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

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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; Frisé 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 consist 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 ($M_{\text{age}} = 41.3$ 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 ($M_{\text{age}} = 44.9$ years) than teachers in control schools ($M_{\text{age}} = 38.7$ 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, $\chi^2(8) = 5.65$, $p = .687$; $\chi^2(2) = 1.75$, $p = .416$. 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*

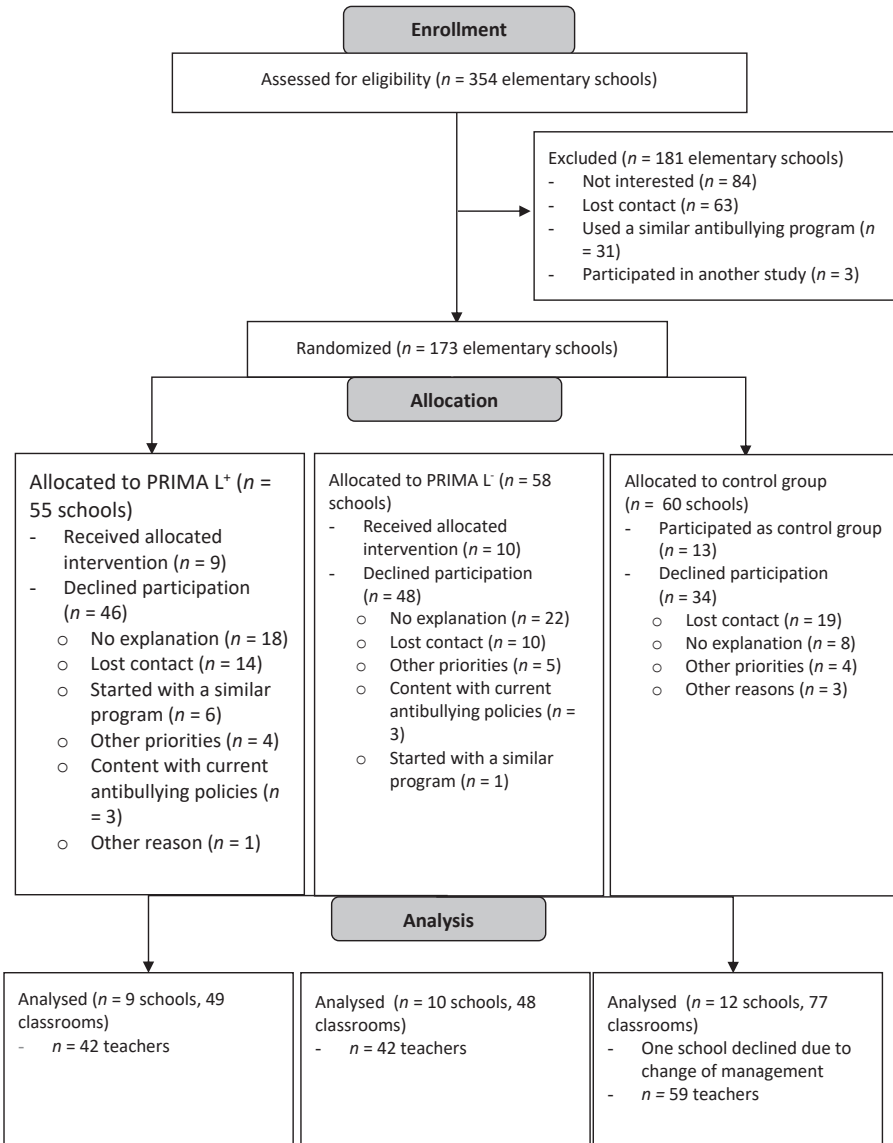


Figure 1. Flow chart of school enrollment in the study.

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 km²) 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. ^aN = 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

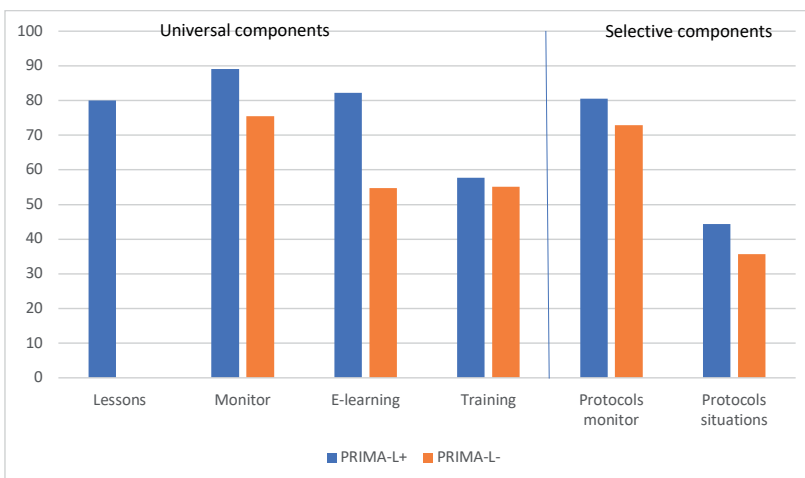


Figure 2. Percentage of Teachers (N = 94) who Implemented a Component. Note. Only PRIMA-L+ teachers received student lessons.

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

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, $\beta = 0.37$, $p < .001$, 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**

^aThe 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, $\beta = -0.37$, $p = .006$, and $\beta = -0.40$, $p = .001$, 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, $\beta_{\text{e-learning}} = 0.27$, $p = .022$, $\beta_{\text{training}} = 0.33$, $p = .005$, 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.