation can be defined as bullying behavior (4) Denial of suspected perpetrators when confronted with the incident (3)
Addressing persistent bullying (21)	Bullying behavior by short-tempered students (14) Improving the situation of victimized students (9)
Finding solutions with parents (13)	Parents and teachers disagree on preferred intervention (8) Parents' denial of their child's involvement as a perpetrator (4)

Note. Teachers reported on several themes and sub-themes: numbers, therefore, do not add up to the total number of $N = 32$

out-of-sight locations, such as in the hallway, during physical education, or after-school care. A separate category of bullying that happens out of sight is bullying in digital app groups. Teachers only became aware of this type of bullying when the incident had already escalated:

> *This [incident] escalated in the WhatsApp group on Monday evening. [Students were] blocked and such. So they entered the classroom on Tuesday morning in a very bad mood. They were all angry, and a big physical fight occurred. I had to solve this, and that was difficult. I started a classroom discussion, and it turned out that at least ten children were aware of the conflict and that this had already been going on for weeks (R10, Grade 4).*

As for students' reluctance to report bullying, teachers think this is because they are afraid of reprisals from the perpetrator. This reluctancy applies not only to students who are being bullied but also to classmates who witness the bullying:

> *They [the classmates] did not dare to report the incident either. There is a chance that you will be scolded via the group's digital app because we had not made any agreements about it yet. So that was not safe for students, and that was probably the problem (R17, Grade 6).*

Of the eight teachers with 0-5 years of teaching experience, half (n = 4) have indicated difficulties in identifying bullying. Of the 21 teachers with more than ten years of teaching experience, less than one third experienced these difficulties. These data suggest that novice teachers experience difficulties in detecting bullying more often than experienced teachers. Furthermore, we found no link between antibullying methods used by teachers and the difficulties experienced in identifying bullying behavior: of the 15 teachers who used a screening questionnaire, almost half (47%) had difficulties in this area. Of the nine teachers who participated in a teacher or staff training, 44% reported difficulties, and of the 12 teachers who implemented student lessons, more than one-third (33%) reported difficulties in identifying bullying.

Estimating the seriousness of a bullying incident. Teachers reported four factors that complicated estimating the seriousness of bullying incidents: students' over-reporting victimization, receiving conflicting explanations, perpetrators' denial of bullying, and difficulties in determining whether a situation can be defined as bullying. Particularly in situations where teachers had not witnessed the bullying incident themselves, they struggled to determine whether students were not over-reporting bullying, possibly as a result of misperceiving teasing behavior or a single conflict as bullying: "He saw everything as bullying behavior" (R6, Grade 6), or "She experiences that she is being bullied very quickly. She will come and tell me: they bully me, and I cannot play with them" (R37, Grade 5). Teachers indicated that students who over-reported victimization were often the ones that are easily offended, or that bully themselves, for example:

> *It is like: 'Is this bullying or 'just' fighting on the football field?'. He [the victim] says,' I am being bullied all the time; they always pick on me.' And I wonder: 'Is that the case? Or is it just in the moment that he says something like that?' He often feels victimized, but whether that is going on is always subjective. I think: he is a perpetrator just as well, or how do you say it… Interviewer: bully? Teacher: I would not say bully, but rather a child who has difficulties in controlling his emotions and quickly beats or kicks other children as well (R32, Grade 1/2).*

Teachers furthermore identified the conflicting stories that they receive from different students as a complicating factor in estimating the seriousness of the bullying incident. Students blaming each other for starting the incident, for example, makes it difficult for teachers to determine what has happened. Teachers also suspected that alleged bullies give socially desirable answers or deny their role in the incident when being asked details of the bullying incident.

Finally, teachers did not always know when a situation can be defined as bullying behavior, or what behavior they should pay attention to when estimating the seriousness of

an incident. For example: "Boys in my classroom are talking about pranking all the time. Pranking, it seems to be another thing on social media, dissing each other. Where do you draw the line? When is it still funny, and when do you call it bullying?" (R17, Grade 6).

Half of the teachers with 0-5 years of teaching experience (4 out of 8) experienced difficulties in estimating the seriousness of a bullying situation, while a quarter of teachers with >10 years of teaching experience (6 out of 21) experienced these difficulties. Again, these results seem to indicate that novice teachers experience more difficulties in this area. Regarding the use of antibullying methods, we found that 40% of the teachers who used a screening questionnaire had difficulty estimating the seriousness of a bullying incident. For all teachers who participated in a teacher or staff training, this was 22%, and for all teachers who taught antibullying student lessons, this was 25%. These results suggest a relation between the use of a screening questionnaire and perceived difficulties in estimating the seriousness of bullying behavior.

Addressing persistent bullying behavior. More than half of the teachers reported difficulties in effectively addressing persistent bullying, particularly when the bullying was attributed to trait-like behavioral problems exhibited by the bullying child. Such children were often described by teachers as "short-tempered" (R14, Grade 4/5/6), "losing their temper easily" (R19, Grade 4), and "easily provoked or distracted" (R26, Grade 4/5/6). The teachers reported that the resources in the school to respond to these students were inadequate. Teachers indicated that they do not have enough time to intervene every time such a student shows aggressive behavior. For example: "As soon as I have turned my back, he says quickly to a fellow student 'you are a loser' (R38, Grade 6)". Four of these teachers attributed persistently negative and angry behavior to the diagnosis of Attention Deficit Hyperactivity Disorder (ADHD) or complex, multifaceted problems, such as the diagnosis of multiple disorders. In five cases, these students were bullied by peers as well (i.e., bully-victims).

Teachers furthermore reported difficulties in improving the situation of victimized students who are being bullied for a prolonged period. According to teachers, these students fall outside the group because they display socially unskilled behavior (e.g., withdrawn, dominant, or aggressive behavior), or because they have specific physical features (e.g., floppy ears, overweight) that differ from most students in the group, making them an easy target to bully. In three cases, teachers linked the socially unskilled behavior of students to the diagnosis of autism, PDD-NOS, or ADHD. The following quote illustrates that teachers sometimes feel powerless in these situations:

> *We had a child with a combination of PDD-NOS and ADHD. He was diagnosed with this disorder in Grade 1. We saw it getting worse every school year, despite attempts to improve the situation. In Grade 2, we identified some problems; in*

> *Grade 3, he no longer had any friends, and he was no longer invited to peers' birthday parties, and in Grade 5 he was rejected by all his classmates (R13, Grade 5).*

Half of the teachers with 0-5 years of teaching experience (4 out of 8) and two-thirds of teachers with > 10 years of teaching experience (14 out of 21) reported experiencing difficulties with addressing persistent bullying. There seems to be no difference in this area between teachers with little or much teaching experience. There was no clear difference either between the type of antibullying methods used by teachers and their experienced difficulties in addressing persistent bullying behavior. The majority of teachers who used a screening questionnaire (60%) or carried out student lessons (58%) experienced difficulties in this area. Almost half of the teachers (44%) who participated in training also reported difficulties.

Finding solutions with parents. Teachers experienced difficulties in agreeing on solutions to reduce existing cases of bullying with parents, mentioning parents' disagreement with teacher interventions, and parents' denial of their child's role in bullying situations as complicating factors. Some teachers disagreed with parents when discussing an intervention with parents:

> *We told these parents: "Maybe [name boy] is better off in another group; he might have more friends in that group." But parents did not like that. So… I think that this boy might need extra guidance, but the problem is that the parents do not give permission to do that (R24, Grade 1/2/3).*

This disagreement was the result of discrepancies between the teacher's view on bullying and that of the parents. For example, one teacher addressed recurrent swearing of a student toward a classmate with his parents to reduce such behavior, but these parents were not convinced that swearing is a bad thing (R37, Grade 5).

In some cases, parents made it clear to teachers that they expected a specific intervention strategy from them: "The parents wanted us to punish these children [pepretrators of their child] openly and demanded that we would cooperate (otherwise the parents would report it to the authorities)" (R34, Grade 4). Teachers indicated that these parents were often angry with them or at the school, as a result of which no mutual agreement on teacher interventions could be reached.

Teachers further indicated that parents did not believe the teacher when they told them their child was bullying other children: "I cannot get it into the mother's head that it is her son who is almost always the one who starts [the incident]" (R21, Grade 4), or: "The parents of [name boy] do not recognize their child in this story and do not

want to act on it. That is very difficult" (R25, Grade 1/2/3). The difficulty for teachers was that parents do not take them seriously when they raise this issue and that parents themselves are sometimes part of the problem, and teachers find this difficult to discuss with parents, even when they do this together with a behavioral specialist in the school. For example: "An unsafe home environment, or psychological problems in the child… When you report these kinds of issues to the parents, they immediately go into a defensive mode" (R15, Grade 2-6).

Five out of eight teachers with little teaching experience (0-5 years) indicated having difficulties finding solutions with parents. Seven out of 21 teachers with relatively much teaching experience (>10 years) indicated to experience these difficulties. These results seem to indicate that less experienced teachers have somewhat more difficulty with this. Furthermore, our results indicate no clear pattern between the type of antibullying method and the extent to which teachers experienced difficulties in finding solutions with parents. While 40% of all teachers who used a screening questionnaire and 44% of all teachers who participated in teacher or staff training reported difficulties, this was 33% for all teachers who taught student lessons.

What Strategies Do Teachers Use and Which Barriers Do They Encounter?

The second and third research questions of our study involved how teachers deal with the difficult bullying situations that they experienced and the barriers they encounter. From this data, four levels of action surfaced at which strategies are used: strategies involving 1) individual students who are directly involved in the bullying situation; 2) all students in the classroom; 3) colleagues, or measures throughout the school; and 4) parents. In total, 28 teachers reported strategies to deal with difficult bullying situations. Table 2 shows the level of action and the specific strategy employed for each type of bullying situation identified.

Identifying bullying behavior. Instead of systematically monitoring bullying to identify such behavior, the majority of the teachers used strategies to prevent incidents that were difficult to identify, such as bullying in the group's digital group app or outside the classroom, and reluctance in reporting bullying. Most teachers used strategies focused on all students in the classroom, such as discussing the incident, discussing students' reluctance to report bullying, making agreements on possible student actions in these situations, and promoting pro-social behaviors. For example, teachers discussed the use of the digital app group by asking students questions like "For which purposes do we want to use the digital group app?" (R17, Grade 6). Teachers also made agreements with students on how to use this app group by letting them think about solutions and agreements and by guiding students towards clear and concise agreements. An-

Table 2 *Teachers' Strategies to Deal with Difficult Bullying Situations on Four Intervention Levels (N = 28)*

Themes (number of teachers)	Intervention level (number of quotes)			
	Individual students	**Class**	**School**	**Parents**
Identifying bullying (12)	Supporting victims (6) Monitoring victims (2) Talking to bully (1) Transferring victim (1)	Discussing incident (7) Making agreements (3) Promoting social behavior (2)	Involving behavioral specialist (2) Consulting with playground supervisors (1) Referring to the school principal (1)	Talking about the incident (6) Making agreements (2)
Estimating seriousness of bullying (6)	Verifying incident (5) Monitoring students (2) Supporting victim (2) Victim blaming (2) Disciplining bully (1)	Discussing incident (1)		
Addressing persistent bullying (16)	Confronting bully (11) Finding solutions with the bully (3) Linking buddy to the victim (2) Providing social skill training for the victim (2) Supporting the victim (3) Monitoring the victim (1)	Teaching anti-bullying lessons (3) Discussing incident (3) Making agreements (1) Making students co-responsible for classroom climate (1)	Consulting colleagues (1) Improving playground supervision (1) Discussing incident in special care team (1)	Talking about the incident (3) Making agreements (1) Informing parents (1)
Finding solutions with parents (n = 3)	Explaining relevance (1)		Developing anti-bullying policies (1)	Continuing dialogue (1) Communicating school-wide anti-bullying policy (1)

Note. Teachers reported on several themes and intervention levels: numbers, therefore, do not add up to the total number of N = 28

other classroom strategy involved promoting pro-social behavior among students, for example, by giving students rewards for social interactions with their classmates.

Teachers also used strategies at the level of individual students by monitoring former victimized students, supporting these students, and transferring a student to another group. For example, one teacher created a support group of peers around the victim to prevent future bullying. Other strategies were related to incidents that had escalated. In these situations, teachers involved other adults, such as parents (e.g., talking with parents about the incident and solutions), and colleagues (e.g., behavioral specialist, playground supervisors, and the school principal).

Barriers encountered by teachers were related to an experienced lack of skills to prevent out-of-sight bullying situations adequately: "I am at a loss as to what to do, you know… This social media bullying happens at home, and they bring it into school." (R12, Grade 6), and: "This is why it [the bullying] is so intangible" (R2, Grade 6). They also expressed uncertainty in deciding on an appropriate and effective course of action, for example: "How do you create a safe environment so that students open up? I just did not succeed" (R12, Grade 6).

Estimating the seriousness of a bullying incident. The majority of the teachers attempted to verify what had happened by talking with individual students. Where teachers suspected students of over-reporting peer victimization, they tried to convince the victim to adjust their behavior (e.g., "What can you change in <u>your</u> behavior?" R32, Grade 1/2). This concerned cases where students were thought to provoke the bullying, for example, by showing dominant behaviors towards other students. Teachers reported feeling unsure of this approach, because in one case,

the bullying returned, and in another case, the student who was being bullied left the school. Some teachers indicated that they took self-reported victimization seriously at any time because this experience could be harmful to these students when ignored by the teacher. These teachers increased their observations of these students, listened to, and supported these students. For example, one teacher would ask these students to think about solutions and also monitored whether students acted on it.

In cases where students reported conflicting stories about the bullying situation, teachers responded by firmly disapproving of the bullying behavior in general, regardless of which student had responsible for instigating it:

> *I am sorry, but it is no excuse to say, 'What he did is much worse,' what you did is incredibly stupid too. […] I just try to make it clear to these students that I really do not like negative behavior by getting really angry. At the same time, I emphasize that it is the behavior I disapprove of, not the child himself. (R26, Grade 4/5/6)*

Other teachers responded to conflicting stories by applying measures that they believed would most likely be appropriate to the situation, such as disciplining the supposed bully. Barriers that teachers experienced were related to doubts about whether they had given disproportionate consequences to the bully or have done too little to stop the bullying.

Addressing persistent bullying behavior. Regarding addressing persistent bullying behavior, the majority of the teachers used strategies at the level of individual students who were involved in the actual bullying situation. Where bullying behavior initiated by short-tempered students was concerned, teachers mainly confronted these students with the impact of their negative behavior on other students. Here, teachers indicated that they mainly suppress such unwanted behavior without addressing the underlying problem, because this type of student tends to provoke peers at every moment that teacher supervision is absent. Some teachers reported that strategies aimed at suppressing negative behavior were not sufficient to reduce the behavior. For instance, a teacher reported that a student was insensitive to the disciplinary measures taken:

> *I do not think this can be solved in school. You can do your best to put him in that [a safe] group; I have to say, he is doing a bit better. I also think this because peers get to know him a little better. But yeah, I just got another complaint, I mean, he was teasing because he keeps making animal sounds towards a girl, and she comes to me to complain, and you can see him laughing broadly. I think it takes more than having conversations about negative behavior in the classroom, which is sufficient for most students (R31, Grade 3/4).*

Regarding improving the situation of victimized students who are being bullied for a prolonged period, teachers tried to find solutions together with the bully and the victim. Also, teachers reported having good experiences with giving support to victims by linking them to a buddy. Other strategies involved monitoring the situation together with parents and making clear agreements with them.

Teachers also used classical strategies to address persistent bullying by discussing the incident with all students and providing student lessons about bullying, a psychophysical training to gain confidence, and lessons to improve the social environment in the classroom.

Finding solutions with parents. Only a few teachers mentioned strategies to address the issue of finding solutions with parents, and these occurred mainly at the level of the school and during individual conversations with parents. Regarding parents' disagreement with the type of intervention proposed, one teacher indicated that it helped to present parents with a clear intervention plan for their child and to communicate clearly with parents what expectations they had of them.

Teachers experienced barriers in applying strategies to find solutions with parents. In two cases, teachers felt embarrassed when they had to point out that parents were part of the problem and consequently avoided a conversation with parents about this topic. Instead, these teachers focused on improving school interventions to reduce bullying. Other barriers were related to coping with parents who responded defensively or angrily when discussing planned interventions, or how to cope with feelings of failure when parents decided to handle the situation differently. One teacher, for example, indicated that parents decided to transfer their child to another school, which made her doubt whether she had handled the situation appropriately.

DISCUSSION

In the present study, we aimed to investigate which bullying situations teachers find difficult to handle, what strategies they use to deal with these situations, and what bar-

riers they encounter in doing so. We found that the vast majority of the teachers in this study indeed experienced recurrent difficult bullying situations. We were able to classify these difficulties in four categories: 1) identifying bullying behavior, 2) estimating its seriousness, 3) addressing persistent bullying behavior, and 4) solving bullying together with parents.

Teachers responded to difficult bullying situations in distinct ways. Regarding the first category, i.e., the difficulty in identifying bullying, we found that very few teachers used strategies or instruments to screen for bullying behavior. Instead, they used strategies at the classroom level, discussing bullying generally to prevent future bullying. For the second category, i.e., estimating the seriousness while not getting clear information from students, we uncovered that teachers intervened based on the information they received, even if they were not sure of the situation. Regarding the third category of difficult situations, i.e., addressing persistent bullying behavior, we found that teachers kept trying to suppress the negative behaviors of the perpetrators. Finally, concerning the fourth category, i.e., solving the bullying problems with parents who showed resistance towards how the teacher handled bullying, most teachers lacked strategies that helped them respond to this situation.

The findings of our study also indicate that teachers experienced specific barriers in each of these four domains. A substantial proportion of the teachers reported feelings that are related to a low level of self-efficacy, i.e., uncertainty as to whether they dealt with these situations appropriately. Concerning the first, identifying bullying and estimating its seriousness, the difficulty for teachers was that the bullying happens out of their sight and that students involved tend to report conflicting information. For the situations regarding persistent bullying behavior, teachers experienced a lack of skills and time to deal with children involved in continual bullying situations or to deal with multiple problems. Regarding situations dealing with parents, an important barrier for teachers was that they did not know how to solve the situation when parents disagreed with the teacher's solution.

While previous research has indicated that teachers doubt their efficacy for handling bullying (Begotti et al., 2018; Lester et al., 2018; Macaulay et al., 2019), the current study provides a more in-depth look at the challenges teachers face that contribute to their feelings of low self-efficacy. Our findings indicate that teachers have difficulty identifying and estimating the seriousness of bullying situations, are in line with previous studies that showed teachers to feel inadequately prepared to handle a variety of bullying situations (Marshall, 2012; Oldenburg et al., 2016). For instance, several studies found a discrepancy between bullying reported by students and bullying reported by teachers and concluded that teachers are not always able to identify bullying cases (Bradshaw et al., 2007; Demaray et al., 2013; Rupp et al., 2018). Our findings add to

this observation by showing that teachers especially experience difficulties identifying and estimating bullying when incidents happen out of their sight.

Previous studies have shown that teachers find it difficult to support the unique needs of students with emotional and behavioral difficulties (State et al., 2019; Stefan et al., 2015; Taylor & Smith, 2019). Our findings highlight that this is also the case in bullying situations. Teachers in our study experienced a lack of skills that would help them provide a structural solution for students who bully and who additionally have other emotional and behavioral difficulties. Moreover, our study showed that teachers experienced difficulties in finding agreement with parents on handling bullying situations. Previous research has shown that parents sometimes have different views on what bullying constitutes (Stives et al., 2019). Our findings substantiate this and indicate that finding a solution for a bullying situation together with the parents is certainly not self-evident.

A noteworthy observation in this study is that, when asked to define bullying, none of the teachers explicitly mentioned the imbalance of power between the bully and the victim, despite this characteristic being part of Olweus' (1993) widely adopted definition of bullying. Moreover, only two teachers mentioned the group process, in which students who witness the incident influence the bullying process, meaning that even teachers who had access to preventive antibullying training did not mention this process. Teachers also reported difficulties in determining whether an incident should be considered a bullying situation, indicating a lack of knowledge of what bullying constitutes. This finding is in line with Oldenburg et al. (2016), who showed that teachers who had participated in the KiVa antibullying program did not always have a clear understanding of what bullying is.

Another notable finding was that some teachers normalized bullying by stating that they understood why some children were being bullied. As a result, they advised these students to adjust their behavior. This attitude and intervention strategy are undesirable, as it can lead to emotional distress and harm the victim's mental health (Reijntjes et al., 2010; Troop-Gordon, 2015). It also needs to be recognized that self-reported victims who do not report all the characteristics of being bullied (i.e., repetition, power imbalance) also have psychosocial problems compared to non-victimized youth (Ybarra et al., 2014), and should, therefore, be treated as a serious case by teachers. It is striking that despite antibullying methods and national law to reduce bullying, there are still teachers who do not seem to take bullying seriously. Our findings suggest that there is a need for more awareness among teachers about the prevalence of bullying and the negative consequences for victimized students.

We also looked into the relationship between used antibullying methods and teachers' experienced difficulties. Our findings showed that teachers who have little teaching experience seem to experience more difficulties than colleagues with more than ten years of teaching experience. This finding is in line with findings of previous studies that novice

teachers feel not well prepared to reduce school bullying (Begotti et al., 2018; Lester et al., 2018; Macaulay et al., 2019), and shows the specific circumstances in which these teachers experience these difficulties, such as identifying bullying incidents, estimating the seriousness of an incident, and in finding solutions together with parents. Also, our study showed that, overall, there was no link between the antibullying methods teachers used and the extent to which they experienced difficulties. A possible explanation for this finding is that the teachers in our study did not receive sufficient support from these specific methods. However, due to the small number of teachers, these results should cautiously be interpreted. Future research could investigate this more extensively. Follow-up research could also focus on whether specific antibullying components or programs are beneficial for teachers and reduce their perceived difficulties.

Strengths and Limitations

Our findings provide insight into teachers' real-life experiences. Little was known about the situations that teachers deal with in regard to bullying. These insights are, therefore, a particular strength of the study. Such information is important because it helps us identify those areas where teachers need to be strengthened in their antibullying strategies. Another strength of our study is that we interviewed a substantial number of teachers, which enabled us to collect data concerning a wide variety of bullying situations.

A possible limitation of this study is that teachers' answers may be biased as a result of self-reported behavior. People generally tend to present themselves favorably, and this may have resulted in a self-presentation bias (Kopcha & Sullivan, 2007). Although the teachers in our study did report the difficulties they experienced, this outcome may still be an underestimation of the difficult situations they experience with bullying. Future research could investigate to what extent the experiences of the teachers in our sample can be generalized to a broader population of teachers.

Further, our findings on the relation between antibullying methods and experienced difficult bullying situations are based on general reports concerning the antibullying methods that were available for teachers at the time of the interviews. As we did not collect data on the extent to which t teachers have implemented these methods, we were not able to relate the level of implementation to the extent to which teachers experienced difficult bullying situations.

Finally, due to the qualitative nature of this study and the selective sample of teachers, our findings cannot be generalized to the whole population of teachers. Teachers were able to sign up for the interviews. This procedure may have resulted in a biased sample in which only teachers who like to talk about bullying were included. This selective sample may have influenced our conclusions about how teachers perceived bullying situations and what teachers do to deal with these situations.

Practical Implications

Our findings show that teachers experienced difficulties in identifying bullying cases, indicating that they need access to good and manageable screening tools to detect bullying. Peers are usually present in cases of bullying (Hawkins & Pepler, 2001) and should be viewed as valuable sources of information in assessing bullying behavior. Multi-informant methods in which self-reports and peer-reports are combined and social network analysis in which teachers gain insight into students' relations could, therefore, be useful for teachers (Huitsing & Monks, 2018; Huitsing & Veenstra, 2012; Hymel, & Swearer, 2015; Juvonen et al., 2001).

Another way to support teachers in identifying bullying is to strengthen their skills in identifying and estimating bullying through training. Teacher training should focus on providing knowledge on what bullying constitutes and skills on how to talk with students to find out about bullying incidents in a constructive way. Yoon and Bauman (2014) have shown that that teacher training that includes a component about understanding the seriousness and consequences of bullying helps teachers address bullying behavior in schools.

Our finding that teachers experienced a lack of skills and time to address persistent bullying also stresses the importance of teacher training and pre-service teacher training. Such training should focus on learning teachers the strategies to support students with multiple problems. Another strategy is to provide teachers with additional structural support from the school, e.g., from behavioral specialists or school nurses, who are more adequately equipped to deal with problematic student behavior (Fisher et al., 2017).

Finally, teachers can be supported in working with parents to prevent and reduce bullying. Teachers can benefit from conversation techniques as part of a teacher training course or from structured protocols that guide them in difficult conversations with parents. Another strategy would be to enhance the school support system in this regard, by providing a clear schoolwide response to bullying among teachers and administrators and communicating this message to all parents.

Furthermore, it is vital to invest in the pre-service training of teachers so that they are well prepared to address bullying right from the start of their careers. Courses on identifying and addressing bullying through evidence-based programs and teacher training should be incorporated into the regular curriculum of pre-service teacher education.

Implications for Future Research

Future studies can focus on the development and effectiveness of teacher components of antibullying programs (i.e., screening tool, training, guidelines) to strengthen teachers' abilities to address bullying. Further research could evaluate how teacher training increases teachers' levels of self-efficacy to intervene in difficult bullying situations, such as addressing bullying behavior with students who show social-emotional problems.

It is also valuable to carry out qualitative research into the good practices of teachers dealing with bullying behavior. As there is still little knowledge on what practices are effective, follow-up research could focus on difficult bullying situations and which strategies students and teachers consider being effective in reducing bullying.

Conclusion

This study has provided insight into the specific difficulties teachers experience in identifying and reducing bullying behavior. Since bullying usually happens out of sight from teachers, they are often not aware of the bullying behavior until it escalates, or a student or parent comes to school to report it. In addition, teachers often experience a lack of knowledge about the nature of bullying and lack the skills and time to deal adequately with children involved in persistent bullying. Teachers also experience difficulties in dealing with parents who do not agree with their solutions to bullying at school.

A strategy that follows from our results is providing teachers with a systematic screening tool do detect bullying behavior at an early stage (e.g., at the beginning of the academic year). Such a tool should provide teachers with detailed protocols to deal with students (at risk of being) involved in bullying situations. Our results also indicate that teachers may benefit from both pre-service and in-service training to tackle bullying in their classrooms. Such training should address the characteristics of bullying, the group process that is involved, and it should give them tools to deal with bullying, such as protocols for specific bullying contexts (i.e., dealing with multi-problem behavior or parents with a different view on bullying behavior and solutions). Novice teachers, in particular, seem to need professional support through training and the use of an antibullying method.

CHAPTER 4

Predictors of Teacher Intervention and The Effects of Implementing PRIMA Antibullying Program Components

This chapter has been submitted for publication in a scientific journal.

ABSTRACT

This study tested the relation between behavioral determinants and teachers' intervention strategies and the PRIMA antibullying program's impact on teacher intervention in a cluster-randomized trial involving grade 3-6 teachers (*N*= 143). Our analysis revealed significant relations between teachers' self-reporting of their beliefs and self-efficacy for bullying intervention and their actual intervention strategies in the classroom. The initial teacher levels were high on the pretest and did not increase by the program. Significant variation in program implementation was related to teachers' work experience, classroom victimization, and the urban context of the school.

INTRODUCTION

Bullying, as characterized by systematic, intentional aggression, accompanied by an imbalance of power (Olweus, 1993), is a widespread problem in schools (Jansen et al., 2012; Mitsopoulou & Giovazolias, 2015; Zych et al., 2015). Since teachers are often nearby when a bullying incident occurs (Wachs et al., 2019), they are in a unique position to identify and reduce bullying at school as early as possible. To respond adequately to bullying cases, teachers need to know what bullying is, recognize which students are being victimized (Oldenburg et al., 2016), and have the right skills to intervene in bullying cases (Yoon & Bauman, 2014). However, several studies indicate that many teachers may not be fully prepared for this role (Oldenburg et al., 2016; Troop-Gordon & Ladd, 2015; van der Zanden et al., 2015). For example, teachers give incomplete definitions of bullying, do not recognize self-reported victims in their classroom, and sometimes use strategies that are not likely to be effective, such as passive strategies towards the victim (e.g., advising to solve it on their own) (Oldenburg et al., 2016; Troop-Gordon & Ladd, 2015). This can be harmful since there is growing evidence that teachers' strategies influence student bullying behavior. Teachers with normative views on bullying behavior use more passive strategies (such as advising students without further guidance) (Troop-Gordon & Ladd, 2015) or do not intervene at all, and the latter has been associated with higher levels of bullying behavior in the classroom (Hektner & Swenson, 2012). On the other hand, teachers can positively influence the levels of bullying in the class, for example, by endorsing a strong antibullying norm in the class (Marachi et al., 2007; Veenstra et al., 2014).

Teacher intervention has previously been investigated with the theory of planned behavior framework (Boulton et al., 2014; Yoon & Bauman, 2014; van Verseveld et al., 2019). This theory proposes that one's attitudes towards behavior, perceived norms, and perceived behavioral control, or the closely aligned concept of self-efficacy, influence one's intentions and that these intentions influence one's behavior (Ajzen, 2012). In the context of bullying, teachers have been found to intervene more likely in bullying situations when they perceive bullying as a serious event that needs to be stopped; when they empathize with the victim; and when teachers report high levels of self-efficacy to intervene (Bauman & Del Rio, 2006; Bradshaw et al., 2007; Dedoudis-Wallace et al., 2014). However, the link between these teacher variables and teachers' specific intervention strategies have not been examined yet.

Teachers can intervene in a variety of ways, such as supporting students who are victimized, reprimanding students who bully others, or discussing the relevance of a positive classroom climate with the group (de Luca et al., 2019). In several studies, elementary and middle school students have been asked which teachers' actions are effective against bullying. Active strategies (e.g., supporting victims or correcting bullies),

solution-focused strategies (e.g., promoting a safe class environment), and school-wide strategies (e.g., with parents or other school professionals) were most successful in reducing bullying in the long term, according to these students (Demol et al., 2020; Frisén et al., 2012; Wachs et al., 2019). These strategies are closely aligned to the visions and methods of school-wide antibullying programs, such as the Olweus Bullying Prevention Program (OBPP) and the KiVa program. Therefore, these types of programs can possibly support teachers in applying such promising intervention strategies. In addition, teachers themselves indicate that they would like to receive support in dealing with bullying behavior (Bradshaw et al., 2012), especially when it concerns more severe cases of bullying (Rigby, 2020) or specific types of bullying situations, such as cyberbullying (van Verseveld et al., 2020). Support from programs and teacher training is therefore needed.

Antibullying programs can support teachers in their awareness and responsiveness towards bullying intervention. A recent meta-analysis showed that such programs positively influenced teachers' knowledge and self-efficacy to intervene in bullying situations and increased their frequency of intervening (van Verseveld et al., 2019). The findings of Athola and colleagues (2012) showed that student lessons about bullying and a pre-implementation training for teachers already affected teachers' self-efficacy. In a student approach, student lessons are a key component in which both students and teachers learn about bullying behavior. However, a more teacher-centered approach is also possible to reduce bullying, in which the focus is on teacher support in identifying and dealing with bullying. For example, teachers can set a strong antibullying norm in the classroom, monitor bullying by using a screening method, promote social relationships among students, and being aware of their role model status. However, little is yet known about the effects of antibullying programs on teachers' specific strategies. It is also not clear yet which components of programs are relevant. School-wide programs are the most promising at the student level (Ansary et al., 2015; Gaffney et al., 2019) These programs often consists of a combination of universal components, targeting all school actors and selective components, targeting students involved (or at risk of being involved) in bullying situations. Teachers may be strengthened by the student lessons they teach, where they 'learn by teaching' (Athola et al., 2012), or by gaining knowledge through a specific teacher training component (Yoon & Bauman, 2014).

Many programs take a broad socio-ecological perspective in targeting the many factors that influence bullying behaviors, such as measures focused on the relationships among students, the ethos in the school, and the involvement of parents and the wider community (Axford et al., 2020; Huitsing et al., 2020a; Limber, Olweus, Wang, Masiello, & Breivik, 2018). However, this approach can be demanding for teachers to deploy fully, as several studies showed a wide variety of program implementation due to organizational factors, such as a high workload (Axford et al., 2020; Orobio de Castro et al., 2018). Variation in implementation can affect a program's effectiveness since a

higher program dosage has been linked to better program effectiveness in education (Domitrovich et al., 2008; Durlak & DuPre, 2008), suggesting that program dosage is an essential predictor for positive outcomes. Identifying the implementation is, therefore, important in intervention research.

Little is known about the contribution of specific program components to teachers' intervention strategies to our knowledge. This information is vital for the development of teacher education programs and training in school-based antibullying programs. Especially novice teachers can benefit from guidance in handling bullying situations because these kinds of practice-oriented skills are generally only acquired after several years of teaching (Authors, 2020). Therefore, it is necessary to examine which specific components support teachers in their professional role to reduce bullying. In addition, little is known about the factors that predict successful teacher intervention. Deepening these factors is important to shape the important components for teachers' professional development training.

The PRIMA Antibullying Program

The PRIMA antibullying program (VeiligheidNL, n.d.) is a multi-component antibullying program for elementary school and was originally founded on the Olweus Bullying Prevention Program (OBPP, Olweus, 1993). PRIMA's primary goal is to ensure a safe and inclusive school climate where students learn to interact with each other positively. The program takes a social-ecological perspective (Bronfenbrenner, 1979; Hong & Espelage, 2012) in targeting the many factors that

influence bullying behaviors, such as the schools' policies and procedures, the social environment, and engagement with parents and colleagues. The program, therefore, focuses on four levels: (1) the individual student, (2) the classroom, (3) the school, and (4) the parents. The program consists of four universal components (i.e., student lessons, e-learning module, staff training, monitoring tool) and two selective components (i.e., protocols for specific bullying situations and protocols for students (at risk of) being involved in bullying situations). A coordinator is appointed to coordinate the program, and this coordinator receives guidance from a certified PRIMA-coach.

PRIMA provides teachers with several tools to detect bullying and intervene at the individual, class, and school levels. The monitor helps 3-6 grade teachers detect bullying cases in the classroom, using multiple informants (i.e., self- and peer reports). They receive a report of all the students in the classroom, provided with information on students' roles in bullying situations, social status, and other variables related to students' social dynamics. Teachers also receive a report on students directly involved as a victim, bully, or for children at risk of becoming involved.

The training components of PRIMA focus on strengthening intentional behavioral determinants to prevent and reduce bullying behavior. The underlying assumption of

the program is that by influencing these determinants, teachers will intervene more often. The e-learning module and face-to-face training for teachers of all grades aim to increase teachers' perceived seriousness of bullying and their empathy for victims by making them more aware of bullying's negative consequences and the underlying mechanisms of the group dynamics bullying. The training components also enhance teachers' knowledge about methods to identify bullying and to intervene in bullying in a supportive way. Teachers' self-efficacy to intervene in bullying situations is targeted by practicing with the learned strategies using fictional digital bullying situations and practicing them in role-playing during the face-to-face training. Teachers' self-efficacy to intervene is also targeted by providing them access to six protocols with methods to deal with specific bullying situations and strategies to promote a safe classroom climate.

At the class level, teachers are provided with student lessons to prevent bullying together with students. The student lessons aim to promote healthy relationships among students by teaching social skills, creating a safe classroom environment where bullying is no longer tolerated, and providing students with safe strategies to intervene in bullying situations.

The Present Study

We investigated whether the PRIMA antibullying program effectively supports teachers by measuring the effects on teachers' likelihood to intervene and their intervention strategies. In one experimental group, teachers received all the PRIMA program's core components, including the student lessons (hereafter: PRIMA-L^+). In the other experimental group, teachers received all the core components, except the student lessons (PRIMA-L^-). This division made it possible to investigate the value of implementing materials at the student level in addition to materials at the teacher level. Further research into the effects of implementing various program components is relevant to advancing knowledge of how antibullying programs can support teachers in their key role in preventing and reducing bullying. To date, the relation between antibullying program components and teachers' likelihood to intervene and intervention behavior has not been studied before. Two research questions are, therefore, central to this study:

1. What is the relation between teachers' attitudes and self-efficacy, and their likelihood to intervene and intervention behavior?
2. What are the PRIMA antibullying program's effects on teachers' determinants of intervention (perceived seriousness, empathy, and self-efficacy), likelihood to intervene, and their intervention behavior?

METHODS

Sampling and Design

Figure 1 provides an overview of school and participant enrollment in the study. We examined the teacher data from a cluster-randomized controlled trial with a pre- and posttest, comparing two experimental groups and a control group. After stratifying schools by school size, the number of special needs students, and the urbanization level of the school's location, we randomly assigned 173 schools to one of the two experimental groups (55 in PRIMA-L$^+$ schools, 58 in PRIMA-L$^-$ schools) or the control group (60 schools).

We included 143 grade 3-6 teachers (63.8% of the original sample; 42 in PRIMA-L$^+$ schools, 42 in PRIMA-L$^-$ schools, and 59 in control schools) who participated in both pre- and posttest in the study. Teachers who did not participate in the posttest did not differ significantly on the pretest measures from the teachers who participated. The initial sample consisted of 224 teachers (M_{age} = 41.3 years, SD = 12.5), of which 30.8% had more than 20 years of teaching experience, 17% 15-19 years, 19.6% 10-14 years, 16.1% 5-9 years, and 16.5% 0-4 years. Teachers in PRIMA-L schools were older (M_{age} = 44.9 years) than teachers in control schools (M_{age} = 38.7 years), $F(2, 215) = 4.61$, $p = .011$, but teaching experience, number of previous followed courses or workshops related to bullying was similar across conditions, χ^2 (8) = 5.65, $p = .687$; χ^2 (2) = 1.75, $p = .416$. The non-response rate was not different for the three conditions during the posttest on the outcome measures, with 25.6% dropouts in PRIMA-L+ schools, 17.6% in PRIMA-L schools, and 26% in control schools.

Procedure

Teachers in PRIMA-L$^+$ schools received all PRIMA core components, including the student lessons (i.e., student and teacher focus), whereas teachers in the PRIMA-L$^-$ schools received all PRIMA core components, except for the student lessons (i.e., teacher focus). Teachers in control schools carried out a 'care as usual' policy. In the Netherlands, elementary schools must adhere to the following antibullying guidelines: having a formal social safety plan, yearly monitoring of students' wellbeing, and a confidential advisor to report bullying cases. None of the control schools were implementing a school-wide antibullying program during the trial. Teachers completed an online questionnaire during regular school hours in October/November 2017 (pretest) and March/April 2018 (posttest). The trial has been registered in the ISRCTN register (nr.15425978). The Faculty of Social and Behavioral Sciences' ethical board at the University of Amsterdam approved the study (nr. 2016-CDE-8008).

Measures

Determinants of Teacher Intervention. Based on the Bullying Attitude Questionnaire (Byers et al., 2011; Yoon, 2004), we translated eight vignettes (see Appendix C) to measure teachers' beliefs, self-efficacy, and willingness to intervene in different forms of bullying (e.g., verbal, cyber, social exclusion, physical, gossipy, racist bullying). Each vignette was followed by four items, measuring: 1) *perceived seriousness,* 2) *empathy*

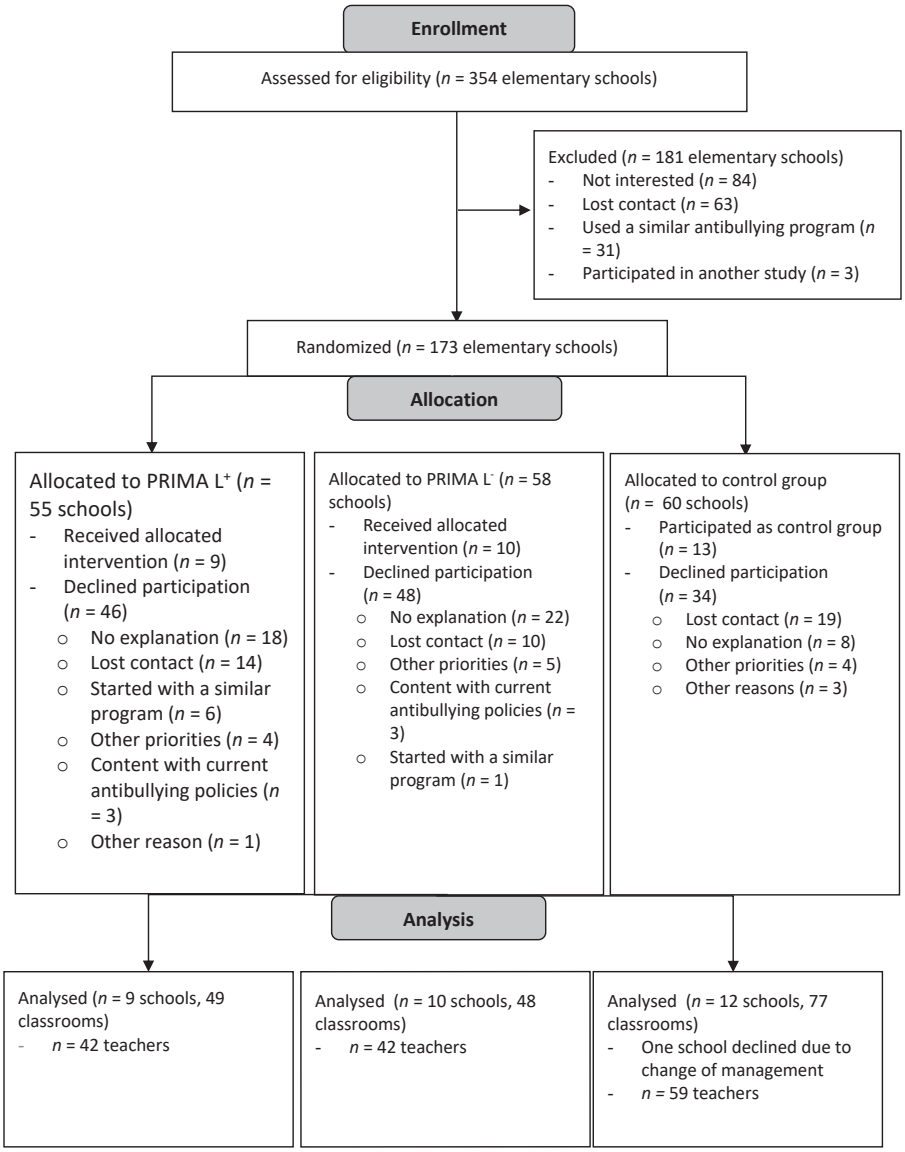

Figure 1. Flow chart of school enrollment in the study.

towards the victim, 3) *likelihood to intervene,* and 4) *self-efficacy to intervene.* All items were measured on a four-point scale. Means scores were calculated for all eight items for each determinant.

Teachers' perceived seriousness of bullying was measured with the item "How serious do you rate this conflict?" (1 = *not at all serious,* 2 = *somewhat serious,* 3 = *relatively serious,* and 4 = *very serious*). The internal consistency of the eight items was .74 (pretest) and .73 (posttest). *Teachers' level of empathy* was measured using the item "To what extent do you sympathize with this student?", referring to the victim in the vignette. The response categories were: 1 = *not at all,* 2 = *somewhat,* 3 = *relatively much,* and 4 = *very much.* The Cronbach's alpha for this scale was high (.84 on the pretest and .85 on the posttest). *Teachers' likelihood to intervene* was rated with the item "How likely is it that you would intervene in this situation?" (1 = *not likely at all,* 2 = *somewhat likely,* 3 = *relatively likely,* and 4 = *very likely*). At the pretest, the Cronbach's alpha (α) was .74 and .75 on the posttest. *Teachers' self-efficacy to intervene* was measured with the item "How confident are you in your abilities to intervene properly in this situation?" (1 = *not confident at all,* 2 = *somewhat confident,* 3 = *relatively confident,* and 4 = *very confident*). Internal consistency was high for this scale (α = .84 and .88 respectively on the pre-, and posttest).

Teacher Intervention Strategies. Teachers' strategies to intervene in bullying situations were divided into preventive intervention strategies and curative intervention strategies (see Appendix D). Preventive intervention strategies were measured with five items developed by the research team and based on the principles of the student lessons (i.e., 1. Promoting a safe social environment in the classroom; 2. Promoting social skills of students to prevent bullying; 3. Supporting students to intervene when bullying occurs) and showed high internal consistency at the pretest (α = .86) and posttest (α = .85). Curative strategies were measured with five items based on the protocols for teachers, including general intervention strategies (e.g., 'taking action to stop bullying'), and specific strategies (e.g., 'supporting victimized students') and also showed high internal consistency (α = .95 on the pretest and .93 on the posttest). Teachers were asked how often they had used the intervention strategies in the past three months, for example: "How often in the past three months have you been able to stop or reduce bullying?" and could answer on a four-point frequency scale: 0 = *did not use this strategy;* 1 = *once or twice;* 2 = *multiple times a month;* 3 = *weekly.* Teachers could also indicate if the item did not apply to their situation (coded as missing value).

Program component dosage. To determine the level to which teachers in intervention schools implemented the independent program components, we asked teachers whether they had implemented each component using single items. For example:

"Have you delivered PRIMA the student lessons?", and "Have you attended the PRIMA face-to-face training?". Teachers could answer on a 3-point scale: 0 = not *implemented;* 1 = *partly implemented,* 2 = *fully implemented.* Teachers in the PRIMA-L schools could indicate that they were not offered the student lessons.

We calculated sum-scores d for each program component. For example, the student curriculum consisted of six main student lessons. For each lesson, teachers were asked to indicate whether they had delivered the student lesson, resulting in a sum score ranging between 0 and 6.

Background variables. *Teaching experience* was measured with the question, "How many years of work experience do you have teaching in elementary education?". Teachers could respond to this question with the following answer categories: 1 = *"0-4 years",* 2 = "*5-9 years",* 3 = *"10 -14 years",* 4 = *"15-20 years",* en 5 = "*20 years or more".*

Classroom victimization was measured among students in grades 3-6 with peer nominations. Students were first presented with a written definition of bullying, emphasizing the repetitive and intentional nature of bullying and the imbalance of power, at the beginning of the questionnaire. In addition, the different forms of bullying were described, including overt forms of bullying (e.g., verbal, physical, and material bullying), covert forms of bullying (e.g., social exclusion and gossiping), and digital bullying (e.g., bullying on social media). A single item was used to measure peer-nominated victims of bullying: "Which classmates are being bullied by other children in the past three months?". From a digital list with all classmates' names, students could nominate an unlimited number of classmates as victims. Students' names were randomized to avoid that students' names on the top of the list would be nominated more often than students lower on the list. Peer nominations received were then totalized and divided by the number of classmates that responded, resulting in a proportional score of 0.00 to 1.00 for each student. The average proportional scores per class were then imported into the teacher dataset and matched with each class's teachers.

Classroom victimization was also measured at the teacher level. Teachers received a list of their class (not randomized) and were asked to nominate students that were being bullied by other children in the past three months, resulting in a number of given nominations to victimized students in the classroom.

Size of school was a dichotomous variable distinguishing between large schools (> 500 students; coded as 1) and smaller schools (<500 students; coded as 0).

Urban environment was a dichotomous variable based on the environmental address density (number of households per 1 km^2) of the municipality in which the school was located (CBS, n.d.). Urban schools (1) had an environmental household density of 1,500 or more, and non-urban schools (0) had an environmental household density of less than 1,500.

Special needs students was a dichotomous variable indicating whether schools are at or above the national average of 9.31% special needs students in the school (1) or below (0). Students with special needs have learning difficulties or emotional-behavioral problems without an indicated disability or health care need (Smeets et al., 2007).

Statistical Analysis

We performed linear regression models to analyze the teacher data (SPSS, Version 25, IBM Corp. Released, 2017). We applied simple linear regression models with all teachers' pretest data to test the assumed relationships between intervention determinants, willingness to intervene, and actual intervention of the planned behavior model theory. To investigate the effects of both PRIMA conditions on teaching intervention, we tested a model including all teachers (i.e., intention-to-treat analysis), which provides typical effects in educational practice, as programs are generally implemented with varying levels. We controlled for differences in baseline levels by adding the pretest scores of the variable of interest to the models, the level of classroom victimization, and school-level variables (i.e., school size, urban schools, and special needs students) used to allocate schools. We also analyzed the data using the same statistical model to include only those teachers who implemented at least one of the universal program components to estimate the program's maximum effects (i.e., a received-intervention analysis). Finally, we performed an analysis for the experimental groups to explore relations between teacher, class, and school variables and teachers' specific components implementation.

RESULTS

Descriptive Statistics for of Pretest and Posttest

Table 1 provides the mean scores and standard deviations for the outcome' measures in the experimental and control groups at the pre- and posttest. Teachers' mean scores at the pretest were relatively high for determinants of teacher intervening (i.e., seriousness, empathy, self-efficacy), willingness to intervene (i.e., likelihood to intervene), and teacher intervening (i.e., preventive strategies and curative strategies). For example, the total number of teachers who take bullying seriously was comparable for both intervention schools (PRIMA-L^{+} 85.5%; PRIMA-L^{-} 83.1%) and control schools (88.5%) at the pretest. There are no clear differences between pre- and posttest scores for all three conditions.

Table 1

Mean Scores (and SD) for Teachers' Pre- and Posttest Scores (Teacher Reports, N = 139)

	PRIMA-L+		PRIMA-L-		Control	
	T1	T2	T1	T2	T1	T2
Determinants of intervening						
Seriousness	3.36 (0.43)	3.40 (0.39)	3.36 (0.46)	3.35 (0.38)	3.40 (0.35)	3.37 (0.34)
Empathy	3.34 (0.42)	3.31 (0.44)	3.34 (0.49)	3.33 (0.47)	3.29 (0.42)	3.27 (0.43)
Self-efficacy	3.29 (0.48)	3.34 (0.41)	3.20 (0.47)	3.23 (0.46)	3.38 (0.46)	3.31 (0.43)
Willingness to intervene						
Likelihood to intervene	3.71 (0.33)	3.68 (0.34)	3.67 (0.37)	3.71 (0.31)	3.73 (0.29)	3.69 (0.31)
Intervening[a]						
Universal intervening	2.54 (0.75)	2.64 (0.73)	2.61 (0.87)	2.53 (0.77)	2.72 (0.81)	2.57 (0.74)
Selective intervening	2.62 (0.81)	2.53 (0.72)	2.63 (0.94)	2.46 (0.62)	2.76 (0.98)	2.62 (0.72)

Note. [a]*N* = 131 for preventive intervention and *N* = 95 for selective intervention.

Teachers indicated at the pretest that at least once a week, they used mainly preventive strategies aimed at the classroom, such as working on a positive class climate (65%), teaching children prosocial behavior (65%), discussing bullying in class (58%), teaching students intervention strategies (44%), and actively setting a standard against bullying (37%). Teachers often indicated that curative strategies did not apply to their situation in the past three months (ranging from 20% to 22%), suggesting no bullying behavior in the classroom, according to these teachers. The level of bullying behavior was significantly related to school size and the school's urban environment. Bullying in

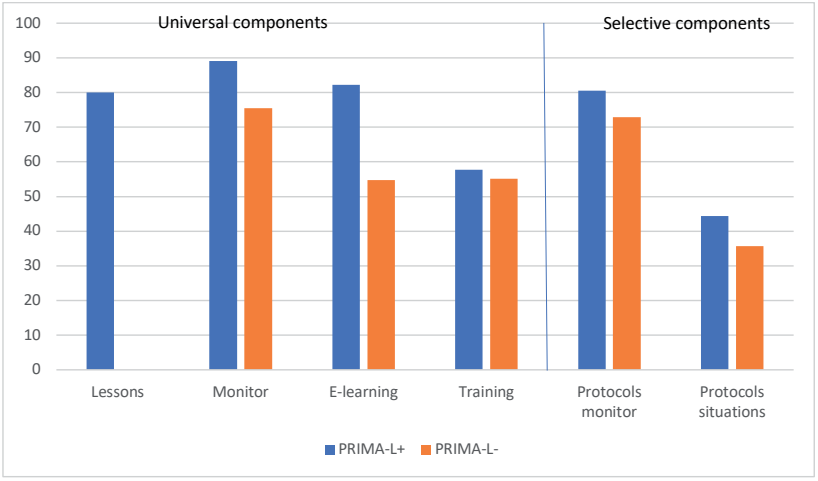

Figure 2. Percentage of Teachers (N = 94) who Implemented a Component. *Note.* Only PRIMA-L+ teachers received student lessons.

the classroom occurred less often in large schools compared to small schools, β = -0.16, p = .023, and more often in urban schools than in more rural areas, β = 0.23, p = .001.

Only a small majority of the teachers (54.3%) implemented at least a part of the various universal PRIMA components (see Figure 2). Teachers in PRIMA-L$^+$ schools used all program components more often than teachers in PRIMA-L$^-$ schools. In both intervention conditions, teachers consulted the monitor report most often while the protocols for specific bullying situations were used least. Many teachers (45.7%) in the intervention schools did not implement any of the universal components.

The relation between Teacher Beliefs and Self-Efficacy and Teacher Intervening

We investigated whether teachers' seriousness of bullying scenarios, empathy towards victims, and self-efficacy to intervene were significant predictors of teachers' likelihood to intervene. As shown in Table 2, teachers' seriousness, empathy, and self-efficacy were significant predictors for teachers' likelihood to intervene. This linear regression model accounted for 47% of the variance in teachers' likelihood to intervene, with empathy as the strongest predictor, β = 0.37, p < .001, 95% CI [0.17-0.37].

Table 2 *Predictors for Teachers' Likelihood to Intervene and Teachers' Intervention Strategies in Bullying (Teacher-Reports at Pretest, N= 187)*

	Likelihood to intervene	Universal intervening	Selective intervening
	β	β	β
Teacher level			
Seriousness	0.31***	0.20*	0.15
Empathy	0.37***	-0.04	0.04
Self-efficacy	0.18**	0.22**	0.13
Likelihood to intervene	-	-0.09	-0.03
Class level			
Student victimization	-0.04	0.09	0.19
School level			
Large schools	0.02	0.08	0.18*
Urban environment	0.03	0.16*	0.19*
Special needs students	0.01	-0.10	-0.08
Model fit			
Adjusted R^2	0.47	0.11	0.17
F (8, 179)[a]	13.38***	3.83***	3.65**

[a]The degrees of freedom are F(7, 190) for 'likelihood to intervene' and F(8, 137) for 'curative intervention'.

* p < .05; ** p < .01; *** p < .001.

We also investigated whether teachers' attitudes, self-efficacy, and the likelihood of intervening were related to teachers' strategies in bullying situations. Teachers' self-efficacy was a significant predictor for teachers' preventive intervening, $\beta = 0.22$, $p = .004$, 95% CI [0.13-0.64]. We found no significant relations between self-efficacy and curative intervening and between likelihood and both preventive and curative intervening.

Teachers' perceived seriousness was related to preventive intervention, indicating that teachers who perceive bullying as a severe issue take preventive measures against bullying. Also, some school variables significantly related to curative intervention strategies, indicating that teachers in large schools and teachers in urban schools use curative strategies to reduce bullying more often than teachers in smaller and non-urban schools (see Table 2).

Effects of PRIMA on Teacher Intervening

We investigated whether PRIMA positively affected teachers' determinants to intervene, their likelihood to intervene, and their frequency of using specific intervention strategies. We found no significant effects of implementing the different PRIMA components on these measures in both intervention groups (see Table 3). Since the mean scores were relatively high on both the pretest and posttest, this is not a surprising result. Removing the 79 teachers who did not implement any of the PRIMA's universal components from the analysis yielded similar results.

Table 3 *Intention to Treat Effects of the PRIMA Program on Teachers' Determinants of Intervention, Willingness to Intervene, and Intervention Behavior (Teacher-Reports at Posttest, N= 123)*

	PRIMA-L$^+$			**PRIMA-L$^-$**		
	β	**p**	**95% CI**	**β**	**p**	**95% CI**
Determinants of intervening						
Seriousness	0.058	.431	-0.07 – 0.17	0.009	.909	-0.12 – 0.13
Empathy	0.002	.980	-0.15 – 0.15	0.019	.813	-0.13 – 0.17
Self-efficacy	0.101	.129	-0.03 - 0.22	0.014	.836	-0.12 – 0.14
Willingness to intervene						
Likelihood	0.035	.666	-0.09 – 0.14	0.092	.281	-0.06 – 0.19
Intervention behavior						
Universal strategies	0.128	.129	-0.06 – 0.47	0.075	.396	-0.16 – 0.40
Selective strategies	0.006	.952	-0.30 – 0.32	0.076	.502	-0.22 – 0.44

Note. In all models, we controlled for determinants of intervening, pre-test scores and class (peer-reported victimization) and school level variables (school size, urban environment and special needs students).

Explorative Analysis of Predictors of Program Component Implementation

In an explorative fashion, we investigated whether teaching experience, the degree of classroom victimization, and school characteristics (pretest scores) predicted the degree to which teachers implemented each program component (see Table 4). Teachers in PRIMA-L$^+$ schools, teachers with less teaching experience, teachers who reported more victimized students in their class, and teachers in urban schools implemented more universal components than teachers in PRIMA-L$^-$ schools, teachers with more teaching experience, teachers who reported less victimized students and teachers in more rural schools. Teachers with more teaching experience consulted the monitor report and attended the face-to-face training less often, less often, β = -0.37, p = .006, and β = -0.40, p = .001, respectively. The e-learning and training were attended more often by teachers who reported more victims, and the e-learning was also used significantly more often by teachers in urban schools, $\beta_{\text{e-learning}}$ = 0.27, p = .022, β_{training} = 0.33, p = .005, and $\beta_{\text{e-learning}}$ = 0.35, p = .007, respectively. We found no significant relations between teacher, class, and school variables and the degree to which teachers implemented the selective PRIMA components.

Table 4 *Explorative Sub-Analysis of Program, Teacher and Context Variables on Degree of Program Implementation (N = 63)*

	Universal Components					Selective Components		
	Lessons[1]	Monitor	E-learning	Training	Total	Protocols monitor	Protocols situations	Total
	β	β	β	β	β	β	β	β
Program level								
PRIMA-L$^+$	-	-0.02	0.26	-0.08	0.44***	0.13	0.17	0.16
Teacher level								
Teaching experience	-0.16	-0.37**	-0.15	-0.40**	-0.26*	-0.05	-0.05	-0.04
Class level								
Victimization student report	-0.22	-0.06	-0.05	-0.12	-0.04	-0.17	0.07	-0.08
Victimization teacher report	0.31	0.06	0.27*	0.33**	0.27*	0.15	0.05	0.12
School level								
School size	-0.22	-0.21	-0.25	0.05	-0.15	0.04	-0.13	-0.03
Urban environment	-0..12	0.14	0.35*	0.11	0.29*	0.08	0.15	0.12
Special needs students	-0.60	-0.05	-0.09	-0.05	-0.19	-0.32	-0.24	-0.32
Model fit								
Adjusted R^2	0.30	0.11	0.24	0.26	0.41	0.03	0.02	0.03
F (7, 56)[2]	3.04*	2.10	3.88**	4.15**	7.37***	1.28	1.19	1.25

[1] N = 28, 44% of teachers in the PRIMA-L$^+$ condition. [2] The degrees of freedom is 'F(6, 22) for 'lessons'.
* $p < .05$; ** $p < .01$, *** $p < .001$.

DISCUSSION

The results of the present study indicate that teachers who perceive bullying as a serious problem, feel empathy for victimized students, and are confident to intervene, are also more likely to intervene in bullying situations. This finding supports earlier research that teacher determinants (perceived seriousness, empathy, and self-efficacy) predict teachers' intentions to intervene (Bauman & Del Rio, 2006; Bradshaw et al., 2007; Dedoudis-Wallace et al., 2014). The current study results add to this earlier work that teachers' perceived seriousness and self-efficacy predict their actual intervention behavior in the classroom, namely, preventive antibullying strategies aimed at all students in their class.

Teacher variables did not affect teachers' use of curative strategies to reduce existing bullying cases. Intervention at this level may be determined by the environment rather than by teacher characteristics: Teachers in large schools and urban schools more often used these types of intervention strategies than teachers in small schools and more rural schools. A possible explanation for this finding is that bullying occurred more often in urban schools, stimulating teachers to intervene more curatively. A possible explanation for the influence of school size on teachers' curative strategies is more difficult to find. We found lower levels of bullying behavior in large schools compared to smaller schools, and therefore, we expected less intervention from teachers in large schools. However, it may be that larger schools work with more protocols and are therefore more accustomed to curative intervention, which, in turn, leads to less bullying behavior. However, we could not find any evidence for this explanation, and the connection between more contextual factors and teachers' use of curative strategies needs to be further investigated.

The PRIMA antibullying program did not affect teachers' likelihood to intervene and their intervention behavior. A possible explanation for this finding is that teachers already felt competent to deal with bullying, as teachers already scored relatively high on the pretest measures. This finding differs from previous research that teachers would like to receive more support in identifying and dealing with bullying cases (Bradshaw et al., 2013; Marshall, 2012). Findings of a recent meta-analysis by Fischer et al. (2020) showed that most teachers generally feel confident in managing bullying behavior in quantitative studies, while they report lower confidence levels in dealing with bullying behavior in qualitative research. Teachers may feel more motivated to report their insecurities in face-to-face interviews, where there is more room for detail.

Another possible explanation is that a more intensive teacher component is needed and that the current PRIMA program's training component should be intensified. Although the results should be interpreted cautiously due to a small number of studies included, a previous meta-analysis on the effects of antibullying programs on teachers' intervention behavior showed that programs with more extensive teacher training

yielded more positive effects on teachers (Authors, 2020). The current PRIMA program is a school-wide program with relatively modest teacher training. Perhaps a more robust and specific teacher component is needed to support teachers, particularly with difficult bullying situations. Besides, the PRIMA program may complement existing training sessions in which receiving information is the norm, and the degree to which the required skills are practiced is relatively low (Yoon & Bauman, 2014). Individual and tailored coaching is perhaps needed to promote more meaningful changes in how teachers manage bullying (Pas et al., 2014, as cited in Pas et al., 2019; Yoon & Bauman, 2014). Structural interprofessional collaboration between PRIMA-coaches and teachers may be needed to achieve this goal.

A final explanation could be that the teacher level effects may have been absent because the program implementation level varied widely. Our results show that almost half of the teachers (45%) did not implement any of the universal components. This result shows that developing a program adapted to the teachers' needs is not enough to empower teachers to address and prevent bullying. Factors related to implementation may be as quite important to target as the program itself. A low degree of program implementation was also found in earlier Dutch research, in which organizational factors, such as a high workload, hindered program implementation (Orobio de Castro et al., 2018). Obstacles in program implementation or personal or contextual factors influencing teachers' program implementation (for example, teachers' perceived program effectiveness, Domitrovich et al., 2008) deserves further investigation since a higher program dosage is associated with more positive program effects at the student level (Domitrovich et al., 2008; Durlak & DuPre, 2008).

Student lessons may influence teachers' implementation of other parts of the program. We found that teachers in the PRIMA-L$^+$ schools implemented more PRIMA program components than teachers in PRIMA-L$^-$ schools. This finding strongly suggests that the lessons have a stimulating effect on implementing the other components. This result builds on the findings of Sainio et al. (2020), who found that implementing the visible parts of the KiVa program, such as wearing KiVa vests and delivering the KiVa student lessons in the initial phase of the program, are important for long-term program implementation.

It is also possible that a school-wide program only meets the needs of certain teachers in certain schools. Findings from our exploratory analysis showed that the implementation of the universal program components was higher when teachers had less work experience when they perceived higher levels of victimization in the classroom and if they worked in urban schools. Novice teachers may experience a greater need for tools that support them in dealing with bullying because classroom management of bullying behavior is barely addressed in teacher training programs (Burger et al., 2015; Yoon & Bauman, 2014), and an antibullying program may fill this gap (Athola et al., 2012).

Teachers who perceived higher levels of victimization in the classroom may be more willing to use components that support them in their knowledge and methods to deal with bullying. These teachers used the e-learning module more often and attended the training more frequently than teachers who reported less classroom victimization. A higher level of peer-reported victimization was found in urban schools, and this finding is in line with previous findings that in more ethnically heterogeneous classes, a higher level of peer victimization was observed (Vervoort et al., 2010). Therefore, teachers in urban schools may experience more victimization in their classes and experience a more substantial need for universal, preventive tools. However, it is curious that the use of the selective components did not increase in these types of schools, since these components were specifically aimed at targeting existing bullying cases. Perhaps these components were less visible to teachers because they could use these components whenever they perceived it to be necessary.

Limitations

This study has several limitations. We relied on teachers' self-reports to measure teacher intervention and its' determinants instead of a multi-informant method, which uses both teacher and student reports. A second limitation is that we focused our attention on teacher variables, even though a broad range of factors influences teacher intervention, including relational variables (e.g., the teacher-student relationship) and contextual factors (e.g., type of bullying situation, classroom environment) (see, for example, Yoon et al., 2014). These variables deserve attention in future research. Finally, teachers' preventive and curative intervention strategies were measured with newly developed items. These items are based on the objectives of PRIMA and are therefore customized. However, a valid instrument is desired (see, for example, the Handling Bullying Questionnaire (HBQ) developed by Bauman et al., 2008).

Conclusion

This study shows that teacher variables influence teachers' preventive intervention strategies, whereas teachers' curative intervention strategies are influenced by contextual factors, such as the school's urban environment. The current PRIMA program does not seem to affect teachers' relevant determinants and behavior. More research into the mechanisms that support teachers in their intervention strategies is needed, requiring valid measures and in conjunction with measuring relevant relational or contextual variables, such as the type of bullying situation and the teacher-student relationship. Future research is also needed to reveal the factors that explain the wide variation in program implementation of the PRIMA program and other interventions. This because a substantial number of teachers did not implement the program despite a national policy on antibullying measures at the school and classroom level.

CHAPTER 5

Effects of Implementing Multiple Components in a School-Wide Antibullying Program: A Cluster-Randomized Controlled Trial in Elementary Schools

This chapter has been published as

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ABSTRACT

This study investigates the effectiveness of the PRIMA antibullying program for elementary education using a cluster-randomized trial with two experimental conditions (with and without student lessons) and a control group. Students of 31 schools participated in the study (N= 3,135; M_{age}=10 yrs). Multilevel regression analyses demonstrated positive effects of the program on peer-reported victimization and reinforcing behavior. Implementing multiple program components was related to stronger program effects. The results provide partial experimental evidence for the beneficial effects of combining student lessons and teacher training in antibullying programs. Future experimental research is needed to investigate other approaches that reduce not only peer-reported victimization, but also self-perceived bullying and victimization.

INTRODUCTION

Bullying is still a common problem in schools, directly involving many students (Jansen et al., 2012; Mitsopoulou, & Giovazolias, 2015; Zych et al., 2015). Bullying is commonly characterized as repeated and intentional aggressive behavior against a victim who cannot readily defend themselves (Olweus, 1993). Bullying is considered a group process in which students can be involved as a victim, bully, reinforcer, outsider, or defender (Salmivalli et al., 1996). Victimized students often develop psychosocial problems, such as low self-esteem, anxiety, and depression (Reijntjes et al., 2010), and these adverse effects can endure into adulthood (Lund et al. 2008).

Bullying behavior already emerges in early elementary school and negatively influences children's socio-emotional development (Jansen et al., 2012). Gender roles and age influence bullying behavior, with higher bullying scores for boys and younger children (Ladd et al., 2017; Mitsopoulou, & Giovazolias, 2015). Especially from grade 3 onwards, students can understand and reflect on the different aspects of bullying behavior, such as the power imbalance and the intention to harm another (Monks & Smith, 2010; Vlachou et al., 2011). In addition, several studies found that the trajectories of peer victimization can differ, with some children being bullied heavily throughout the K-12 school period, while others are bullied for a shorter period or to a less severe extent (Ladd et al., 2017; Nylund et al., 2007; Zhou et al., 2020). These outcomes indicate the need for early bullying interventions in elementary school and into the years of early adolescence and the need for tailored and selective interventions for specific groups of students in addition to more general and universal interventions (Garandeau & Salmivalli, 2019).

Numerous school-based antibullying intervention programs have been developed and evaluated. Meta-analytic reviews have reported small to moderate effect sizes at child level, indicating that antibullying programs reduce bullying and victimization rates in elementary schools, although there is variation in outcomes (Gaffney et al., 2019; Jiménez-Barbero et al., 2016). Many of these programs take a socio-ecological perspective in targeting the many factors that influence bullying behaviors such as the schools' policies and procedures, school's physical environment (supervision by staff, safe places or places of frequent incidents), social environment (school climate/ethos) and engagement with parents, family and the wider community (Axford et al., 2020; Huitsing et al., 2020a; Limber et al., 2018). Programs with a combination of universal components, targeting all school actors, and selective components, targeting students who are involved in bullying situations, have been related to most successful reductions in bullying rates (Ansary et al., 2015; Gaffney et al., 2019). In their meta-analysis, Ttofi and Farrington (2011) found correlational evidence for the effectiveness of specific program components, such as disciplinary methods for bullies, teacher staff training, and parent

meetings. Although these correlational findings suggest that some specific program components may be effective in reducing bullying, there is still a lack of experimental evidence for these components' effectiveness. We need to gain more insight into the effects of antibullying programs and their specific components to open the 'black box'.

Two issues seem especially interesting to investigate: the added value of the student curriculum and the effect of adequate implementation of an antibullying program's component. A student curriculum is a core component in many successful antibullying programs (see Ansary et al., 2015). Some student curricula focus on the development of students' socio-emotional skills. One of the aims of the Steps to Respect program, for example, is to strengthen students to recognize the various forms of bullying behavior and the negative consequences of bullying and aspires to train students in empathy, emotion regulation, and conflict resolution skills (Brown et al., 2011; Frey et al., 2005; Low et al., 2014). Students learn a variety of social skills and coping skills (e.g., assertiveness, emotion management) to deal with bullying and social situations, which, in turn, helps to prevent bullying. This program showed reductions in bullying and positive effects on bullying prevention factors (Brown et al., 2011). Other programs, such as the KiVa program, include a student curriculum aiming to influence the group dynamics of bullying by creating a strong antibullying norm in the classroom and by empowering students to stop the bullying by targeting outsiders to no longer ignore the bullying when it occurs (Salmivalli et al., 1996; Veenstra et al., 2014). The KiVa program has effectively reduced victimization and bullying (see, for example, Kärnä et al., 2011; Salmivalli et al., 2011; Yang & Salmivalli, 2015). Several other studies have also shown that endorsing a strong antibullying norm is associated with less bullying in the classroom (Marachi et al., 2007; Troop-Gordon & Ladd, 2015; Veenstra et al., 2014). Student lessons are considered vital because this component affects all students directly and may influence students' norms in the classroom.

In addition to strengthening students through lessons in the classroom, most effective school-wide programs also include various other components that support teachers and other staff members. Teachers are key figures in implementing the core components of antibullying programs, and therefore, teacher training is crucial (Craig et al., 2011). Successful antibullying programs also depend on teachers and staff to create and maintain antibullying norms, model positive and prosocial behavior, and encourage students to contribute to a positive class- and school climate. Some programs focus, therefore, also on creating awareness among teachers and staff members to identify bullying and to respond adequately when bullying behavior occurs (van Verseveld et al., 2019). Systematic assessments of bullying behavior could help teachers identify bullying because it often happens when adults are not present, and students are reluctant to report bullying (Demaray et al., 2013; Fekkes et al., 2005; Wachs et al., 2019). Since bullying is considered a group process, it is vital to use a multi-informant instrument that measures

bullying and victimization for all students, and other students' roles in bullying behavior (Huitsing & Veenstra, 2012).

Many programs are complex and consist of a mixture of class components and various other, school-wide, and teacher/staff-focused components. Therefore, it is imperative to gain insight into the effectiveness of specific elements. Relatedly, the adequate implementation of individual components is an essential factor for their success (Ttofi & Farrington, 2011). Programs in which multiple individual program components are adequately implemented are more effective than school-wide programs in which the individual components are implemented with less fidelity (Domitrovich et al., 2008; Durlak & DuPre, 2008). Recent studies have shown a wide variation in the level of implementation of antibullying programs (Axford et al., 2020; Orobio de Castro et al., 2018), suggesting that this 'stacking' of various program components is demanding for school professionals. Program implementation may be affected by the complexity of implementing the many components of a school-wide program, a lack of support and resources given by the school management to teachers, and a high workload and low teacher motivation to implement such a program (Haataja et al., 2015; Hall, 2017; Kallestad & Olweus, 2003; Orobio de Castro et al., 2018; Salmivalli et al., 2005). Therefore, investigating the added value of implementing various components is necessary for the evaluation and future development of antibullying programs.

PRIMA Antibullying Program

PRIMA (VeiligheidNL, n.d.) is a Dutch multi-component antibullying program for elementary education, based initially on the Olweus Bullying Prevention Program (Olweus, 1993). Based on the socio-ecological model (Hong & Espelage, 2012), PRIMA focuses on three levels in the school: the individual child, the classroom, and the school. In addition, parents are informed about the preventive antibullying policy and are involved when a bullying situation concerns their child. PRIMA's primary goal is to ensure a prosocial and safe school climate in which students treat each other with respect.

A national antibullying committee has accredited an earlier version of PRIMA (Orobio de Castro et al., 2018). This study reported that after one year of implementation, PRIMA was effective in reducing bullying and victimization. Also, students reported lower levels of depressive symptoms compared to students in control schools.

The PRIMA program was extended in 2017 by including new knowledge and tools related to the group process of bullying and creating a positive group norm in the classroom (Huitsing, & Veenstra, 2012; Salmivalli et al., 1996). The program was also adapted to better meet the needs of teachers and staff members by providing more information and strategies to support them in identifying and addressing bullying behavior.

Students of all elementary school grades receive a student lesson curriculum, including six weekly 45-minute lessons at the beginning of the school year and two lessons to

refresh their knowledge and skills for the remaining year. The lessons pursue to prevent and address bullying together with students by focusing on the following three goals: 1) making students aware of the negative consequences of bullying and their role in bullying situations; 2) strengthening positive antibullying norms in the classroom and teaching students strategies to stand up against a bullying norm; and 3) increasing prosocial skills and promoting positive relations among students. The lessons consist of assignments on class, small-group, and individual level and are supported by videos. The repetition of the student lessons in consecutive school years, adapted to the developmental changes across the K-12 years, aims to create a continuous learning curve in which students become familiar with the program norms and values (Craig et al., 2011; Kärnä et al., 2013).

All school professionals follow a 2-hour e-learning module independently. Teachers are taught different skills that enable them to identify, prevent, and reduce bullying adequately. The e-learning aims to 1) increase teachers' and staff members' awareness and responsiveness to bullying; 2) encourage them to model prosocial and positive behavior; 3) help them create and maintain antibullying norms actively; 4) and support them in the implementation process of the program. Teachers are instructed on how to implement the monitor instrument and recognize the risk factors of victimized students. Methods to respond to bullying include strategies at the class level (e.g., guidelines to create an antibullying norm in the classroom and a positive climate), and strategies at the individual and parent level (e.g., guidelines to talk with victims, bullies, and their parents). In line with the e-learning module, teachers participate in a face-to-face training session from a certified PRIMA-coach to practice strategies that have been introduced in the e-learning module using fictional cases of bullying or bullying situations that occur in teachers' classes. Finally, the training aims to further support staff members in implementing the PRIMA components by discussing school-specific facilitators and barriers.

The monitor aims to provide teachers insight into students' roles in bullying behavior, students' perception of the classroom climate, their social status, and mutual friendships, using a multi-informant approach. The monitor also aims to provide teachers with information about individual students directly involved in bullying situations or students at risk. Teachers in grades 3-6 receive a report twice a year, following from the administration of the monitor (i.e., a digital and interactive questionnaire) for 3-6 grade students. The results of the monitor are shared confidentially with the teacher and not in the classroom. According to the monitoring results, teachers in grades 3-6 also receive digital protocols for students involved in bullying situations. In this way, teachers are provided with tools to tackle the specific situation for students who are being victimized, for students who are bullying other students, or for students who are at-risk for being victimized (e.g., lonely and rejected children).

All school professionals receive access to digital protocols providing guidelines on how to deal with specific bullying situations (see Van Verseveld et al., 2020). Therefore, the protocols support teachers to intervene more effectively in bullying situations that teachers themselves considered to be difficult.

The student curriculum, e-learning module, face-to-face training, and the monitor report are preventive, universal components for all students and teachers. The protocols for specific bullying situations and the protocols following from the monitor results are selective, curative, components, and focus on students who are (at risk of being) involved in bullying.

The Present Study

This study aims to evaluate the effectiveness of the new PRIMA program. Students received the PRIMA program in one experimental condition, including the lessons for students and teacher training (hereafter: PRIMA-L$^+$), whereas students in the other experimental condition received the PRIMA program, including only the teacher training and without the student lessons (PRIMA-L$^-$). As the primary outcomes, we used self-reported and peer-reported bullying and victimization. We hypothesized a stronger decrease in bullying and victimization in PRIMA-L$^+$ schools than PRIMA-L$^-$ schools (H1) as our primary research question. In addition, we evaluated the effects of stacking the universal program components of PRIMA across conditions. We hypothesized a stronger decrease in bullying and victimization when teachers implemented more universal program components (H2). In an explorative fashion, we investigated the effects of both experimental conditions and the effects of stacking universal program components on the roles of reinforcers, outsiders, and defenders.

METHOD

Sampling and Design

We conducted a power analysis based on self- and peer-reported victimization as an outcome measure. Since the prevalence of bullying in grades 3-6 varies between 21% and 35% in western countries (Chester et al., 2015; National Center for Educational Statistics, 2019), we estimated that a minimum of 33 classes per condition was needed with a minimum of 25 students per class (assuming a response of 80%; alpha = .05, two-sided, power = .80, ICC = .032) to demonstrate a decrease of 30% of victims (i.e., from 25% to 17.5%) between the two experimental groups and the control group. With this sample size, a small effect (Cohen's d = 0.20) can be demonstrated for primary and secondary measures with adequate power.

A cluster-randomized controlled trial was applied with a pretest and posttest and an 1:1:1 allocation ratio, comparing two experimental conditions with a control group. We selected 354 elementary schools from a database of all Dutch elementary schools and assessed them for eligibility to participate in this study based on the following inclusion criteria: (a) the schools contained more than 50 students; (b) schools were not already using an antibullying prevention program; (c) schools were not participating in any other study in this area; (d) schools were willing to receive additional information about the study. A total of 173 schools met the inclusion criteria. After stratifying schools by school size, the number of special needs students in the school, and the urbanization level of the school's location, schools were randomly assigned to one of the two experimental conditions or the control group. In the PRIMA-L$^+$ condition, schools received all PRIMA program core components, including the student lessons. In the PRIMA-L$^-$ condition, schools received all PRMA core components, except for the student lessons. This design makes it possible to determine the effect of a teacher approach (PRIMA-L$^-$ vs. control) and the additional effect of the student curriculum (PRIMA-L$^+$ vs. control).

After allocation to research conditions, letters were sent to schools from January to July 2017 to invite them to participate in the study. Intervention schools received free access to PRIMA, free coaching of a certified coach during the trial, and monetary compensation of €700. Control schools received a free PRIMA pilot without a certified coach after the trial (i.e., waitlist condition) and €1,000. We informed schools about their assignment (intervention arms or control arm) in September 2017. One of the researchers remained blind to school allocation and led the assessment of the study's outcomes. Figure 1 provides an overview of the school and participant enrollment in the trial. A total of 31 schools participated in the study: nine schools in the PRIMA-L$^+$ condition, ten schools in the PRIMA-L$^-$ condition, and twelve schools in the control group.

Participants

The 31 participating schools included 174 classes representing 4,285 students in grades 3-6 who were eligible for participation in the study. Parents gave written permission for the participation of a total of 3,135 students (73.2% of the initial sample, M_{age} = 10.00, *SD* = 1.21). We also obtained active, informed consent from the teachers to participate in the trial. In all groups, an approximately equal percentage of students participated in the trial (PRIMA-L$^+$ condition: 70.7%; PRIMA-L$^-$ condition: 79.5%; and control condition: 69.1%). The PRIMA-L$^+$ condition comprised 873 students (M_{age} = 9.97, *SD* = 1.23), the PRIMA-L$^-$ condition had 982 students (M_{age} = 10.05, *SD* = 1.17), and the control condition contained 1,389 students (M_{age} = 9.98, *SD* = 1.21). Of the 3,135 students, 52.4% were girls, 46.8% boys, and 0.8% had missing data on this variable (see Table 1). Most students (75.9%) had a western background, and a smaller proportion had a non-western background (22.8%). Of 1.3% of the students, this information was missing.

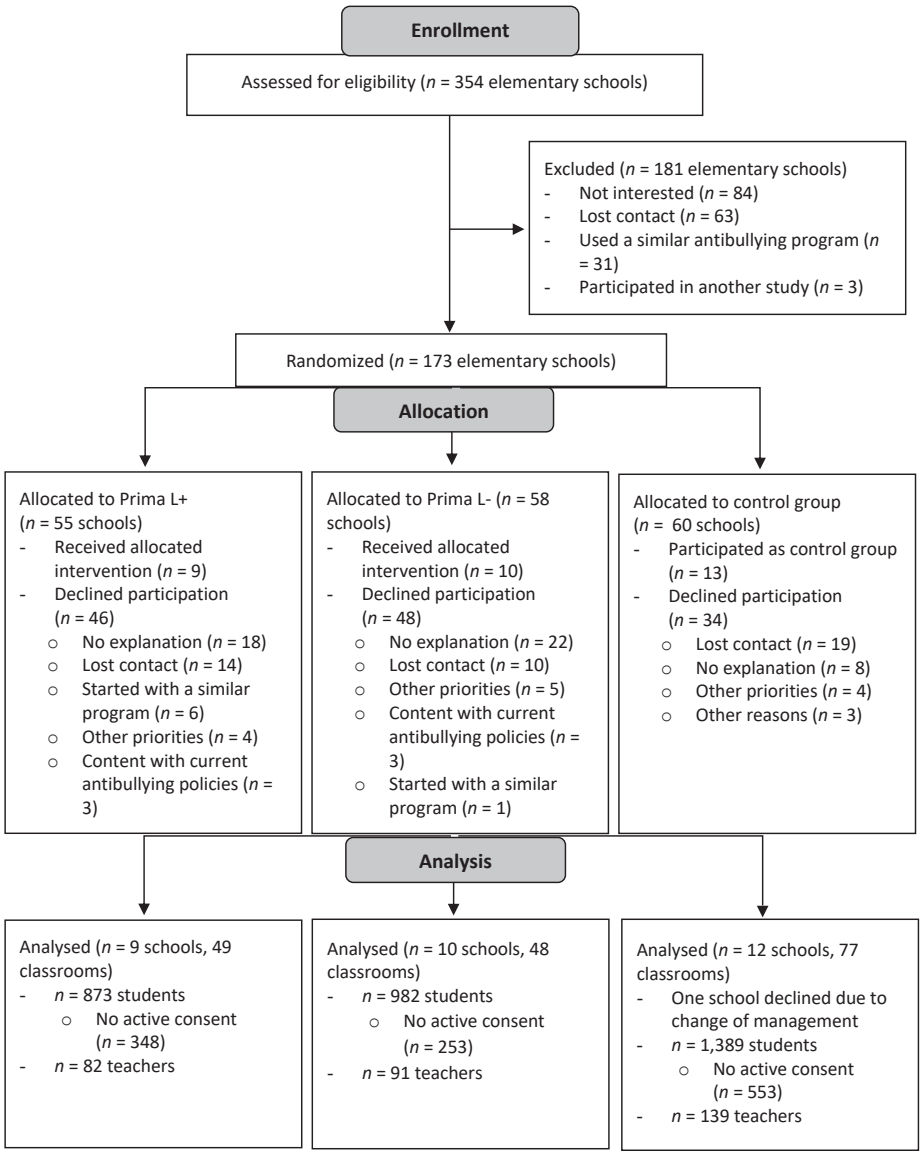

Figure 1. Flow chart of school enrollment in the study

Students between conditions did not differ significantly in age, $F(2, 3093) = 1.43$, $p = .241$ or gender, $\chi(2) = 1.11$, $p = .574$. However, there was a significant difference in ethnicity, $\chi(2) = 17.60$, $p < .001$, with a smaller proportion of students with a non-western background in the control group. For peer-reports, conditions differed significantly, $\chi(2) = 8.57$, $p = .014$, with slightly less attrition in the control schools (7.0%) compared

Table 1 *Participant Characteristics at Pretest by Condition (N = 3,244)*

	PRIMA-L$^+$		PRIMA-L$^-$		Control group	
	N	**%**	**N**	**%**	**N**	**%**
Number of schools	9	29.0	10	32.3	12	38.7
Number of classes	49	25.9	48	27.7	77	45.2
Number of students	873	27.8	982	31.3	1,389	40.8
Sex						
Boy	402	46.0	472	48.1	595	42.8
Girl	464	53.2	499	50.8	679	48.9
Missing	7	0.8	11	1.1	115	8.3
Ethnicity						
Western	643	73.7	715	72.8	1,023	73.7
Non-western	216	24.7	253	25.8	244	17.6
Missing	14	1.6	14	1.4	122	8.8

to the experimental schools (9.6%). A non-response analysis indicated there was no selective attrition. Students who did not participate in the post-test did not differ significantly in any pretest outcome measures compared to students who did participate. The 174 classes represented 312 teachers, 82 teachers in the PRIMA-L$^+$ condition, 91 in the PRIMA-L$^-$ condition, and 139 in the control condition. We controlled for this variable in our analysis. Attrition at the posttest was not different for the three conditions on self-report measures.

Procedures

We visited each participating school to explain the data collection procedure at the start of the school year in September 2017. Data were collected at the pretest in October-November 2017 and the posttest in March-April 2018. During each wave of data collection, students completed two online questionnaires during school hours. Two researchers instructed students on how to complete the questionnaire and ensured students' privacy during the administration. Researchers also explained that students' answers would remain confidential within the classroom.

After the administration of the pretest, schools received access to the program materials. The research team instructed school teachers and principals to deliver the program as follows: 1) Consulting the monitor report, and participating in the e-learning and face-to-face training (November/December 2017); 2) Delivering student curriculum for PRIMA-L$^+$ schools (December 2017/January 2018); 3) Implementing protocols for students (at risk of being) involved in bullying situations or for specific bullying situations if required. Students in the PRIMA-L$^+$ were exposed to the program directly through the student curriculum, while students in the PRIMA-L$^-$ schools were exposed only indirectly

through the teacher being exposed to teacher-focused components. Control schools offered 'care as usual', which means that they implemented nationally established antibullying guidelines, such as monitoring students' wellbeing at school, having an antibullying coordinator, and having a social safety policy. Control schools were interviewed by telephone at the beginning and end of the data collection period to monitor whether they were running a school-wide antibullying program. None of the 13 control schools carried out an antibullying program during the trial period. Ethical approval was granted by the Faculty of Social and Behavioral Sciences' ethical board at the University of [anonymized] (nr. 2016-CDE-8008). The trial has been registered in the ISRCTN register (file number 15425978).

Measures

As formulated in the Revised Bully/Victim Questionnaire of Olweus (BVQ, Olweus, 1996), a definition of bullying was presented in the questionnaire, emphasizing the repetitive and intentional nature of bullying and the imbalance of power between the bully and victim. A description of the different forms of bullying was also given, including overt forms of bullying (e.g., verbal, physical, threatening), covert forms (e.g., social exclusion, gossiping), and digital bullying (e.g., on social media, internet).

We measured bullying and victimization with both self and peer reports. Self-reports are the standard for prevalence estimation and measurement of change (Olweus, 2013). Using self-reports, we can measure how children experience bullying/victimization themselves. Peer-reports are valuable since a multi-informant approach gives a more refined opportunity to measure how observed bullying occurs in a classroom (Kärnä et al., 2011).

Self-reported victims and bullies. We used the global item from the revised Olweus Bully/Victim Questionnaire (OBVQ, Olweus, 1996) to measure self-reported victimization: "How often have you been bullied at school in the last couple of months?". Students answered on a 5-point scale (0 = *not at all*, 1 = *once or twice,* 2 = *two or three times a month,* 3 = about once a week, 4 = *several times a week*).

Self-reported bullying was measured by asking students whether they had engaged in a series of behaviors often associated with bullying in the last couple of months. Students responded to items on a 5-point scale (0 = *not at all*, 1 = *once or twice,* 2 = *two or three times a month,* 3 = about once a week, 4 = *several times a week*). These eight items were based on the OBVQ (Olweus, 1996) and had an internal consistency of α = .882 at the pretest. We have chosen to measure self-reported bullying more subtly through eight related behaviors because children often underreport their bullying behavior due to self-protecting mechanisms (Košir et al., 2019).

Peer-reported victims and bullies. Two single items, based on the Participant Roles Questionnaire (Kärnä et al., 2013; Salmivalli et al., 1996), were used to identify peer-reported victimization and bullying. Students were asked to nominate students who were being bullied in the past couple of months from a list of classmates: *"Which children are being bullied by other children?",* and to nominate students who bullied other children: *"Which classmates bully other children?".* Students could nominate an unlimited number of classmates for each item or nominate no one. To prevent a systematic nomination bias of classmates on top of the list, the order of student names was randomized. Received peer nominations were totalized and divided by the number of classmates responding, resulting in a proportion score ranging from 0.00 to 1.00 for each student on each item.

Peer-reported reinforcers, outsiders, and defenders. Also based on the Participant Roles Questionnaire (Kärnä et al., 2013; Salmivalli et al., 1996), three single items were used to identify students' participant roles in bullying situations concerning the past couple of months; reinforcers of bullies: *"Which classmates reinforce bullies, for example, by laughing or giggling when someone gets bullied?"*; outsider: *"Which classmates do nothing when someone gets bullied, for example, they walk away or act like they did not see the bullying?"*; and defenders of victims: *"Which classmates help children that are being bullied, for example, by comforting, supporting, or defending them?".* Similar to the procedure for peer-reported bullies and victims, students could nominate an unlimited number of classmates or no one. The list of names was randomized, and proportion scores were calculated for each role.

Stacking of program components. To investigate the effects of stacking components, we calculated and dichotomized each program component's implementation level. First, teachers were asked to indicate the degree to which they implemented each part (e.g., lesson 1, lesson 2, etc.) of each PRIMA component (e.g., student lessons) separately on a four-point scale: 0 = *not at all;* 1 = *less than 50%;* 2 = *more than 50%;* 3 = *completely.* We subsequently dichotomized the scores to indicate whether students (or their teachers) were sufficiently exposed to each program component. Regarding the universal program components, we considered an implementation of at least 50% of the components to be a successful implementation of student lessons, e-learning, and the monitor report. The face-to-face training was completed when teachers indicated that they attended the full training session. Concerning the selective components, the protocols for specific bullying situations, and the protocols for students directly involved were used when teachers indicated to have consulted at least one of the protocols for both types of protocols separately.

We determined the PRIMA program's universal components' implementation level by adding the dichotomized variables of student lessons, monitor-report, e-learning, and face-to-face training together into an aggregated implementation score. This resulted in the following scores: 0 = *no components implemented;* 1 = *one component;* 2 = *two components;* 3 = *three components,* or 4 = *four components.* We included these components as they are universal; the use of the selective components (i.e., protocols resulting from the monitor and the protocols for specific situations) heavily depends on specific bullying incidents at school. Therefore, the implementation of selective components is highly context-specific, and its interpretation is, therefore, less straightforward.

Program dosage. In addition to a dichotomous measure of implementation, we also used a continuous measure by calculating the number of hours performed for implementing the different components. Using teachers' reports on the extent to which they have implemented each component, we have estimated the average time spent on each program component. This procedure resulted in a possible program dosage ranging from 0-9 hours (i.e., student lessons: 0-4.5 hours; monitor report: 0-0.5 hour; e-learning: 0-2 hours; and face-to-face training: 0-2 hours).

Demographic information. Students reported their date of birth, gender, grade level, and ethnicity. Ethnicity was measured by asking what the student considered his or her background with the possibility to tick multiple options (e.g., Dutch and Moroccan). We then dichotomized students into 'western' or 'non-western' background, based on the criteria of the Dutch Central Statistical Office (CBS, n.d.).

Statistical Analysis

We used multilevel modeling with SPSS version 25 (IBM Corp. Released, 2017). Three-level hierarchical models were fitted, representing students nested in classrooms, and classrooms nested within schools. We controlled for differences in baseline levels by adding the pretest scores of the variable of interest. Also, ethnicity (i.e., western or non-western), gender, and age (grand-mean centered) were included in all models, as these are well-known covariates (see Salmivalli & Voeten, 2004; Vervoort et al., 2010). We explored possible interaction effects of both PRIMA conditions with ethnicity, gender, or age. Finally, we controlled for differences across conditions on school size, urbanization level, and the number of students with special needs with dummy-coded school-level variables, distinguishing between large schools (> 500 students), urban schools (large and medium cities), and high level of students with special needs (above the national average of 9.31% students with learning difficulties and/or emotional-behavioral problems but without an indicated disability or health care need (Smeets et al., 2007).

To investigate the effects of both PRIMA conditions on bullying behavior and students' roles in bullying situations, we tested a model including all 3,155 students (i.e., intention-to-treat analysis). This analysis provides an estimate of the program effects in general school practices with varying program implementation levels to establish typical effects in educational practice. We also analyzed the data to include only those students who were sufficiently exposed to at least one of the universal PRIMA components (i.e., a received-intervention analysis). To investigate whether classes that implemented one, two, three, or four universal program components showed more positive results, we compared these subgroups with classes that implemented zero universal program components, including the control group. In addition, we investigated whether program dosage was related to program effects.

RESULTS

Table 2 provides an overview of pre- and posttest scores and prevalence changes in mean proportion scores for students' roles in bullying situations. Pretest scores showed that 14.3% of the students (*n* = 452) reported being victimized at least twice a month. For self-reported bullying behaviors, 9.5% (*n* = 261) of the students scored an average of 6 or higher on performing different aggressive behaviors (e.g., kicking or excluding a peer) in the past three months. Self-reported victims declined in all three groups, and the largest decline was observed in PRIMA-L$^+$ schools. Also, self-reported bullies increased in all groups, again with the most considerable change in the PRIMA-L$^+$ schools. The proportion

Table 2 *Pre- and Posttest Scores and Changes in Mean (Proportion) Scores (SD) for Students' Roles in Bullying Situations by Condition (Intention to Treat Analysis)*

	PRIMA-L$^+$			PRIMA-L$^-$			Control		
	T1	T2	CS	T1	T2	CS	T1	T2	CS
Victims									
Self-report	0.635 (1.210)	0.450 (1.018)	-0.185	0.567 (1.127)	0.450 (1.013)	-0.117	0.580 (1.122)	0.440 (0.985)	-0.140
Peer-report	0.051 (0.085)	0.041 (0.082)	-0.010	0.036 (0.079)	0.041 (0.104)	+0.005	0.049 (0.097)	0.059 (0.133)	+0.010
Bullies									
Self-report	2.029 (3.041)	2.223 (2.989)	+0.194	1.788 (2.935)	1.957 (2.989)	+0.169	2.059 (3.052)	2.212 (3.104)	+0.153
Peer-report	0.063 (0.100)	0..078 (0.187)	+0.015	0.046 (0.097)	0.056 (0.1114)	+0.010	0.061 (0.108)	0.087 (0.170)	+0.026
Reinforcers									
Peer-report	0.064 (0.083)	0.075 (0.153)	+0.011	0.054 (0.073)	0.066 (0.102)	+0.012	0.068 (0.087)	0.086 (0.132)	+0.018
Outsiders									
Peer-report	0.074 (0.062)	0.124 (0.142)	+0.050	0.054 (0.054)	0.071 (0.082)	+0.017	0.079 (0.070)	0.086 (0.107)	+0.007
Defenders									
Peer-report	0.208 (0.126)	0.314 (0.317)	+0.106	0.212 (0.108)	0.264 (0.152)	+0.052	0.191 (0.111)	0.296 (0.291)	+0.105

Note. Victims self-report *N* = 2,774; Bullies self-report *N* = 2,473, Peer-report *N* = 2,767. CS = change score (computed as T2-T1)

of the number of nominations for victims decreased significantly from 0.635 to 0.450. The number of nominations, therefore, decreased by 20% in this group. Peer-reported bullies increased in all three groups, with the largest increase in the control group.

Regarding students' roles in bullying situations, the majority of the students received nominations for the role of defender (*M* = 0.20), followed by outsider (*M* = 0.07), and reinforcer (*M* =0.06) at the pretest (see Table 2). The prevalence of the number of peer-reported defenders, outsiders, and reinforcers increased across all three groups.

Outcomes of the Intention-to-Treat Analysis

We found a statistically significant difference between PRIMA-L$^+$ schools and the control schools on peer-reported victims (see Table 3). PRIMA-L$^+$ schools had a significantly lower number of peer-reported victims than control schools, *b* = -0.029, *SE* = 0.010, *p* = .008, 95% CI [-0.05; -0.01]. Using the differences in adjusted mean proportion scores of the PRIMA-L$^+$ schools and control schools, we observed a small effect of PRIMA-L$^+$ on reducing peer-reported bullying (*d* = -0.17).

Table 3 *Estimates for Intention-to-Treat Intervention Effects of PRIMA on Students' Roles in Bullying Situations*

	Victims				Bullies				Reinforcers		Outsiders		Defenders	
	Self-report		Peer-report		Self-report		Peer-report		Peer-report		Peer-report		Peer-report	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Baseline														
Intercept	0.995***	0.175	0.021	0.024	0.048	0.554	0.006	0.052	0.005	0.047	0.131**	0.046	0.106	0.156
Fixed effects														
PRIMA-L$^+$	-0.029	0.068	-0.029**	0.010	-0.009	0.228	0.008	0.039	0.007	0.036	0.032	0,039	0.024	0.154
PRIMA-L$^-$	0.012	0.066	-0.012	0.009	-0.206	0.219	-0.029	0.038	-0.025	0.035	-0.045	0.038	-0.144	0.151
Pretest score	0.375***	0.015	0.846***	0.019	0.536***	0.017	0.949***	0.023	0.871***	0,025	0.329***	0.028	0.763***	0.027
Boy	0.014	0.034	-0.005	0.003	0.586***	0.099	0.016***	0.004	0.025***	0.004	-0.026***	0.003	-0.040***	0.005
Age	-0.068***	0.016	-0.000	0.002	0.086	0.050	-0.000	0.004	0.001	0.003	-0.006*	0.003	0.004	0.005
Non-western	-0.009	0.047	-0.005	0.004	0.076	0.139	0.017**	0.006	0.014***	0.005	-0.003	0.004	-0.004	0,007
Large schools	-0.084	0.056	-0.009	0.008	-0.183	0.189	-0.025	0.032	-0.030	0.030	-0.010	0.033	-0.009	0.128
Urban area	-0.039	0.057	0.015	0.008	0.174	0.189	0.041	0.032	0.032	0.030	0.081*	0,033	0.202	0.130
Special needs students	-0.036	0.056	0.007	0.008	-0.111	0.187	0.038	0.032	0.032	0.030	-0.005	0,032	0.052	0.127
Random effects														
Group level	0.015	0.007	0.001	0.000	0.222	0.074	0.010	0.002	0.010	0.002	0.031	0.004	0.315	0.041
School level	0.010	0.007	0.000	0.000	0.119	0.078	0.005	0.003	0.004	0,002	0.001	0.002	0.054	0.037
Δ AIC[a]	-1,005.86***		+1,249.58***		-2,692.13***		+1,376.08***		+1,122.38***		-74.98***		+661.23***	

Note. Victims self-report *N* = 2,774; Bullies self-report *N* = 2,473, Peer-report *N* = 2,767.
[a]Akaike Information Criteria.
* $p < .05$. ** $p < .01$. *** $p < .001$.

The intention-to-treat analysis showed no significant differences in the number of self-reported victims and bullies and the proportion scores for the roles of reinforcers, outsiders and, defenders between both PRIMA conditions and the control condition. No significant interaction effects were found for PRIMA with gender, age, or ethnicity.

Implementation Level of PRIMA Components

Teachers in the PRIMA-L$^+$ schools implemented universal and selective program components more intensively than teachers in the PRIMA-L$^-$ schools (see Figure 2). In both conditions, the PRIMA monitor report and protocols were used in most classes (n = 56 and n = 55, respectively). The protocols for specific bullying situations were least consulted in both conditions (n = 32). Teachers in the PRIMA-L$^+$ schools delivered an average of 5.32 (SD = 2.86) hours of the program, while teachers in the PRIMA-L$^-$ schools delivered an average of 2.10 hours (SD = 1.67) of the program.

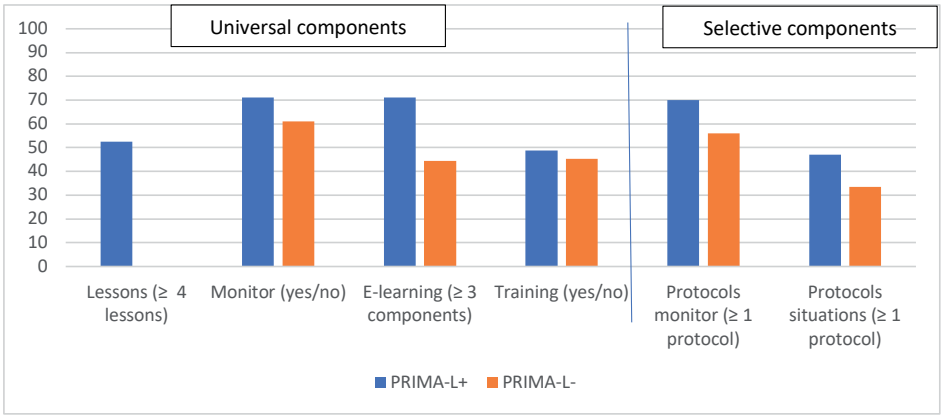

Figure 2. Implementation Level of PRIMA Components and Number of Exposed Students. *Note.* The student lessons were only offered to the PRIMA-L+ schools.

Table 4 provides an overview of the number of universal components implemented by teachers. The majority of the teachers (49 in 26 classes of 548 students) in interventions schools (i.e., PRIMA-L$^+$ and PRIMA-L$^-$) implemented two universal components. Most teachers carried out a combination of a training component (i.e., e-learning or face-to-face training) and the monitor report. One-fifth of the teachers implemented none of these components, indicating that none of these students were (in)directly exposed to the universal PRIMA components.

Outcomes of the Received Intervention Analysis

Removing students who did not receive the universal PRIMA components from the analyses showed similar patterns in pre- and posttest scores and changes in mean (proportion) scores compared to descriptive analyses, including all students (see Table 5). The proportion of the number of nominations for victims decreased by 28% in the PRIMA-L$^+$ group. As expected, effects in the PRIMA-L$^+$ schools were stronger (see Table 6). Compared to the control group, the mean proportion scores for peer-reported victimization declined in PRIMA-L$^+$ condition, b = -0.034, SE = 0.011, p = .005, 95% CI [-0.06; -0.01], Cohen's d = -0.17.

Table 4 *Number of Universal Components Implemented by Teachers*

	Number of classes (n)	Number of teachers (n)	Number of students (n)
Zero components implemented*	19	37	343
One component implemented	15	32	303
E-learning	3	6	57
Training	3	5	63
Student lessons	0	0	0
Monitor report	9	21	183
Two components implemented	26	49	548
Student lessons + e-learning	1	1	29
Student lessons + training	2	5	39
Student lessons + monitor report	1	1	25
E-learning + training	4	9	96
E-learning + monitor report	12	22	233
Training + monitor report	6	11	126
Three components implemented	21	39	439
Student lessons + e-learning + training	1	2	9
Student lessons + e-learning + monitor report	5	9	115
Student lessons + training + monitor report	2	3	19
E-learning + training + monitor report	13	25	296
Four components implemented**	10	21	222

*The 'zero component implemented' category excludes 1,280 control-group students in 73 classes and 139 teachers.
**Lessons + teacher e-learning + teacher training + monitor report.

Contrary to the intention-to-treat analysis, we found a significant decrease in the mean proportion scores for peer-reported reinforcing behavior in the PRIMA-L$^+$ schools compared to control schools, b = -0.0354, SE = 0.016, p = .044, 95% CI [-0.068; -0.001], Cohen's d = -0.11.

To conclude, the received intervention analysis demonstrated the decline in peer-reported victims more convincingly for the PRIMA-L$^+$ schools and revealed additional effects for the PRIMA-L$^+$ school on peer-reported reinforcers, compared to the intention-to-treat analysis. There were no significant differences in the number of self-reported victims and bullies and the number of outsiders and defenders between PRIMA conditions and the control condition. Also, no significant interaction effects were found for gender, age, or ethnicity.

Table 5 *Pre- and Posttest Scores and Changes in Mean (Proportion) Scores (SD) for Students' Roles in Bullying Situations by Condition (Received Intervention Analysis)*

	PRIMA-L^{+}			PRIMA-L^{-}			Control		
	T1	T2	CS	T1	T2	CS	T1	T2	CS
Victims									
Self-report	0.625 (1.199)	0.450 (1.022)	-0.175	0.502 (1.063)	0.400 (0.976)	-0.102	0.580 (1.122)	0.440 (0.985)	-0.140
Peer-report	0.054 (0.087)	0.039 (0.082)	-0.015	0.033 (0.082)	0.034 (0.095)	+0.001	0.049 (0.097)	0.059 (0.133)	+0.010
Bullies									
Self-report	2.061 (3.003)	2.226 (3.070)	+0.165	1.843 (3.054)	2.057 (3.127)	+0.241	2.059 (3.052)	2.212 (3.104)	+0.153
Peer-report	0.064 (0.103)	0.069 (0.138)	+0.005	0.048 (0.105)	0.053 (0.110)	+0.005	0.061 (0.108)	0.087 (0.170)	+0.026
Reinforcers									
Peer-report	0.062 (0.083)	0.064 (0.101)	+0.002	0.054 (0.075)	0.059 (0.089)	+0.005	0.068 (0.087)	0.086 (0.132)	+0.018
Outsiders									
Peer-report	0.074 (0.064)	0.126 (0.133)	+0.052	0.050 (0.053)	0.062 (0.081)	+0.012	0.079 (0.070)	0.086 (0.107)	+0.007
Defenders									
Peer-report	0.198 (0.119)	0.291 (0.202)	+0.093	0.206 (0.098)	0.255 (0.145)	+0.049	0.191 (0.111)	0.296 (0.291)	+0.105

Note. Victims self-report N = 2,316; Bullies self-report N = 2,072, Peer-report N = 2,309. CS = change score (computed as T2-T1)

Table 6 *Estimates for Received-Intervention Effects of PRIMA on Students' Roles in Bullying Situations*

	Victims				Bullies				Reinforcers		Outsiders		Defenders	
	Self-report		Peer-report		Self-report		Peer-report		Peer-report		Peer-report		Peer-report	
	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE	Estimate	SE
Baseline														
Intercept	0.987***	0.193	0.040	0.026	0.168	0.636	0.040	0.036	0.019	0.032	0.118*	0.046	0.127	0.138
Fixed effects														
PRIMA-L^{+}	-0.031	0.072	-0.034**	0.011	-0.117	0.252	-0.033	0.017	-0.035*	0.016	0.020	0.037	-0.093	0.129
PRIMA-L^{-}	-0.017	0.075	-0.018	0.011	-0.222	0.258	-0.033	0.018	-0.035	0.017	-0.045	0.041	-0.144	0.142
Pretest score	0.379***	0.017	0.832***	0.020	0.552***	0.019	0.935***	0.022	0.828***	0.023	0.311***	0.030	0.743***	0.028
Boy	-0.004	0.036	-0.005	0.003	0.621***	0.112	0.011*	0.004	0.022***	0.003	-0.026***	0.003	-0.036***	0.005
Age	-0.067	0.018	-0.002	0.002	0.079	0.059	-0.002	0.003	0.001	0.003	-0.005	0.003	0.002	0.005
Non-western	0.002	0.051	-0.003	0.005	0.254	0.159	0.017**	0.006	0.011*	0.005	-0.005	0.003	-0.012	0.007
Large schools	-0.082	0.061	-0.013	0.009	-0.267	0.213	-0.005	0.015	-0.018	0.014	0.017	0.032	0.094	0.111
Urban area	-0.042	0.061	0.016	0.009	0.097	0.211	0.021	0.014	0.019	0.014	0.080*	0.031	0.181	0.110
Special needs students	-0.039	0.061	0.009	0.009	-0.141	0.213	0.005	0.015	0.004	0.014	-0.029	0.031	-0.049	0.109
Random effects														
Group level	0.017	0.008	0.001	0.000	0.249	0.093	0.003	0.001	0.004	0.001	0.030	0.004	0.329	0.045
School level	0.010	0.008	0.000	0.000	0.136	0.089	0.001	0.000	0.000	0.000	0.000	0.000	0.007	0.018
Δ AIC[a]	-799.62***		+1,091.82***		-2,253.07***		+1,404.73***		+1,147.87***		-47.76*		+577.30***	

Note. Self-report N = 2,316; Bullies self-report N = 2,072, Peer-report N = 2,309.
[a]Akaike Information Criteria.
* $p < .05$; ** $p < .01$; *** $p < .001$.

Effects of Stacking Universal Program Components

The degree of implementation varied in both experimental conditions. Dividing schools into subgroups of different levels of implementation (i.e., implementation of zero, one, two, three, or four universal components) showed that proportion scores for peer-reported victimization and reinforcing behavior significantly decreased when multiple components were delivered (see Table 7).

Table 7 *Estimates for Effects of Stacking Preventive Components on Students' Roles in Bullying Situations*

	Victims		Bullies		Reinforcers	Outsiders	Defenders
	Self-report	Peer-report	Self-report	Peer-report	Peer-report	Peer-report	Peer-report
Baseline							
Intercept	1.008***	0.024	0.064	0.021	0.027	0.133**	0.136
Fixed effects							
1 component (vs. 0)	-0.014	-0.011	-0.336	-0.050	-0.048	-0.048	-0.152
2 components (vs. 0)	0.007	-0.018	0.053	-0.051	-0.058*	-0.027	-0.139
3 components (vs. 0)	-0.046	-0.021	-0.202	-0.049	-0.068*	-0.025	-0.147
4 components (vs. 0)	-0.084	-0.049**	-0.334	-0.065	-0.055	0.019	-0.151
Pretest score	0.374***	0.848***	0.539***	0.937***	0.868***	0.333***	0.760***
Boy	0.014	-0.005	0.598***	0.016***	0.025***	-0.026***	-0.041***
Age	-0.068***	-0.000	0.083	0.000	0.001	-0.006*	0.004
Non-western	-0.009	-0.004	0.069	0.017**	0.014	-0.003	-0.005
Large schools	-0.092	-0.011	-0.155	-0.034	-0.043	-0.012	-0.023
Urban area	-0.037	0.015	0.184	0.043	0.034	0.083*	0.210
Special needs students	-0.045	0.004	-0.109	0.037	0.030	0.002	0.053
Random effects							
Group level	0.016	0.001	0.239	0.010	0.010	0.032	0.324
School level	0.008	0.000	0.116	0.004	0.003	0.001	0.044
Δ AIC[a]	-1,000.46***	+1,240.49***	-2,692.83***	+1,369.73***	+1,118.05***	-83.98*	+658.64***

Note. Victims self-report N = 2,774; Bullies self-report N = 2,473, Peer-report N = 2,767.
[a]Akaike Information Criteria.
* $p < .05$; ** $p < .01$; *** $p < .001$

Compared to classes where zero components had been implemented (including control schools), the proportion of peer-reported victims showed a significant decline in classes where all components were executed, b = -0.049, SE = 0.015, p = .001, 95% CI [-0.08; -0.02], Cohen's d = 0.07. We found similar results for the number of hours that teachers invested in the PRIMA program. The more hours teachers devoted to the program, a decline in mean proportion scores of

peer-reported victims was observed in classes, b = -0.005, SE = 0.001, p = .001, 95% CI [-0.01; -0.00]. In contrast to the stacking analysis, a significant decrease in proportion scores for peer-reported bullies was also revealed for every hour that teachers invested in PRIMA, b = -0.009, SE = 0.004, p = .041, 95% CI [-0.02; -0.00]. No significant rela-

tions were found between program stacking or dosage and self-reported victimization and bullying.

Furthermore, we found positive effects for stacking program components on the mean proportion scores for peer-reported reinforcers. Students in classes where two or three program component were implemented showed significant decreases in mean scores for peer-reported reinforcers compared to students in classes where no components were implemented, b = -0.06, SE = 0.03, p = .040, 95% CI [-0.11; -0.00], d = -0.11; b = -0.07, SE = 0.03, p = .032, 95% CI [-0.13; -0.01], d = -0.18, respectively. The implementation of four components did not further enhance this effect. Also, for the number of hours that teachers invested in the PRIMA program, a decline in mean proportion scores of peer-reported victims was observed in classes, b = -0.009, SE = 0.004, p = .001, 95% CI [-0.01; -0.00]. We found no statistically significant relation between stacking components or the number of hours of program delivery and the number of peer-reported outsiders and defenders. Also, no significant interaction effects were found on gender, age, or ethnicity.

DISCUSSION

This study provides experimental evidence for the assumed relationship between antibullying program components and bullying behavior using a design with two experimental groups and a control group. The results of our study indicate that it is specifically the PRIMA-L$^+$ program, including both student and teacher components, which is effective in reducing peer-reported bullying in grades 3-6 in elementary school. Since bullying emerges in primary education, this study provides positive indications that children in this age range are susceptible to antibullying programs' positive effects.

We found evidence for the effectiveness of PRIMA-L$^+$ to reduce the number of peer-reported victims and reinforcers. However, we did not find any significant declines in bullying and victimization for PRIMA-L$^-$, indicating that the student lessons are a crucial component. We did not find any differences either in self-reported victims and bullies between PRIMA- and control schools. The reduction in self-reported victims was the highest in the PRIMA-L$^+$ condition but did not reach statistical significance. Therefore, our first hypothesis that schools with PRIMA more effectively reduce bullying and victimization than control schools is partially supported by our findings but is not fully confirmed.

Furthermore, we found stronger effects when teachers implemented multiple program components in their classes. Classrooms, where all four universal components were implemented, showed the only statistically significant reduction in the number of peer-reported victims. This finding highlights that full implementation of the multi-

component antibullying program is crucial in achieving optimal results. Again, we did not find similarly positive results for self-reported victimization and bullying, and therefore, our study has found positive, but partial evidence for our hypothesis that the implementation of more program components is related to stronger program effects.

Our results highlight the importance of supporting both students and teachers to decrease bullying in schools. This finding is in line with the correlational outcomes of Ttofi and Farrington's (2011) meta-analysis. Our findings also underline the importance of a school-wide approach in antibullying programs, indicating that bullying is a complex phenomenon that needs to be addressed at multiple levels in the school (Hong & Espelage, 2012), including individual students, the classroom, the teacher, and school.

We found different results for self- and peer-reported bullying behavior. Self-reports are considered to reflect students' subjective perceptions of being bullied, whereas peer-reports are considered to reflect observed bullying behavior and students' reputations in the class (Kärnä et al., 2011). Several studies have reported a modest agreement between the two perspectives (Branson & Cornell, 2009; Demaray et al., 2013). Self-reports are considered the standard to measure bullying and victimization, while peer-reports are considered to be sensitive to reputation-bias (Olweus, 2003). However, as peers are often present at most bullying incidents (Salmivalli, 2014), peer-reports reflect multiple students' observations on the behaviors of each classmate. Therefore, such multiple-informant peer-reports of bullying and victimization are viewed as valid and reliable (Branson & Cornell, 2009; Ladd & Kochenderfer-Ladd, 2002). Besides, peer-reports are less influenced by bullies and victims' possible reluctance to report bullying (Branson & Cornell, 2009; Cornell et al., 2006). Seen from this perspective, peer- and self-reported bullying behavior are the proverbial two sides of the same coin. Few experimental studies have investigated effects on both self- and peer-reported bullying and victimization. The findings from our study on peer-reports are in line with the findings of Kärnä et al. (2011), where also stronger effects of the KiVa intervention were found for peer-reported victimization compared to self-reports.

Unlike previous research that showed effects on self-reported victimization (Gaffney et al., 2019; Kärnä et al., 2011), our findings show that the number of self-reported victims declined in all conditions. A possible explanation for this result is a decrease in self-perceived victimization because of the recent implementation of antibullying guidelines for all schools in the Netherlands, assuming that this policy has affected children's subjective perceptions. Another possible explanation is that peers in the classroom may be the first to observe a change in bullying behavior or reputations, whereas PRIMA may only result in delayed effects for victims' subjective experience. Possibly, bullying behavior has to stop before victims' experience improvement from their point of view. More experimental research into the different perspectives on self- and peer reports of victims is needed to study this matter.

We also explored the effects of PRIMA on other roles in bullying situations. Our results indicated a significant decrease in the mean proportion scores of reinforcers in PRIMA-L$^+$ schools compared to control schools. A notable finding was that even though the student lessons explicitly target all students to respond when bullying occurs, we did not find an increase in the number of defenders in the PRIMA-L$^+$ schools. This finding is not in line with the meta-analytical review of Polanin et al. (2012), who reported small to medium effect sizes for bullying prevention programs on defending behavior. A possible explanation for our deviant finding is that the number of peer-reported defenders was already relatively high at the pretest in all three conditions (i.e., proportion scores ranging from 0.19-0.21), which left little room for further improvement. Another possible explanation is that the proportion scores for the defender's role remained stable from pretest to post-test in all schools, while the number of victims declined in the intervention schools. However, the group process of bullying is complex, as previous research showed that victims and bullies are defended by their ingroup members, suggesting that the defender role can be controversial for students (Huitsing & Veenstra, 2012). In this study, we also found some combinations of negative roles (i.e., high proportion scores for bully-victims, reinforcer-victims, defender-bullies), indicating that individual students' roles can be controversial (see also, Ladd et al., 2017). Investigating which students defend which classmates, and whether these roles change as a result of the intervention, requires further investigation in future experimental research.

An unexpected finding concerned the differential effects and levels of implementation of PRIMA-L$^+$ schools versus PRIMA-L$^-$ schools. Our results show that teachers in PRIMA-L$^+$ schools implemented the program components more intensively than teachers in PRIMA-L$^-$ schools. A possible explanation for this finding is that delivering the student lessons in the PRIMA-L$^+$ condition had a stimulating effect on teachers, which subsequently supported the other components' implementation. Sainio et al. (2020) found similar results for the KiVa student curriculum. This finding suggests that a universal curriculum component with traditional lessons for the regular class may lay the foundation for teachers and students for optimal implementation of school-wide antibullying programs with various other components.

Strengths and Limitations

Our study's strength is that we conducted a cluster randomized controlled trial design, which enhances the internal validity of our experimental study (Farrington & Welsh, 2005). Furthermore, we conducted a priori randomization to prevent self-selection of schools. We then included schools with similar motivation levels in all conditions as a representative educational setting, supporting both the internal and external validity of our experimental findings (Astor et al., 2010).

Another strength of this study is that we used multiple informants to examine victimization and bullying. Because of the complexity of bullying, several scholars addressed the desirability to assess bullying using multiple informants (Branson & Cornell, 2009; Griffin & Gross, 2004). Using both self- and peer-reports enabled us to examine two distinct constructs: self-perceptions, relating to subjective individual experiences, and peer-perceptions, characterizing social representations in a group. In line with previous studies (Branson & Cornell, 2009; Cole et al., 2006), our results showed that self-reporting scores are lower than peer-reports. Victims in elementary school may be reluctant to report bullying in fear of the bully's reprisals, or because they are concerned that their reports are dismissed by their teacher (Fekkes et al., 2005; Newman & Murray, 2005). Students who bully others may be reluctant to report the bullying behavior in fear of social disapproval of their peers (Branson & Cornell, 2009).

A limitation of this study is that both experimental groups implemented the program with varying levels, which complicated the evaluation of the student lessons' specific contribution. Due to a low variation related to program implementation in the PRIMA-L$^-$ group, we could not control statistically for the difference in the degree of program implementation in our models. Teachers and school management may not have had enough time to implement all components in addition to their existing curriculum and low motivation of staff to implement a school-wide program (Orobio de Castro et al., 2018). Future experimental research should measures factors that may influence the degree and quality of program implementation, such as perceptions on leadership and program effectiveness (Domitrovich et al., 2008; Durlak & DuPré, 2008; Orobio de Castro et al., 2018; Veenstra et al., 2014).

Furthermore, this study's scope was restricted to outcomes measured in grades 3-6, while the PRIMA program targeted all school students. Assessing bullying among younger children requires different, developmentally appropriate methods, such as using pictures of all children in the class to nominate classmates or observations and recordings of bullying situations (Alsaker & Nägele, 2008). We strongly recommend including such methods in future experimental research to investigate school-wide antibullying programs' effectiveness across all grades, since several studies show that bullying starts early in primary education.

Finally, the findings of this study should be understood within the Dutch cultural context. Since 2015, new guidelines were initiated by the Ministry of Education, which may have motivated both intervention and control schools to evaluate their policies and to implement a new program.

Practical Implications

Our results indicate that a school-wide antibullying program with multiple components, strengthening both students and teachers, effectively reduces peer-reported peer

victimization. An important practical implication is that schools could benefit from evidence-based antibullying programs, and more attention is needed to increase awareness among school management and teachers to select and implement these programs adequately. Implementing a school-wide program requires support and time from all professionals in the school (Durlak & DuPre, 2008; Gaffney et al., 2019; Orobio de Castro et al., 2018), and school management and teachers need to be facilitated in resources and time to implement a school-wide program appropriately.

More attention is needed in experimental research and educational practice for self- and peer-reported victimized students who remain victimized despite the implementation of an antibullying program. There is a growing body of literature indicating that not all students benefit from a universal school-wide antibullying program (Huitsing et al., 2020b; Kaufman et al., 2018) and that victimized students may experience high feelings of distress (Garandeau & Salmivalli, 2019; Huitsing et al., 2020b). These findings indicate the need for more research and future development of programs for this group of vulnerable students.

CHAPTER 6

General discussion

AIMS OF THIS DISSERTATION

Although the importance of teachers' role in bullying prevention has been acknowledged in previous research, limited attention has been paid to providing teachers with practical tools to identify and address bullying behavior in the school. Therefore, we investigated the extent to which antibullying programs affect teachers' competencies and which bullying situations are difficult for teachers. These results can potentially serve as input for further professional development for teachers. In addition, we tested to what extent the renewed PRIMA antibullying program affects teachers' attitudes, self-efficacy, and intervention behavior and whether this program reduces bullying and victimization among 3-5th elementary school students.

SUMMARY OF THE MAIN FINDINGS

Chapter 2 showed that antibullying programs can strengthen teachers' competencies to address bullying. There was a small to moderate positive effect on determinants of teacher intervention (i.e., attitudes, subjective norms, knowledge, self-efficacy) (g = 0.531). The most considerable effects were found for teachers' knowledge on intervention methods and teachers' self-efficacy to intervene. There was also a small effect on teachers' responsiveness to bullying behavior in schools (i.e., frequency of intervening) (g = 0.390). Although the small number of studies included in the meta-analysis implies that these findings need to be interpreted with caution, the meta-analytic results suggest that antibullying programs can affect teachers' competencies to address bullying and increase teachers' level of intervention in schools. Therefore, we concluded that the effectiveness of antibullying programs could increase when components are included to strengthen teachers' attitudes, subjective norms, self-efficacy, knowledge, and skills to reduce school bullying.

Chapter 3 exposed teachers' experiences with difficult bullying situations in four areas: 1) identifying covert forms of bullying (e.g., digital bullying), 2) estimating the seriousness of a bullying situation (e.g., conflicting stories), 3) addressing persistent bullying cases (e.g., students with multiple problems), and 4) finding solutions with parents of students involved in bullying situations (e.g., solving disagreements). Overall, teachers with less working experience (less than ten years) experienced more difficulties than experienced colleagues (> 10 years). Teachers indicated to use a variety of strategies in their efforts to address these situations: at the individual student level (e.g., supporting victimized students), at the class level (e.g., discussing an incident in the classroom), at the school level (e.g., involving colleagues), and at the parent level (e.g., talking about the incident). Specific barriers at each of these four levels were related to a low level of

self-efficacy, a lack of knowledge about what bullying constitutes, a lack of time and skills to deal with students involved in persistent bullying situations, and difficulty with dealing with parents who disagreed with an action of the teacher in a bullying situation. A few teachers also seemed to have a normative view on bullying and victimization. Based on these findings, we concluded that teachers might profit from a systematic screening tool to detect bullying at an early stage and protocols to deal with students (at risk of being) involved in bullying situations. In addition, we concluded that teachers, and especially novice teachers, need further professional development which should address the characteristics of bullying, the group process that is involved, the negative consequences of bullying, and guidelines to deal with specific bullying situations (e.g., digital bullying) and intervention strategies (e.g., conversation techniques with parents in sometimes difficult conversations).

The results from chapter 4 confirmed earlier studies that teachers who perceive bullying as a serious problem, have empathy for victimized students, and feel confident to intervene, are also more likely to intervene in bullying situations. Furthermore, we found that teachers' perceived seriousness and self-efficacy also predicted their actual intervention behavior. Teachers who perceived bullying as a serious issue and teachers with high self-efficacy levels were related to using more preventive intervention strategies targeted at all students in the classroom (e.g., promoting a safe social environment). We found that the school's size and environment were related to teachers' curative intervention strategies, mostly aimed at specific students (e.g., talking with victimized students). Teachers in large schools and urban schools more often used these types of intervention strategies than teachers in small schools and more rural schools. This suggests that preventive strategies are more likely to be related to teacher variables, whereas curative strategies are more directly related to contextual variables. More research is needed to explore possible explanations for the results from our experimental study.

In contrast with our findings in chapter 2, teacher outcomes related to bullying were not increased by the PRIMA program. A possible explanation for this deviant finding is that teachers had relatively high levels of perceived seriousness, empathy, and self-efficacy at the pretest measurement, indicating that the use of vignettes did not capture enough variety in teachers' determinants. Another possible explanation is that a more intensive teacher component is needed and that the current PRIMA program's training component should be intensified. A final explanation could be that the teacher level effects may have been absent because the program implementation level varied widely. Our results show that almost half of the teachers (45%) did not implement any of the universal components. This result shows that developing a program adapted to the teachers' needs is not enough to empower teachers to address and prevent bullying. We found significant variation in the extent to which teachers implemented PRIMA, and this variation was related to teachers' work experience, classroom victimization,

and the school's urban context. Based on the findings of both chapters 2 and 4, we strongly suggest that antibullying programs include an intensive teacher component to reinforce teachers' attitudes, subjective norms, self-efficacy, knowledge, and skills towards reducing bullying. Furthermore, sensitive and validated measures are required to investigate teachers' variables related to intervening in bullying situations. More research is needed into the factors that support teachers in their intervention strategies and into the variables that influence teachers' program implementation.

Chapter 5 demonstrated the effects of the PRIMA program on students. The program significantly reduced peer-reported victimization and reinforcing behavior for the experimental group with student lessons. This result highlights the importance of supporting both students and teachers to decrease bullying in schools. We also found that implementing multiple program components was related to more substantial program effects (i.e., a dose-response relationship). Therefore, we concluded that schools could benefit from evidence-based antibullying programs when implemented adequately. We found no program effects on self-reported victimization or bullying from either intervention group, indicating that we found partial experimental evidence for the beneficial effects of combining student lessons and teacher training in antibullying programs. Also, our results suggest that student lessons stimulate the implementation of other program components. We also concluded that more attention is needed to raise awareness among school professionals to select and implement these programs adequately and that schools should be facilitated with guidance and resources in this area.

GENERAL DISCUSSION OF THE FINDINGS

Teacher intervention and intervention strategies

In this thesis, we used the theory of planned behavior as a theoretical framework to study teachers' behavior in bullying situations. This theory proposes that planned human behavior is directed by intention and that intentions are influenced by attitudes toward the behavior, perceived norms, and perceived behavioral control or self-efficacy (Ajzen, 2012). Our results indicate that teachers who view bullying as a serious problem, teachers who have higher levels of empathy for bullied students, and teachers who feel more confident to intervene are also more likely to intervene in bullying situations in the classroom practice. This finding supports earlier research that teacher determinants (perceived seriousness, empathy, and self-efficacy) are related to teachers' willingness to intervene (Bauman & Del Rio, 2006; Bradshaw et al., 2007; Dedousis-Wallace et al., 2014). These concepts may be mutually reinforcing, with higher levels of self-efficacy leading to teachers' intervening more often, and a subsequent positive experience may

enhance teachers' self-efficacy (Fischer et al., 2020); hence, longitudinal studies of teachers are needed to assess the causal effects.

The current study results add to previous research that teachers' perceived seriousness and self-efficacy are related to their actual intervention behavior in the classroom. This relationship was found for preventive teacher strategies that targeted all students in the classroom, such as promoting a safe social environment in the classroom and making bullying negotiable in the classroom. Similar strategies have shown long-term success in reducing bullying (Wachs et al., 2019). These interventions included supportive strategies aimed at all students in the class and cooperation with other school professionals and parents. We did not find a connection between teacher variables and curative intervention strategies to reduce existing bullying cases (e.g., taking action to stop bullying). However, we did find that two school characteristics were related to teachers' curative intervention strategies to stop bullying: teachers in large schools and teachers in urban schools more often intervened in bullying cases than teachers in small schools and schools in rural areas.

This outcome raises the question of whether teachers in these types of schools encounter more bullying cases. We found a higher level of peer-reported victimization in urban schools, which is in line with previous findings in secondary schools, which have shown higher levels of peer victimization in ethnically heterogeneous classes (Vervoort et al., 2010). This finding may explain the higher level of teacher intervention in these classes from our study. As teachers in urban (primary) schools may experience more victimization in their classes, they consequently may experience a more vital need for universal, preventive tools. Regarding school size, the higher level of intervening cannot be explained by higher levels of bullying because we found lower levels of bullying in these types of schools. Therefore, a possible explanation may be that larger schools work with more protocols and are therefore more accustomed to curative intervention, which, in turn, leads to less bullying behavior. However, we could not find any evidence for this complex explanation, and the connection between contextual factors and teachers' use of curative strategies needs to be further investigated.

Strengthening teachers' competencies through antibullying programs

This thesis contributes to our current knowledge on how antibullying programs can be adjusted to better meet teachers' needs. Previous studies showed that teachers feel ill-prepared to identify and address bullying when they start their careers as teachers (Begotti et al., 2018; Lester et al., 2018; Macaulay et al., 2019). This thesis confirms these findings from previous research (chapter 3). It demonstrates that antibullying programs can fill this gap and may serve as in-service professional development for teachers (chapter 2), acknowledging that adequate implementation is difficult (chapter 4) but is required to achieve positive effects at the student level (chapter 5).

Based on the findings in chapter 2 and 3, the PRIMA program was renewed with a multi-informant screening method to identify bullying and other participant roles in the class. A sociogram was integrated into the screening tool to measure important variables related to bullying behavior, such as social status, friendships, feelings of loneliness, and classroom climate. Furthermore, the programs' training components, the e-learning, and face-to-face training were revised to increase teachers' self-efficacy to intervene in bullying situations by practicing with fictional bullying cases. Additional information on the characteristics of bullying (e.g., imbalance of power), the group process of bullying, and underlying mechanisms (e.g., social status) was added to increase teachers' knowledge of bullying. Furthermore, to increase teachers' empathy towards victimized students and stimulate intervening, the e-learning and training sessions informed teachers about the negative consequences of bullying and presented PRIMA to teachers as an effective tool for preventing bullying. The student lessons pursue to prevent and address bullying together with students by focusing on the following three goals: (a) making students aware of the negative consequences of bullying and their role in bullying situations; (b) strengthening positive antibullying norms in the classroom and teaching students strategies to stand up against a bullying norm; and (c) increasing prosocial skills and promoting positive relations among students. Finally, protocols for difficult bullying situations were provided in which teachers receive step-by-step guidelines to follow. The student curriculum, e-learning module, face-to-face training, and the monitor report were considered universal components for all students. The protocols for specific bullying situations and the protocols following from the monitor results were considered selective components, focusing on students who are (at risk of being) involved in bullying.

Based on the renewed PRIMA program, it was expected that teachers could be strengthened in identifying and addressing bullying behavior by implementing the teacher- and student components of the PRIMA program. The meta-analytic outcomes described in chapter 2 indicated that antibullying programs can positively affect teachers' attitudes, self-efficacy, and intervention behavior. However, the experimental study described in chapter 4 showed no program effects on teachers' attitudes, self-efficacy, likelihood to intervene, and actual intervention behaviors, which was a surprising outcome.

A possible explanation for this finding at the teacher level is that most teachers already felt competent to deal with bullying, considering the relatively high scores on the pretest measurement from the experimental study (see chapter 4). This finding deviates from the findings that were reported in chapter 3 and previous research findings that teachers do not feel competent to handle bullying and want more support in addressing bullying behavior (e.g., Bradshaw et al., 2013; Marshall, 2012). Findings of a recent meta-analysis by Fischer et al. (2020) showed that most teachers generally

feel confident in managing bullying behavior in quantitative studies, while they report lower confidence levels in dealing with bullying behavior in qualitative research. It seems that teachers feel more motivated to report their insecurities in face-to-face interviews, where there is more room for detail. This explanation contradicts the findings from the meta-analysis in chapter 2, where (quasi-)experimental studies of antibullying programs with quantitative outcome measures showed increases unfavorable teacher outcomes. This raises the question of how to measure in the area of teacher intervention. Since, in our study, teachers scored relatively high on the vignette scales, this measurement method does not seem to measure enough variation in these variables. Larger teacher samples to increase statistical power or more sensitive measures focused on specific experienced difficult situations may be needed to measure teachers' change. A promising approach uses a mixture of both qualitative and quantitative measures to investigate teacher variables, such as teachers' self-efficacy (Fischer et al., 2020).

Another possible explanation is that the PRIMA program is a school-wide program with relatively modest teacher training. Perhaps a more robust and specific teacher component is needed to support teachers, particularly with difficult bullying situations. Although the findings of the meta-analyses described in chapter 2 should be interpreted with caution due to the small number of studies included, the most considerable effects found were associated with programs with a more specific theoretical framework (e.g., the social cognitive framework and social deficit model) and a more extensive teacher training. In contrast, smaller effects were found for school-wide programs. Although intensive training is desirable, our research indicates that implementing the PRIMA program takes a considerable amount of teachers' time. One way to take this pressure away from in-service teachers is to incorporate the training component into pre-service teacher education.

Research has shown that some in-service programs are beneficial, but their implementation seems vulnerable. This calls for teacher education to pay more attention to addressing bullying in both preventive and curative ways to prepare future teachers. The recent plans of the Ministry of Education for a hybrid form of teacher education, with division for teaching young children and older children (Ministry of Education, 2020), possibly create room to add antibullying training into the curriculum. Since bullying behavior is particularly prevalent from grade 5 onward, it is plausible to add this theme to the teacher training curriculum for the elder children.

Besides, the PRIMA program may complement the current training sessions in which receiving information is the norm, and the degree to which the required skills are practiced is relatively low (Yoon & Bauman, 2014). Individual and tailored coaching is perhaps needed to promote more meaningful changes in how teachers manage bullying (Pas et al., 2014, as cited in Pas et al., 2019; Yoon & Bauman, 2014). Structural interprofessional collaboration between PRIMA-coaches and teachers may be needed

to achieve this goal. One promising method, for example, is the recently evaluated Classroom Check-Up method, which is specifically designed to support teachers in identifying, addressing, and preventing bullying, using behavior change techniques from the psychological field, such as motivational interviewing, performance feedback, and goal setting (Pas et al., 2019). Research in social skill training showed that skill-building components (e.g., exercises aimed at improving interpersonal skills) yielded positive effects on children and adolescents' interpersonal skills and emotional skills. This type of training may also be effective for teachers and for addressing bullying in education.

We found a wide variety in PRIMA's program implementation (see chapters 4 and 5). Recent studies suggest a lack of feasibility of such programs in the current school systems. For example, Ossa et al. (2020) reported difficulties in recruiting schools for their study, and Orobio de Castro et al. (2018) reported a lack of interest in several promising antibullying programs despite various supporting policies. We also experienced difficulties in recruiting schools for our RCT-study. Only 4% of the schools that were assessed for eligibility ultimately participated in our study. Even though we adjusted the program to teachers' needs and offered an expense fee for the time taken to participate in the study, it was still unlikely that schools participated. Other studies on the implementation of school-based programs show that various personal and more contextual factors play a vital role in whether the components are implemented, such as teachers' perceived effectiveness of a program and more organizational factors, such as school administrative support for the program (Domitrovich et al., 2008; Durlak & DuPre, 2008; Leadbeater et al., 2015). In addition, a study of the implementation processes of the KiVa program suggested that a school-wide program requires a staff member who is in charge of the program coordination and who engages the whole school in implementing the program (Sainio et al., 2020). Although every school had a staff member who was appointed to coordinate the PRIMA program and supported colleagues to use the program, we did not investigate to what extent this staff member engaged other teachers and staff members to implement the different PRIMA components. The implementation study of Sainio and colleagues also suggested that many schools need support during the initial years to launch and maintain the implementation of the program and that 'concrete tasks', such as delivering student lessons and the use of vests during the recess, are important components to commit other school professionals to the program. Our findings confirmed the importance of continued support since the teachers in the intervention group that received the student lessons implemented significantly more components than teachers in the intervention group without student lessons. These components may thus be important predictors of the implementation of other parts of the program.

Reducing student victimization and bullying: Which program components are effective?

The effects of implementing the various components at the student level are highlighted in chapter 5. This study showed that the implementation of all universal components is essential to achieve student-level effects. We found effects on peer-reported victimization when all universal PRIMA components were implemented. Similar results were found for the effectiveness of the OBPP in Germany among middle school students (Ossa et al., 2020). These findings complement earlier findings that program implementation (e.g., dosage, fidelity, implementation quality) is an important indicator of the program's effects on bullying and victimization (Ttofi & Farrington, 2011).

Our findings demonstrate the importance of student lessons in antibullying programs. In the RCT study of PRIMA (chapter 5), we found that including both student and teacher components is crucial for effects at the student level. This finding underlines the importance of targeting the whole group to prevent and reduce bullying and adds to the existing evidence that bullying is a group process (Salmivalli et al., 1996). In addition, reductions in peer-reported victimization were significant when all universal components had been implemented. These findings indicate the importance of a school-wide approach in antibullying programs, indicating that bullying is a complex phenomenon that needs to be addressed at multiple levels in the school (Hong & Espelage, 2012), including individual students, the classroom, the teacher, and school.

Although we did not find effects of PRIMA on the number of self-reported victims, our findings show that the number of self-reported victims declined in all conditions. A possible explanation for this result is a decrease in self-perceived victimization because of the recent implementation of antibullying guidelines for all schools in the Netherlands, assuming that this policy has affected children's subjective perceptions. Another possible explanation is that peers in the classroom may be the first to observe a change in bullying behavior or reputations, whereas PRIMA may only result in delayed effects for victims' subjective experience. Possibly, bullying behavior has to stop before victims' experience improvement from their point of view. More experimental research into the different perspectives on victims' self- and peer reports is needed to study this complex issue.

LIMITATIONS AND FUTURE DIRECTIONS

This study has, despite several strengths, also some important limitations. Below we address six issues that are related to the studies described in chapters 2 thru 5. The meta-analysis from this thesis included a small number of studies. Therefore, it was not possible to investigate moderating effects of variables that possibly influence teacher

outcomes, such as the included studies' methodological quality. Teacher outcomes should be more often included in program evaluation studies so that these relations can be further investigated. It is also desirable if future evaluation studies would include more information on program implementation (e.g., dosage for each program component) and on possible predictors for program implementation (e.g., teachers' perceived program effectiveness, teaching experience, motivation, and school context). In this way, future studies may increase our current insight into which program components are effective and for whom.

Our study could not find causal relations between individual determinants for teacher intervention, their willingness to intervene, and actual intervention behavior, possibly due to our short-period research design. More longitudinal research is needed to test the hypothesized sequence from teachers' beliefs, norms, and self-efficacy that subsequently increase teachers' willingness, leading to more intervening in bullying situations.

The difficult bullying situations, revealed in this thesis by conducting in-depth interviews with teachers, may not generalize across other elementary school teachers. We used a selective sample since teachers signed up for the interviews. This procedure may have resulted in a biased sample. Future research should evaluate whether various difficult situations are experienced by a broader population of teachers using quantitative measurements or a mixture of surveys and interviews.

Our quantitative study's teacher variables were measured with newly constructed items customized to the objectives of the PRIMA program's teacher-focused components. However, a valid and sensitive instrument is needed in future research. A growing body of research has examined teachers' strategies to prevent and reduce bullying related to real-life experiences (see, for example, Pas et al., 2019; Wachs et al., 2019). Although our study showed that vignettes are a reliable way to measure teacher outcomes, these fictive cases do not necessarily reflect real-life experiences. Future research should focus on teachers' self-efficacy regarding a variety of specific and difficult bullying situations, such as handling digital bullying, bullying outside their sight, bullying of students with multiple problems, or chronic victims. Furthermore, since there is little agreement between student and teacher reports on bullying and effective interventions, a measure is needed that shows more convergence between students and teachers in multiple-informant studies (Pas et al., 2019).

Another limitation is that implementation factors were only examined in a limited and exploratory manner in this thesis. More research is needed on the factors that may explain the varying PRIMA program implementation of the various components. We found possible evidence for relations between teacher experience, the extent to which they identify bullying behavior, and school factors such as school size and location, with the degree of implementation of different program components. Future research could further explore these variables and examine why these factors play a role in using

mixed-method design factors like the perceived program effectiveness, the role of a coordinator, and alignment with the school's culture (Domitrovich et al., 2008; Sainio et al., 2020).

Finally, we could not examine whether teacher effects influenced effects at the student level. Teachers scored relatively high on the pretest measurements in our experimental study, and this so-called ceiling effect affected the power to analyze effects at the teacher level. More sensitive measurements are needed to investigate teachers' intervention behavior to increase this variation (see, for example, the Handling Bullying Questionnaire (HBQ) developed by Bauman et al., 2008). In addition, this thesis showed that teachers only experience difficulties in particular bullying situations, and, therefore, these specific situations could be used to collect data on teachers' self-efficacy and their intervention strategies. Other studies have provided preliminary evidence for teacher interventions' positive effects on both students' victimization and bullying behavior (Fischer et al., 2020; de Luca et al., 2019). The relationship between these two sides of the same coin should be given a prominent role in future evaluation research to fully understand the teacher's role and how it contributes to preventing bullying.

Practical implications

This thesis shows that the multi-component PRIMA antibullying program effectively reduces peer-reported victimization and that it is important to target both students and teachers, implementing all universal components. Based on our findings, we argue that elementary schools can benefit from evidence-based antibullying programs if multiple components are indeed adequately used. Based on the finding that the program implementation varied widely, we argue that more attention is needed to increase awareness among school management and teachers to select and implement these programs adequately. Implementing a school-wide program requires support and time from all professionals in the school (Durlak & DuPre, 2008; Gaffney et al., 2019; Orobio de Castro et al., 2018), and school management and teachers need to be facilitated in resources and time to implement these programs appropriately. More funding is needed to support schools in the resources needed to prevent bullying effectively. The societal costs of untreated bullying and victimization are high (Jantzer et al., 2019), and a cost-benefit analysis of KiVa showed that the program was very beneficial in terms of savings on social costs (Huitsing et al., 2020a). In addition, we argue that highly visible components with an impact on teachers and students, such as student lessons, should be included in programs since they seem to stimulate the school-wide program with various other components.

Furthermore, this thesis suggests that an intensive teacher component is necessary to increase the likelihood that teachers' beliefs, self-efficacy, and their intervention repertoire can be improved. To provide teachers with passive information, a focus on

more active forms of learning in teacher programs, such as coaching, goal setting, and in-service on-the-spot guidance, may be necessary. Especially with a complex phenomenon like bullying, it is essential to provide tailored training (Pas et al., 2014, as cited in Pas et al., 2019). In addition, a continued focus on the use of supportive strategies, aimed at all students and together with colleagues, is needed. These strategies strongly align with the focus of many school-wide antibullying programs such as PRIMA but deserve more attention. The teacher's role should be emphasized more within the training, for example, by more explicitly portraying school professionals as actors that can significantly reduce bullying in the classroom and school. At the same time, teachers need to be facilitated in this role with sufficient time and resources. During our research, elementary schools went on strike against the high workload, and a number of contact persons dropped out due to work-related burnout symptoms. It is essential to provide teachers with structural support in terms of tools, methods, and collaboration with specialized colleagues, such as school psychologists. We argue that special attention is needed to specific bullying situations, such as digital bullying, and support for chronically victimized students.

Preparing novice teachers for an active role in the classroom's social dynamics should begin as early as in in-service teacher education. Courses on using evidence-based programs and discussing how these programs can help teachers identify and prevent bullying should be incorporated into the regular curriculum of pre-service teacher education. The gap between pre-service education and in-service practice is widely recognized among scholars (Benitez et al., 2009; Bradshaw et al., 2011; Hektner & Swenson, 2012; Orobio de Castro et al., 2018; Yoon & Bauman, 2014) and deserves more attention in policy and resources. In addition, broader cooperation is needed with childcare and out-of-school care. A special role for bullying prevention among the staff of both sectors could be in place here now these sectors have started to collaborate in an integrated approach at various locations (Kindcentra 2020; SER, 2016; Taskforce Samenwerking Kinderopvang-Onderwijs, 2017)

Finally, more attention is needed for self- and peer-reported victimized students who remain or become victimized despite the implementation of an antibullying program. A growing body of literature indicates that not all students benefit from a universal school-wide antibullying program. The possibility that an improved social context harms some individuals has been called the "healthy context paradox" (Garandeau & Salmivalli, 2019). A study on this 'healthy context paradox' showed that students who remained victimized or became victimized in intervention schools had more depressive symptoms and lower self-esteem than victimized students in control schools (Huitsing et al., 2020b). Especially persistent victims are vulnerable to this effect since these students more often experience high levels of peer rejection, internalizing problems, and lower quality relationships with their parents (Kaufman et al., 2018). The results call for tai-

lored strategies in interventions aimed at those students who either remain or become victimized. Several authors have strongly suggested that low-threshold collaboration with behavior specialists in the school or referral to experts is needed, as is stacking of interventions (i.e., a school-wide intervention with on top of that evidence-based targeted interventions for students; see Gregus et al., 2020; Rawlings & Stoddard, 2019; Rigby, 2020).

CONCLUSION

This thesis contributes to previous research by describing teachers' specific needs in bullying prevention and improving their competencies by developing and evaluating a school-wide antibullying program. Teachers can be strengthened in their responsiveness towards stopping bullying (chapter 2). A school-wide program with both universal and selective components offers teachers in different circumstances and contexts (e.g., novice teachers, teachers who identify bullying, teachers in large and urban schools) several tools for a differentiated approach to prevent and stop bullying. However, bullying remains a complex phenomenon for teachers (chapter 3), and the implementation of such programs is vulnerable (chapter 4 and 5), which indicates that a multi-component approach still demands a great effort from teachers. A methodological challenge for researchers is that different measurement instruments are being used in teacher research, both qualitative (chapter 3) and quantitative (chapter 4), resulting in different outcomes. Future practice-based evaluation research should focus more on teacher and contextual variables related to teachers' intervention strategies and bullying and victimization at the student level, such as teaching experience, identified victims, and school characteristics. More research is also needed to unravel the teacher and contextual variables related to implementing different program components. Customized training and a process-oriented approach for teachers may be needed, but this will require resources to facilitate schools in this regard. There is an opportunity for teacher education to begin early in preparing novice teachers to deal with bullying by teaching them about evidence-based programs and promising strategies to prevent and reduce bullying in the classroom and practice these strategies during training.

Summary

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

Do antibullying programs affect teachers' interventions in bullying situations?

Chapter 2 reports findings from a systematic meta-analysis of 13 peer-reviewed studies, investigating the effects of antibullying programs on determinants of teacher intervention (i.e., attitudes towards bullying, subjective norms towards the program, self-efficacy to intervene, knowledge on intervention methods), teachers' likelihood to intervene and their frequency of intervention in bullying situations, based on school staff self-reports (N = 3,419) and student reports (N = 139,311). The results showed that antibullying programs can strengthen teachers' competencies to address bullying. There was a small to moderate positive effect on determinants of teacher intervention (g = 0.531). The most considerable effects were found for teachers' knowledge and self-efficacy. There was also a small effect on teachers' responsiveness to bullying behavior in schools (i.e., frequency of intervening) (g = 0.390). Although the small number of studies included in the meta-analysis implies that these findings need to be interpreted with caution, the meta-analytic results suggest that antibullying programs can affect teachers' competencies to address bullying and increase teachers' level of intervention in schools. Therefore, we concluded that the effectiveness of antibullying programs may increase when components are included to reinforce teachers' attitudes, subjective norms, self-efficacy, knowledge, and skills to reduce bullying in the school.

What are difficult bullying situations for teachers and how do they respond to these situations?

Chapter 3 explored teachers' experiences with difficult bullying situations, their responses, and their obstacles when dealing with these situations among 38 elementary school teachers in a qualitative study. Teachers experienced difficulties in the following areas: 1) identifying covert forms of bullying (e.g., digital bullying), 2) estimating the seriousness of a bullying situation (e.g., conflicting stories), 3) addressing persistent bullying cases (e.g., students with multiple problems), and 4) finding solutions with parents of students involved in bullying situations (e.g., solving disagreements). Overall, teachers with less working experience (less than ten years) experienced more difficulties than experienced colleagues (> ten years). Teachers indicated to use a variety of strategies in their efforts to address these situations: at the individual student level (e.g., supporting victimized students), at the class level (e.g., discussing an incident in the classroom), at

the school level (e.g., involving colleagues), and at the parent level (e.g., talking about the incident). Specific barriers in each of these levels were related to: a) a low level of self-efficacy, b) a lack of knowledge about what bullying constitutes, c) a lack of time and skills to deal with students involved in persistent bullying situations, and d) to deal with parents who disagreed with their solution in a bullying situation. A few teachers also seemed to have a normative view on bullying and victimization. Based on these findings, we concluded that teachers should be provided with a systematic screening tool to detect bullying at an early stage and support teachers with detailed protocols to deal with students (at risk of being) involved in bullying situations. In addition, we concluded that teachers, and especially novice teachers, should receive professional development training that addresses the characteristics of bullying, the group process that is involved, the negative consequences of bullying, and guidelines to deal with specific bullying situations (e.g., digital bullying) and intervention strategies (e.g., conversation techniques with parents).

What are the effects of a school-wide antibullying program on teachers?

In chapter 4, we tested the relation between teacher- and contextual variables and teachers' intervention strategies and the impact of the PRIMA program on teacher intervention in a cluster randomized controlled trial involving 3-6th grade teachers (N = 143) with two experimental groups (teacher- and student-focused vs. teacher-focused only). The results confirmed earlier studies that teachers who perceive bullying as a serious problem, have empathy for victimized students, and feel confident to intervene, are also more likely to intervene in bullying situations. Furthermore, we found that teachers' perceived seriousness and self-efficacy also predicted their actual intervention behavior. Teachers who perceived bullying as a serious issue and teachers with high levels of self-efficacy were related to using more preventive intervention strategies (e.g., promoting a safe social environment in the classroom). We found that the school's size and environment were related to teachers' curative intervention strategies (e.g., taking action to stop bullying). Teachers in large schools and urban schools more often used these types of intervention strategies than teachers in small schools and more rural schools.

In contrast with our findings in chapter 2, teacher variables did not increase by the PRIMA program. A possible explanation for this deviant finding is that teachers had relatively high levels of perceived seriousness, empathy, and self-efficacy at the pretest measurement, indicating that the use of vignettes did not capture enough variety in teachers' determinants. Another possible explanation is that a more intensive teacher component is needed and that the current PRIMA program's training component should be intensified. A final explanation could be that the teacher level effects may have been absent because the program implementation level varied widely. Our results show that

almost half of the teachers (45%) did not implement any of the universal components. This result shows that developing a program adapted to the teachers' needs is not enough to empower teachers to address and prevent bullying. We found a significant variation in the extent to which teachers implemented PRIMA, and this significant variation was related to teachers' work experience, classroom victimization, and the school's urban context. Based on the findings of both chapters 2 and 4, we concluded that antibullying programs should include an intensive teacher-component to reinforce teachers' attitudes, subjective norms, self-efficacy, knowledge, and skills towards reducing bullying. Furthermore, we concluded that more sensitive and validated measures are required to investigate teachers' variables related to intervening in bullying situations. Besides, more research is needed into the factors that support teachers in their intervention strategies and variables that influence teachers' program implementation.

What are the effects of implementing multiple components in a school-wide antibullying program on victimization and bullying among 3-5th grade students?

In chapter 5, the effectiveness of PRIMA on victimization and bullying was examined in a cluster randomized controlled trial with two experimental conditions (with and without student lessons) and a control group, using data of students of 31 schools (N = 3,135) in grades 3-5. Multi-level analyses demonstrated positive effects of the program on peer-reported victimization and reinforcing behavior for the experimental group with student lessons. This result highlights the importance of supporting both students and teachers to decrease bullying in schools. Besides, we found that implementing multiple program components was related to more substantial program effects. We found no program effects on self-reported victimization or bullying from either intervention group, indicating that we found partial experimental evidence for the beneficial effects of combining student lessons and teacher training in antibullying programs. Also, our results suggest that student lessons can positively influence the implementation of other program components. Therefore, we concluded that schools could benefit from evidence-based antibullying programs when implemented adequately. We also concluded that more attention is needed to raise awareness among school professionals to select and implement these programs adequately effectively and that schools should be facilitated with guidance and resources in this area.

Conclusions and practical implications

This thesis contributes to previous research by describing teachers' specific needs in bullying prevention and improving their competencies by developing and evaluating a school-wide antibullying program. The thesis shows that teachers can be strengthened in their responsiveness towards stopping bullying. A school-wide program with both

universal and selective components offers teachers in different circumstances and contexts (e.g., novice teachers, teachers who identify bullying, teachers in large and urban schools) several tools for a differentiated approach to prevent and stop bullying. Significant reductions in peer-reported victimization were found when teachers implemented all universal program components, indicating that it is important to target both students and teachers. However, bullying remains a complex phenomenon for teachers, and the implementation of such programs is vulnerable, which indicates that a multi-component approach still demands a great effort from teachers. Based on our findings, we argue that elementary schools can benefit from evidence-based antibullying programs if multiple components are indeed adequately used. A methodological challenge for researchers is that different measurement instruments are being used in teacher research, both qualitative and quantitative, resulting in different outcomes. Future practice-based evaluation research should focus more on teacher and contextual variables related to teachers' intervention strategies and bullying and victimization at the student level, such as teaching experience, identified victims, and school characteristics. More research is also needed to unravel the teacher and contextual variables related to implementing different program components. Customized training and a process-oriented approach for teachers may be needed, but this will require resources to facilitate schools in this regard. There is an opportunity for teacher education to begin early in preparing novice teachers to deal with bullying by teaching them about evidence-based programs and promising strategies to prevent and reduce bullying in the classroom and practice these strategies during training.

Samenvatting

Versterking van de rol van leerkrachten bij het signaleren en aanpakken van pesten onder basisschoolleerlingen

In hoeverre hebben antipestenprogramma's invloed op de interventies van leerkrachten in pestsituaties?

In hoofdstuk 2 worden de bevindingen van een systematische meta-analyse van dertien peer-gereviewde onderzoeken besproken. Hierbij zijn de effecten van antipestprogramma's op de determinanten van de interventies van leerkrachten (d.w.z. houding ten opzichte van pesten, subjectieve normen ten aanzien van het programma, ervaren zelfeffectiviteit om in te grijpen, kennis over interventiemethoden), de waarschijnlijkheid van docenten om in te grijpen en hun frequentie van ingrijpen onderzocht, op basis van zelfrapportages van schoolpersoneel (N = 3.419) en leerlingenrapportages (N = 139.311). De resultaten toonden aan dat antipestprogramma's de competenties van leerkrachten om pesten aan te pakken kunnen versterken. Er was een klein tot matig positief effect op de determinanten van de leerkrachtinterventie (g = 0,531). De grootste effecten werden gevonden op de kennis en de ervaren zelfeffectiviteit van leerkrachten. Er was ook een klein effect op de mate van ingrijpen door leerkrachten op pestgedrag in scholen (g = 0,390). Hoewel het kleine aantal onderzoeken dat in de meta-analyse is opgenomen impliceert dat deze bevindingen met voorzichtigheid moeten worden geïnterpreteerd, suggereren deze bevindingen dat antipestprogramma's van invloed kunnen zijn op de competenties van leerkrachten om pestgedrag aan te pakken en het interventieniveau van leerkrachten op scholen te verhogen. We concludeerden daarom dat de effectiviteit van antipestenprogramma's kan toenemen wanneer er componenten worden opgenomen om de houding van leerkrachten, subjectieve normen, zelfeffectiviteit, kennis en vaardigheden ten aanzien van het verminderen van pesten op school te versterken.

Wat zijn lastige pestsituaties voor leerkrachten?

In hoofdstuk 3 hebben we de ervaringen van leerkrachten met moeilijke pestsituaties, hun reacties en hindernissen bij het omgaan met deze situaties onder 38 leerkrachten van de basisschool onderzocht in een kwalitatief onderzoek. Leerkrachten ondervonden moeilijkheden op de volgende gebieden: 1) het identificeren van verborgen vormen van pesten (bijvoorbeeld digitale pesten), 2) het inschatten van de ernst van een pestsituatie (bijvoorbeeld tegenstrijdige verhalen), 3) het aanpakken van hardnekkige gevallen van pesten (bijvoorbeeld leerlingen met meerdere problemen), en 4) het vinden van oplossingen met ouders van leerlingen die betrokken zijn bij pestsituaties (bijvoorbeeld het

oplossen van meningsverschillen). Over het algemeen hebben leerkrachten met minder dan tien jaar werkervaring meer problemen ondervonden dan collega's die al meer dan tien jaar werkervaring hebben. Leerkrachten gebruikten verschillende strategieën in hun pogingen om deze situaties aan te pakken en op verschillende niveaus: op het niveau van de individuele leerling (bijv. het ondersteunen van leerlingen die slachtoffer zijn), op het niveau van de klas (bijv. het bespreken van een incident in de klas), op het niveau van de school (bijv. het betrekken van collega's) en op het niveau van de ouders (bijv. het praten over het incident). Specifieke barrières in elk van deze lastige situaties waren gerelateerd aan: a) een laag niveau van ervaren zelfeffectiviteit, b) een gebrek aan kennis over wat pesten is, c) een gebrek aan tijd en vaardigheden om effectief om te gaan met leerlingen die betrokken zijn bij hardnekkige pestsituaties en d) om met ouders die het niet eens waren met hun oplossing om een pestsituatie tegen te gaan. Ook kwam naar voren dat enkele leerkrachten een normatieve kijk op pesten hadden. Op basis van deze bevindingen concludeerden we dat leerkrachten moeten worden voorzien van een systematische screeningtool om pestgedrag in een vroeg stadium te kunnen identificeren en leerkrachten te ondersteunen met gedetailleerde protocollen om pestgedrag aan te pakken met individuele leerlingen of in de klas. Daarnaast concludeerden we dat leerkrachten, en met name beginnende leerkrachten, een professionele training moeten krijgen die ingaat op de kenmerken van pesten, het groepsproces, de negatieve gevolgen van pesten en richtlijnen om met specifieke pestsituaties om te gaan (bijvoorbeeld digitale pesten; gesprekstechnieken met ouders).

Welke leerkracht- en contextvariabelen voorspellen het handelen van leerkrachten en wat zijn de effecten van PRIMA op leerkrachten?

In hoofdstuk 4 hebben we de relatie tussen leerkracht- en contextvariabelen en de interventiestrategieën van leerkrachten en de impact van het PRIMA-programma op het handelen van leerkrachten getest aan de hand van gegevens uit een cluster gerandomiseerde gecontroleerd onderzoek met leerkrachten uit de groepen 5 t/m 8 (N = 143) met twee experimentele groepen (docent- en studentgericht versus docentgericht). De resultaten bevestigden eerdere onderzoeken dat leerkrachten die pesten als een ernstig probleem zien, empathie hebben voor leerlingen die het slachtoffer zijn van pesten, en zich zelfverzekerd voelen om in te grijpen, ook meer geneigd zijn om in te grijpen in pestsituaties. Verder vonden we dat de ervaren ernst en de ervaren zelfeffectiviteit van leerkrachten ook samenhing met hun werkelijke interventiegedrag. Leerkrachten die hoog scoren op deze leerkrachtvariabelen gebruikten meer preventieve interventiestrategieën (bijvoorbeeld het bevorderen van een veilige sociale omgeving in de klas). We vonden dat de omvang en de omgeving van de school curatieve interventiestrategieën van leerkrachten voorspelden (bijvoorbeeld het nemen van maatregelen om te stoppen met pesten). Leerkrachten op grote scholen en stedelijke scholen maakten vaker

gebruik van dit soort interventiestrategieën dan leerkrachten op kleine scholen en meer landelijke scholen.

In tegenstelling tot onze bevindingen in hoofdstuk 2 werden de variabelen van leerkrachten om in te grijpen in pestsituaties niet door het PRIMA-programma beïnvloed. Een mogelijke verklaring voor deze afwijkende bevinding is dat leerkrachten relatief hoge niveaus van waargenomen ernst, empathie en ervaren zelfeffectiviteit hadden bij de voormeting, wat erop wijst dat het gebruik van vignetten wellicht niet genoeg variatie in de determinanten van leerkrachten kon meten. Een andere mogelijke verklaring is dat een intensievere leerkrachtencomponent nodig is en dat de trainingscomponent van het huidige PRIMA-programma geïntensiveerd moet worden. Een laatste verklaring zou kunnen zijn dat de effecten op leerkrachtniveau afwezig waren omdat het niveau van uitvoering van het programma sterk varieerde. Uit onze resultaten blijkt dat bijna de helft van de leerkrachten (45%) geen van de universele componenten heeft geïmplementeerd. Dit resultaat toont aan dat het ontwikkelen van een programma dat is aangepast aan de behoeften van de leerkrachten niet voldoende is om leerkrachten in staat te stellen pesten aan te pakken en te voorkomen. We vonden een significante variatie in de mate waarin leerkrachten PRIMA implementeerden, en deze significante variatie hield verband met de werkervaring van de leerkrachten, het niveau van gepeste kinderen in de klas volgens de leerkracht, en de stedelijke context van de school. Op basis van de bevindingen van zowel hoofdstuk 2 als hoofdstuk 4 concludeerden wij dat antipestprogramma's een intensieve leerkrachtcomponent moeten bevatten om de attitudes, subjectieve normen, ervaren zelfeffectiviteit, kennis en vaardigheden van leerkrachten ten aanzien van het terugdringen van pesten te versterken. Verder concludeerden we dat er meer gevoelige en gevalideerde meetinstrumenten nodig zijn om de variabelen van leerkrachten met betrekking tot het ingrijpen in pestsituaties te onderzoeken. Daarnaast is er meer onderzoek nodig naar de factoren die leerkrachten ondersteunen in hun interventiestrategieën en naar variabelen die de implementatie van het programma door leerkrachten beïnvloeden.

Wat zijn de effecten van de implementatie van meerdere componenten in een schoolbreed anti-pestenprogramma op slachtofferschap en pesten onder leerlingen in de 3-5e klas?

In hoofdstuk 5 is de effectiviteit van PRIMA op het gebied van slachtofferschap en pesten onderzocht in een cluster gerandomiseerde gecontroleerd onderzoek met twee experimentele condities (met en zonder lessen voor leerlingen) en een controlegroep. Dit is gedaan met behulp van gegevens van leerlingen van 31 scholen (N = 3.135) in de groepen 5 t/m 8. Multi-level analyses toonden positieve effecten van het programma op peer-gerapporteerd slachtofferschap en aanmoedigend gedrag voor de experimentele groep met een lessenserie voor leerlingen. Dit resultaat onderstreept het belang van

het versterken van zowel leerlingen als leerkrachten om pestgedrag op scholen terug te dringen. Bovendien vonden we dat het uitvoeren van meerdere programmaonderdelen gerelateerd was aan meer substantiële programma-effecten. We vonden geen programma-effecten op zelfgerapporteerd slachtofferschap of pesten in beide interventiegroepen, wat aangeeft dat we gedeeltelijk experimenteel bewijs hebben gevonden voor de gunstige effecten van het combineren van leerlinglessen en docententraining in anti-pestprogramma's. Onze resultaten suggereren ook dat de leerlinglessen een positieve invloed kunnen hebben op de implementatie van andere programmaonderdelen. Daarom concludeerden wij dat scholen baat kunnen hebben bij evidence-based anti-pestprogramma's wanneer deze op de juiste wijze worden geïmplementeerd. We concludeerden ook dat er meer aandacht nodig is voor de bewustwording van schoolprofessionals om deze programma's adequaat te selecteren en te implementeren, en dat scholen hiervoor de nodige ondersteuning en middelen dienen te krijgen.

Conclusies en praktische implicaties

Deze dissertatie levert een bijdrage aan eerder onderzoek door de specifieke behoeften van leerkrachten op het gebied van pestpreventie in kaart te brengen en hun competenties te verbeteren door een schoolbreed antipestprogramma te ontwikkelen en te evalueren. Het proefschrift laat zien dat leerkrachten versterkt kunnen worden in hun handelen om pesten een halt toe te roepen. Een schoolbreed programma met zowel universele als selectieve componenten biedt leerkrachten in verschillende omstandigheden en contexten (bijv. beginnende leerkrachten, leerkrachten die pesten signaleren, leerkrachten op grote en stedelijke scholen) verschillende handvatten voor een gedifferentieerde aanpak om pesten te voorkomen en te stoppen. Significante reducties in door leeftijdgenoten gerapporteerd slachtofferschap werden gevonden wanneer leerkrachten alle universele programmaonderdelen implementeerden (zie hoofdstuk 5), wat aangeeft dat het belangrijk is om de aanpak op zowel leerlingen als leerkrachten te richten. Pesten blijft echter een complex fenomeen voor leerkrachten en de implementatie van dergelijke programma's is kwetsbaar, wat aangeeft dat een multi-componenten aanpak nog steeds een grote inspanning van leerkrachten vraagt. Op basis van onze bevindingen stellen wij dat basisscholen baat kunnen hebben bij evidence-based antipestprogramma's als inderdaad op adequate wijze gebruik wordt gemaakt van meerdere componenten. Een methodologische uitdaging voor onderzoekers is dat er verschillende meetinstrumenten worden gebruikt in het onderzoek onder leerkrachten, zowel kwalitatieve als kwantitatieve, wat resulteert in verschillende uitkomsten. Toekomstig praktijkgericht evaluatieonderzoek zou zich meer moeten richten op leerkracht- en contextvariabelen die verband houden met de interventiestrategieën van leerkrachten en pesten en slachtofferschap op leerlingniveau, zoals onderwijservaring, geïdentificeerde slachtoffers en schoolkenmerken. Er is ook meer onderzoek

nodig om de leerkracht- en contextvariabelen te ontrafelen die verband houden met de implementatie van verschillende programmaonderdelen. Aangepaste training en een procesgerichte aanpak voor leerkrachten kan nodig zijn, maar dit zal middelen vereisen om scholen hierin te faciliteren. Er ligt een kans voor de leerkrachtenopleiding om vroeg te beginnen met de voorbereiding van beginnende leraren in het omgaan met pesten door hen te leren over evidence-based programma's en veelbelovende strategieën om pesten in de klas te voorkomen en te verminderen en door deze strategieën te oefenen tijdens de opleiding.

Appendices

APPENDIX A. SEARCH TERMS FOR DATABASES

1): bull* OR "peer victim*" OR "relational aggression" NOT workplace NOT associat*

2): school OR "elementary school" OR "middle school" OR "primary education" NOT workplace NOT associat*

3): teacher* OR "school professional" OR "social worker" OR "school psychologist" OR "school counselor" OR "school nurse" OR "school management" NOT workplace NOT associat*

4): intervention* OR program* OR policy OR involvement OR strateg* OR guide OR plan OR training OR procedure OR convention OR implement* OR practice* NOT workplace NOT associate* OR beliefs OR attitude OR assess* OR observ* OR perceive* OR witness* OR notic* OR signal* OR monitor* OR detect* OR manag* OR strateg* OR practices OR respond OR course OR training OR learning OR workshop OR curriculum OR lessons NOT workplace NOT associat*

5): effect* OR impact OR "quasi-experimental design" OR "experimental design" OR RCT OR "randomized controlled trial" OR meta-analysis OR review OR "pretest posttest design" OR "qualitative research design" OR casestud* OR validation OR "evidence-based practice" OR "good practices" OR efficacy NOT workplace NOT associat*

1) AND 2) AND 3) AND 4) AND 5).

APPENDIX B. REFERENCES TO STUDIES INCLUDED IN THE META-ANALYSIS

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APPENDIX C. VIGNETTES (IN DUTCH)

Vignette 1: U loopt door de gang en hoort een leerling bij de kapstok tegen een medeleerling roepen: 'Loser, loser, loser!'. De leerling probeert de opmerkingen te negeren, maar hij blijft sipjes staan. U zag dit onlangs ook gebeuren bij deze leerling.

Vignette 2: In een Whatsapp-groep in de klas worden vervelende berichten verspreid over een bepaalde leerling die zelf niet in de Whatsappgroep zit. U hoort dit van een medeleerling. De leerling die dit overkomt is niet populair in de klas en is daarom ook niet uitgenodigd in de Whatsapp-groep.

Vignette 3: U heeft leerlingen in uw klas de gelegenheid gegeven om vrij te spelen. Eén leerling wil meespelen met een aantal anderen en vraagt of ze mee mag doen. U ziet een medeleerling tegen dit meisje zeggen: 'Nee, ga weg. Ik heb je al gezegd dat je niet met ons mag spelen.' De leerling speelt de resterende tijd alleen. Dit is niet de eerste keer dat deze leerling niet mee mag spelen. U heeft het idee dat andere leerlingen haar gedrag irritant vinden en dat ze daarom geen zin hebben om met haar te spelen.

Vignette 4: Wanneer uw leerlingen terugkomen van de gymles ziet u een leerling een andere leerling schoppen en duwen. Hij schopt of duwt deze leerling wel vaker. De geschopte leerling reageert boos en loopt weg.

Vignette 5: Een leerling heeft een bijnaam gekregen die ze niet leuk vindt. De klasgenoten zeggen tegen haar dat ze het niet zo serieus moet nemen en dat ze alleen maar een grapje maken. Wanneer de leerling door de school loopt roepen de klasgenoten voor de zoveelste keer de bijnaam naar haar.

Vignette 6: Een leerling in de klas speelt graag de baas. De leerling is ook een echte roddeltante en lijkt leerlingen soms tegen elkaar uit te spelen om haar zin te krijgen. U ziet dat zij een medeleerling commandeert om iets voor haar van de grond te pakken.

Vignette 7*: Een leerling in de klas is altijd een beetje alleen. In de pauzes staat hij alleen, hij heeft geen vrienden en wordt nooit uitgenodigd op verjaardagsfeestjes. Hij vindt het lastig om aansluiting te maken bij andere kinderen en lijkt er ook geen moeite meer voor te doen.

Vignette 8*: Een leerling noemt een meisje met een hoofddoek regelmatig 'terrorist'. Ook maakt hij grapjes over haar wanneer er iets over terrorisme in het nieuws is geweest. U krijgt dit vaker te horen van enkele meiden uit de klas.

*Ontwikkeld door het onderzoeksteam.

APPENDIX D. SELF-DEVELOPED ITEMS

Preventieve strategieën	
1.	Ik heb in de afgelopen drie maanden gepraat met leerlingen over hun verantwoordelijkheid om in te grijpen bij pesten.
2.	Ik heb in de afgelopen drie maanden leerlingen geactiveerd om gepeste leerlingen te helpen.
3.	Ik heb in de afgelopen drie maanden een klassengesprek gevoerd over pesten.
4.	Ik heb in de afgelopen drie maanden actief een norm tegen pesten aan de orde gesteld in de klas.
5.	Ik heb in de afgelopen drie maanden leerlingen weerbaarheidsstrategieën aangeleerd (o.a., rustig reageren, zelfverzekerde houding hebben)

Curatieve strategieën	
1.	Ik heb in de afgelopen drie maanden pesten kunnen stoppen of verminderen.
2.	Ik heb in de afgelopen drie maanden actie ondernomen om pesten te stoppen.
3.	Ik heb in de afgelopen drie maanden ondersteuning gegeven aan gepeste leerlingen.
4.	Ik heb in de afgelopen drie maanden een gesprek gevoerd met een gepeste leerling.
5.	Ik heb in de afgelopen drie maanden een gesprek gevoerd met een pestende leerling.

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Author contributions

CHAPTER 2

van Verseveld, M. D. A., Fukkink, R. G., Fekkes, M., & Oostdam, R. J. (2019). Effects of antibullying programs on teachers' interventions in bullying situations. A meta-analysis. *Psychology in the School, 56*, 1–18. https://doi.org/10.1002/pits.22283

As the first author, Marloes van Verseveld reviewed the literature, designed a coding scheme, selected and coded the studies, conducted the statistical analysis, and drafted various versions of the paper. The research team further consisted of Ruben Fukkink, Minne Fekkes, and Ron Oostdam in their role of supervisors. The research team jointly conceptualized and designed the study. Minne Fekkes aided in selecting the search terms and the eligible studies and coded half of the included studies. Ruben Fukkink also coded half of the included studies and assisted with the statistical analysis. The double coded studies were discussed together with the first author, resulting in all included studies' final codes. The supervisors reviewed the manuscript, provided feedback, and have approved the final paper.

CHAPTER 3

van Verseveld, M. D. A., Fekkes, M., Fukkink, R. G., & Oostdam, R. K. (2021). Teachers' experiences with difficult bullying situations in the school: An explorative study. *Journal of Early Adolescence, 41(*1), 43-69. https://doi.org/10.1177/0272431620939193

Marloes van Verseveld reviewed the literature, developed the topic list, collected and analyzed the data, and drafted various versions of the paper. Minne Fekkes, Ruben Fukkink, and Ron Oostdam supervised this study and assisted in the study's conceptualization. Minne Fekkes helped design the study and develop the topic list. The supervisors reviewed the paper, provided feedback on various versions of the paper, and approved the final version.

CHAPTER 4

van Verseveld, M. D. A., Fukkink, R. G., Fekkes, M., & Oostdam, R. J. 2021). Predictors of teacher intervention and the effects of implementing PRIMA Antibullying program components. *Submitted for publication.*

Marloes van Verseveld reviewed the literature, developed the measurements, collected and analyzed the data, and drafted various versions of the paper. Throughout this process, Ruben Fukkink, Minne Fekkes, and Ron Oostdam supervised this study and helped to conceptualize the study by discussing the design and data analysis. Minne Fekkes helped design the RCT-study design on which this paper is based and assisted in developing the measurements. Ruben Fukkink contributed to the literature review and supported the statistical analysis. All supervisors provided feedback on various versions of the paper and approved the final version.

CHAPTER 5

van Verseveld, M. D. A., Fekkes, M., Fukkink, R. G., & Oostdam, R. J. (2021). Effects of implementing multiple components in a school-wide antibullying program: A randomized controlled trial in elementary schools. *Child Development,* 1-19. (Early review) https://doi.org/10.1111/cdev.13529

Marloes van Verseveld reviewed the literature, developed the measurements, collected and analyzed the data, and wrote various versions of the paper. The research team further consisted of Minne Fekkes, Ruben Fukkink, and Ron Oostdam. They supervised this study and assisted in conceptualizing the study by discussing the design and data analysis. Minne Fekkes helped design the RCT-study on which this paper is based and aided in developing the measurements. Minne Fekkes and Ruben Fukkink supported the statistical analysis. All authors provided feedback on various versions of the paper and approved the final version.

Curriculum Vitae

Marloes van Verseveld (Groningen, 1988) studied Pedagogical Sciences at the Utrecht University from 2007-2011. She graduated with a minor in Cultural Diversity and wrote her bachelor thesis about schoolteachers' and sports coaches' views and practices on peer aggression and victimization, supervised by prof. dr. Paul Baar. The following year, she obtained her Master of Science degree in Youth, Education, and Society (cum laude) and wrote her master thesis on a practice-based research project on the relation between parenting and the social networks of mothers with a Moroccan background, supervised by prof. dr. Mariette de Haan at the Faculty of Social and Behavioral Sciences at the Utrecht University. She enjoyed doing research and took up a position as a research assistant in the same research group. In 2014, she started as a junior researcher at the Centre for Applied Research in Education at the Amsterdam University of Applied Sciences. Between 2015 and 2021, she worked on the Raak-Pro research project, which resulted in this dissertation, and worked on several other research projects and research proposals related to youth, health, and education. The research team received the NRO Connection Prize 2020 for Elementary Education and the second prize in the Amsterdam University of Applied Science's Research of the Year 2021 election for the Raak-Pro research project's social impact. Furthermore, she provided guest lectures about bullying prevention in elementary schools and supervised bachelor and master students as a teacher at the Amsterdam University of Applied Sciences and the University of Amsterdam. She is currently still working as a lecturer-researcher at the Centre for Applied Research in Education of the Amsterdam University of Applied Sciences in pedagogy.

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