



Understanding Teachers' Likelihood of Intervention in Bullying Situations: Testing the Theory of Planned Behavior

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Abstract

Despite the expanding body of research on school bullying and interventions, knowledge of what makes teachers intervene in bullying situations remains limited. Based on the Theory of Planned Behavior, a theoretical framework that combined the predictive elements contributing to teachers' likelihood of intervening was tested empirically. The model used teachers' characteristics and behavior as predictors of their tendencies to identify, prevent, and reduce bullying. Survey data of 114 primary school teachers ($M_{age} = 42$ years, 87% female, 10 schools) and 66 secondary school teachers ($M_{age} = 40$ years, 44% female, 5 schools) were analyzed using multilevel regression models. Teachers' attitudes (including perceived seriousness of bullying) and behavioral control (including attribution styles) were related to teachers' likelihood of intervening in six hypothetical bullying situations. Two other main elements of the Theory of Planned Behavior (subjective norms, as measured with perceived collegial support) and the additional element of knowledge (about the distinguishing characteristics of bullying) were unrelated to the likelihood of intervention. These findings emphasize the importance of teachers' attitudes and attribution styles to the likelihood of intervention. These can be emphasized in teacher training and anti-bullying programs to empower teachers more systematically.

Keywords Teachers' anti-bullying interventions · Anti-bullying attitudes · Behavioral control · Theory of planned behavior

Introduction

Teachers play a vital role in tackling school bullying, including through the implementation of anti-bullying interventions (De Luca et al., 2019; van Aalst et al., 2022). There is limited knowledge, however, of what affects teachers' likelihood of intervening in bullying. In the current study, we aimed to fill this gap by empirically testing a conceptual framework (van Aalst et al., 2022) based on the Theory of Planned Behavior (Ajzen, 1991, 2012) that combined all potential elements contributing to teachers' likelihood of intervening in hypothetical bullying situations: teachers' anti-bullying attitudes, behavioral control, subjective norms, and knowledge about bullying. Where previous empirical studies have tested only a part of the

framework, the novelty of our study lies in its simultaneous testing of these main elements as predictors of teachers' intervention behavior.

Theory of Planned Behavior Explaining Intervening in Bullying Situations

The conceptual framework (van Aalst et al., 2022) was based on a systematic literature review and consisted of three elements that guide human behavior: 1) teachers' attitudes toward behavior (here: anti-bullying attitudes), 2) behavioral control (e.g., teachers' self-efficacy and attribution styles), and 3) the perceived subjective norms of important others (e.g., colleagues, principal). Teachers' attitudes, behavioral control, and subjective norms may influence their likelihood of intervening in bullying situations, resulting, according to the model, in specific strategies to prevent or tackle bullying (e.g., disciplining the bully, working with the group, or ignoring the incident).

The first element, attitudes, refers to teachers' attitudes toward bullying: the extent to which they empathize with the victim, and how seriously they take bullying incidents.

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Prior research has found a higher likelihood of intervention among teachers with a more negative attitude toward bullying, teachers with more empathy for victims, and teachers who took bullying more seriously (Dedousis-Wallace et al., 2014).

For the second element, behavioral control, in order to take action, teachers should feel able to control their behavior and to change something about the bullying situation or to prevent future bullying. Research findings are mixed for the relation between teachers' self-efficacy and intervening in bullying. Some studies found that four percent of the variance in teachers' likelihood of intervening could be explained by teachers' self-efficacy related to bullying intervention (Fischer & Bilz, 2019), but others did not find evidence for this relation (Yoon et al., 2016). Other studies focused on the general locus of control, which is the extent to which teachers attribute causes of bullying internally (i.e., within their power) or externally (e.g., owing to student characteristics or contextual factors). Teachers who scored higher on internal attribution were more likely to intervene (Begotti et al., 2017), whereas teachers with higher levels of external attribution had higher victimization rates in their classrooms (Oldenburg et al., 2015).

The third element of the model, subjective norms, refers to teachers' assumptions regarding the norms, behavior, and support of important others. In the school setting, these important others are colleagues and other school staff. Teachers function in a team, working together on the academic and social development of students, often in cooperation with the management, including the principal. If bullying situations are challenging, it is important that teachers do not feel they are responsible for solving the problem by themselves, but that their norms, values, and intervention behaviors are aligned with those of colleagues. Teachers' perceptions of being supported by colleagues and the management appear to be important to their intentions and actual behavior when confronted with bullying situations. For example, staff connectedness and principal support have both been found to be positively related to teachers' self-efficacy (O'Brennan et al., 2014; Skinner et al., 2014), suggesting that feeling supported could affect the likelihood of intervention indirectly. Collegiality, referring to regular interaction, sharing ideas, and creating a common understanding of goals, has been found to be positively related to individual and organizational effectiveness (Durlak & DuPre, 2008; Shah, 2012). In teams with more perceived collegiality, there is a greater willingness to seek and give help (Shah, 2012). Another relevant aspect of perceived support is collective efficacy, which reflects a group's ability to work together to achieve a common goal based on shared beliefs. Receiving more support from the principal or management in terms of leadership and the perception that ideas are heard or acknowledged (shared decision-making), have

been found to contribute positively to teachers' commitment and willingness to implement changes (Geijsel et al., 2001; Meyer et al., 2020). Although general support by teachers and management is not equal to their specific norms for intervening in bullying situations, it is important that teachers feel supported by colleagues when faced with difficult bullying situations, and that their norms and values related to bullying are aligned with those of important others.

The Theory of Planned Behavior model was complemented with a fourth element, knowledge about bullying, referring to awareness of the basic features of bullying: aggressive and harmful behavior, repetition, power imbalance (Olweus, 1993), and goal directedness (Kaufman et al., 2020; Volk et al., 2014). Knowledge was included into the Theory of Planned Behavior framework because in order to intervene in bullying, teachers need to be able to interpret the type of negative behavior first. Distinguishing bullying from other negative behaviors may help teachers in deciding whether and how to intervene. Training teachers in recognizing the key characteristics of bullying may improve their ability to detect bullies and victims, to select suitable strategies to deal with bullying, and to increase their self-perceived ability to intervene (Benítez et al., 2009; Boulton, 2014).

The Current Study

We aimed to test the theoretical framework explaining teachers' likelihood of intervening in bullying. Teachers were provided with six vignettes describing bullying scenarios, and were asked how likely they would be to intervene in each of these situations. The advantage of this approach is that it provides the participating teachers with realistic descriptions of bullying situations, compared with asking them a general question about what they tend to do in case of bullying. Previous research using similar methods to estimate teachers' likelihood of intervening in bullying indicated that teachers' anti-bullying attitudes were associated with their likelihood of intervening (e.g., Dedousis-Wallace et al., 2014; Yoon, 2004). The findings of other studies explained differences in teachers' intervention behavior as depending on the type of bullying or on differences between pre- and in-service teachers (e.g., Begotti et al., 2017; Yoon & Kerber, 2003).

We hypothesized that the likelihood of intervening in bullying situations would be higher for teachers with more anti-bullying attitudes (H1a), with more empathy with the victim (H1b), and who took bullying situations more seriously (H1c). Further, we expected that teachers would be more likely to intervene in bullying when they experienced more behavioral control, which was measured using self-efficacy (H2a) and internal attribution styles, i.e., perceptions of factors within their control (H2b). In addition,

concerning the supportive subjective norms, we expected that teachers' likelihood of intervening in bullying would be higher when they perceived higher levels of collegiality and collective efficacy (H3a) and when they were more positive about the leadership and shared decision-making of the management (H3b). Finally, we expected that likelihood of intervening would be higher for teachers who had more knowledge about bullying (H4), and thus acknowledged its harmful impact, the power imbalance, and its systematic and intentional (goal-directed) nature.

The hypotheses were tested among 114 primary school and 66 secondary school teachers before they received training in an anti-bullying program. We examined what characteristics and behavior of teachers were related to their likelihood of intervening and the strategies they used to tackle bullying. We controlled for teachers' sex, job experience, and personal victimization history. We also took into account whether teachers worked in primary or secondary education. A recent study found that secondary school teachers reported lower scores on different elements representing school culture (van Aalst, 2022). For that reason, we explored whether some of the effects of our Theory of Planned Behavior framework were differently for teachers working in secondary rather than in primary education.

Methods

Procedure and Participants

We used data collected in the Netherlands among primary and secondary school teachers who responded to a survey prior to their training as part of an anti-bullying program at their school. At the beginning of the school year 2019–2020, 46 primary schools started using the KiVa anti-bullying program, training for which occurred during or directly after the summer holidays at 36 of these schools. These 36 schools were asked to participate in the study. Ten schools agreed to participate; the teachers then received an information letter about the teacher study. The teacher questionnaires were sent to the school, distributed, and collected by the contact person. Every teacher received an informed consent letter, a questionnaire, and an envelope to return the questionnaire anonymously. Teachers could opt out at any point during the study or return a blank questionnaire. In total, 193 questionnaires were sent to the schools, of which 136 were filled out by teachers (71%). However, 22 teachers (11%) did not sign the consent form that would allow us to use their information in the study, resulting in 114 primary school teachers being included in the final sample (final response rate 59%; 87.4% female, $M_{age} = 42.29$).

In secondary schools, a pilot study on the development and implementation of a new anti-bullying program called

GRIPP started in the school year 2019–2020. Four secondary schools started the pilot in 2019, and one secondary school started the pilot in 2020. Teachers (mainly home-room teachers), management, and support staff who were involved in the first and second classes were invited to participate prior to the training program (183 total). In total, 92 teachers filled in the questionnaire. However, 26 teachers did not sign the consent form, and therefore only the answers to 66 questionnaires were used in the analyses (response rate of 36%, 43.5% female, $M_{age} = 40.18$). Both data collections and the questionnaires were approved by the university's Internal Review Board (ECS-190418, ECS-190521).

Measurements

Likelihood of Intervention Teachers' likelihood of intervening in bullying situations was measured using their responses to six hypothetical bullying vignettes, depicting two physical, two verbal, and two relational bullying situations (see Table 3 in Appendix A). The hypothetical vignettes had been used before (Yoon & Bauman, 2014; Yoon et al., 2016), and were adjusted for the Dutch educational setting, including allowing for differences between primary and secondary schools. Teachers responded, using a five-point Likert-type scale (0 = totally disagree, 4 = totally agree), to the statement, "I would intervene in this situation". The scores for the six items were averaged and had adequate reliability ($\alpha = .69$).

Anti-bullying Attitudes We used a six-item scale consisting of common misunderstandings about bullying (Englander, 2020) to measure *teachers' anti-bullying attitudes*. Teachers responded on a five-point Likert-type scale (0 = totally disagree, 4 = totally agree) to items such as, "Children who say they are being bullied are exaggerating". Confirmatory factor analysis indicated that one item did not fit with the other items; this was therefore removed from the final scale. The scores for the five items were reversed and averaged, and had adequate reliability ($\alpha = .65$). A higher score indicated a more negative attitude toward bullying.

Empathy We used a 10-item scale, derived from the Empathy Quotient (EQ) scale (Groen et al., 2015) to measure teachers' *empathy*. Teachers responded, using a five-item Likert-type scale (0 = totally disagree, 4 = totally agree), to items such as, "I find out quickly what someone else prefers to talk about". Four items were excluded after a confirmatory factor analysis, because they were more focused on caring for others or on personal emotions, and did not fit with the other items on the scale. The average of the remaining six items formed a reliable scale ($\alpha = .77$).

Perceived Seriousness of Bullying *Perceived seriousness of bullying* was measured by asking participants to respond to a statement that followed each of the six bullying vignettes (based on Yoon, 2004). Teachers responded on a five-point Likert-type scale (0 = totally disagree, 4 = totally agree) to the statement, "I rate this situation as being serious". The responses to this statement about the six vignettes formed a reliable scale and were averaged ($\alpha = .76$).

Self-efficacy Teachers' *self-efficacy* was measured by asking participants to respond to a statement that followed each of the six bullying vignettes (based on Yoon, 2004). Teachers responded on a five-point Likert-type scale (0 = totally disagree, 4 = totally agree) to the statement, "I find it hard to intervene in a situation like this". The scores for the six answers were reversed and averaged, and formed a reliable scale ($\alpha = .84$).

Internal Attributions We used a 14-item scale derived from the Internal Causal Attribution Scale (Oldenburg et al., 2015; Van Hattum, 1997) to measure a combination of the extent to which teachers attributed the causes of bullying internally, i.e., as being within their own power to prevent or reduce, or externally, i.e., as being caused by students' backgrounds, or behavior or characteristics. Teachers completed the sentence, "If the victimization rate in the classroom is high, this is caused by..." through responses on a five-point Likert-type scale (0 = totally disagree, 4 = totally agree) to items such as, "... the bully coming from a difficult family", or "... the teacher having more important issues to devote attention to". A confirmatory factor analysis showed that all but one item could be combined in one scale based on factor loadings larger than .4. The scores for these thirteen items were all recoded in the same direction (with items on external attributions being reversed) before being averaged, with a higher score reflecting more internal attribution, and formed a reliable scale ($\alpha = .86$).

Collegiality and Collective Efficacy We used an eight-item scale derived from the Organizational Climate Index (Hoy et al., 2002) to measure *collegiality*. Teachers responded on a five-item Likert-type scale (0 = totally disagree, 4 = totally agree) to items such as, "Staff at our school support and help each other". The scores for the eight items formed a reliable scale and were averaged ($\alpha = .78$).

A comparable four-item scale measured *collective efficacy*. Teachers responded on a five-item Likert-type scale (0 = totally disagree, 4 = totally agree) to items such as, "As a team, we are able to create a nice school". The scores for the four items formed a reliable scale and were averaged ($\alpha = .81$).

Leadership and Shared Decision-Making Participants were also asked to respond to statements reflecting perceptions of the school management or principal. We used a six-item scale to measure *leadership*. Teachers responded on a five-item Likert-type scale (0 = totally disagree, 4 = totally agree) to items such as, "The management accepts questions from staff and takes them seriously". The six items formed a reliable scale and were averaged ($\alpha = .85$). *Shared decision-making* was measured using three items. Teachers answered on a five-item Likert-type scale (0 = totally disagree, 4 = totally agree) to items such as, "Our management includes employees in their decision-making". The items were averaged and formed a reliable scale ($\alpha = .71$).

Knowledge About Bullying Knowledge about bullying was assessed by asking teachers the open question, "How would you describe bullying?" Their written answers were transcribed. Three researchers discussed the key words for every aspect of the definition of bullying (bullying being *harmful*, reflecting a *power imbalance*, being *repetitive*, and the bully having the *intention* to achieve status or gain attention on purpose or deliberately) and assigned a score of 0 (not mentioned) or 1 (mentioned) for each aspect. A scoresheet was constructed specifying when an aspect should be counted as mentioned. The researchers discussed the answers until consensus was reached. The scores for the four elements were summed and formed an index for knowledge about bullying.

Control Variables Teachers provided general information, such as their *sex* (female = 1), *educational experience*, referring to the number of years they had worked as a teacher, and personal experience of victimization as a student (Oldenburg et al., 2015). This *victimization history* was assessed using three items: whether teachers were victimized as students in 1) primary school; 2) in secondary school; and 3) after secondary education. Teachers answered on a three-point scale (0 = no, 1 = a little bit, 2 = yes). A dichotomous variable was created where teachers were assigned the score 1 if they answered yes or a little bit for the question about being victimized as a student, and the score 0 if they answered no to all three questions. *School level* was included as a dummy variable to indicate whether teachers worked in primary (0) or secondary education (1).

Statistical Analysis

Missing Data Imputation One primary school teacher did not fill in any item for likelihood of intervening, and was therefore excluded from further analyses, resulting in a sample of 179 teachers. Of these teachers, 48 (26.8%) had missing information on one or more predictor variables. We imputed missing data in order to be able to use

all information. We examined systematic missing patterns through simple *t*-tests. We found that teachers with missing data on the predictor variables did not significantly differ from teachers without missing values, except for shared decision-making, where the likelihood of intervening was higher in respondents with than without missing values on shared decision-making ($M_{missing} = 3.43$; $M_{nonmiss} = 3.24$; $t = 2.23$, $p = .01$). We next used the *mi-impute mvn* command in Stata, applying multivariate normal regression imputation (see for more information: Multiple-Imputation Manual, 2021) to obtain 50 imputed datasets. The final analysis was performed on the pooled data of these datasets, including information on all 179 teachers.

Analytical Strategy We first examined descriptive statistics and correlations. Because of the nested structure of the data, we used multilevel regression models in Mplus Version 8.4 (Muthén & Muthén, 2017), with teachers (level 1) being nested in schools (level 2). We included subscales of the four key elements of the theoretical framework and regressed them on teachers' likelihood of intervening using the dataset with imputed data. The four key elements were tested in separate models 1–4, each model including the subscales belonging to the key elements and the control variables (sex, educational experience, victimization history, primary versus secondary school). In model 5 all subscales were included simultaneously to inspect which of these effects is the most robustly associated with teachers' likelihood of intervening.

We computed first an intercept-only model with variation at all levels (teachers and schools), which serves as a reference model for the explained variance and a test of the model components using the decrease in deviance. The decrease in deviance has approximately a χ^2 distribution with the number of degrees of freedom equal to the added parameters of the model.

In additional analyses, we performed t-tests for all predictor variables to examine main differences between primary and secondary school teachers. Thereafter, interactions of primary or secondary school with each subscale were created and tested separately. In that way, we examined differences between primary and secondary school teachers in the association between a subscale and teachers' likelihood of intervening.

Results

Descriptives and Correlations

Table 1 shows that the likelihood of intervening was high, with an average of 3.27 on a four-point scale, suggesting that most teachers reported that they were likely to intervene in bullying. We performed an additional ANOVA test for sensitivity, to compare teachers' likelihood of intervening in physical, verbal, and relational bullying. The results confirmed findings from previous research (Yoon & Kerber,

Table 1 Descriptive statistics and correlations ($N = 179$)

Variable	Mean	SE	Min	Max	01	02	03	04	05	06	07	08	09	10	11	12	14	15
1. Likelihood of intervening	3.27	0.44	2.00	4.00														
Attitudes																		
2. Anti-bullying attitudes	3.13	0.46	1.60	4.00	.33													
3. Empathy	2.92	0.42	1.50	4.00	.26	.15												
4. Perceived seriousness	3.33	0.44	1.50	4.00	.68	.24	.17											
Behavioral control																		
5. Self-efficacy	2.61	0.79	0.67	4.00	.25	-.11	.13	.02										
6. Internal attributions	1.93	0.36	1.00	3.31	.15	.31	.11	.18	-.05									
Subjective norms																		
7. Collegiality	2.76	0.52	1.25	3.88	.25	.04	.22	.27	.08	.07								
8. Collective efficacy	2.93	0.53	1.00	4.00	.26	-.01	.27	.16	.23	-.02	.62							
9. Leadership	2.79	0.60	0.50	4.00	.29	.10	.23	.29	.06	.03	.44	.49						
10. Shared decision-making	2.32	0.73	0.33	4.00	.20	.07	.11	.23	-.02	.13	.31	.34	.62					
11. Knowledge about bullying	1.61	0.98	0.00	4.00	.15	-.02	.13	.17	-.01	.04	.15	.13	.16	.02				
Control variables																		
12. Sex (1 = female)	0.72	0.45	0.00	1.00	.18	.13	.23	.09	-.09	.12	.23	.10	.12	.14	.12			
14. Educational experience	16.21	11.39	0.00	42.80	.16	-.06	.03	.19	.14	.07	.30	.17	.12	.07	.01	.09		
15. Victimization history	0.31	0.47	0.00	1.00	-.01	-.02	-.06	-.11	-.02	-.07	-.17	-.10	-.05	-.03	-.10	-.28	-.21	
16. Secondary school	0.37	0.48	0.00	1.00	-.18	-.03	-.29	-.26	.09	-.12	-.51	-.31	-.43	-.38	-.24	-.47	-.11	.21

Correlations in **bold** are significantly different from zero with $p < .05$

2003), with teachers being more likely to intervene in physical bullying than in verbal and relational bullying (see Table 4 of Appendix B). Half of the vignettes were situated inside and half outside the school, but no difference was found in teachers' likelihood of intervening based on the location.

Teachers showed high self-reported scores for anti-bullying attitudes ($M=3.13$), empathy ($M=2.92$), and perceived seriousness of the bullying scenarios ($M=3.33$), all on a scale from 0 to 4. All three subscales correlated significantly with teachers' likelihood of intervening: teachers' attitudes ($r=.33$, $p<.001$), empathy ($r=.26$, $p<.001$), and perceived seriousness ($r=.68$, $p<.001$).

With regard to behavioral control, teachers' self-efficacy correlated significantly with their likelihood of intervening ($r=.25$, $p<.001$). The associations for the subscales of subjective norms were all correlated positively with teachers' likelihood of intervening (all r s in the range of .20–.29, $p<.001$). Teacher' scores were low for knowledge about bullying ($M=1.61$), although the standard deviation was high ($SE=0.98$), with teachers varying in their knowledge of what defines bullying. Teachers' knowledge was related to their likelihood of intervening ($r=.15$, $p=.05$).

The final part of Table 1 presents the control variables, showing that 72% of the teachers were female, the teachers had an average working experience of 16 years, and 31% of the teachers experienced victimization themselves as students. Female teachers ($r=.18$, $p=.02$) and experienced teachers ($r=.16$, $p=.03$) were more likely to intervene in any of the six scenarios. Finally, 37% of the teachers worked in secondary education, and they were less likely to intervene in bullying ($M=3.17$, $SE=0.43$) than primary school teachers ($M=3.33$, $SE=0.43$), $t(177)=2.39$, $p=.02$. The additional analyses (see Table 5 in Appendix B) indicated that secondary school teachers also scored significantly lower for empathy with the victim ($t(177)=4.01$, $p<.001$), perceived seriousness of bullying ($t(177)=3.51$, $p<.001$), perceived collegiality ($t(169)=7.77$, $p<.001$), collective efficacy ($t(162)=4.11$, $p<.001$), leadership ($t(151)=5.89$, $p<.001$), shared decision-making ($t(147)=4.94$, $p<.001$), and knowledge about bullying ($t(172)=3.28$, $p<.001$).

Multilevel Regression Models

We first estimated an empty model specifying teachers' likelihood of intervening at the school and teacher levels. The findings showed a variance of likelihood of intervention of $b=.184$, $p<.001$ at the teacher level, and of $b=.005$ ($p<.001$) at the school level, resulting in an intra-class correlation (ICC) of 2.6% (see Hox, 2010 for the formula). The variance in teachers' likelihood of intervening between schools was minor. In the next model, we included all predictor variables and teachers' likelihood of intervening at the teacher level, and controlled for the nested structure by specifying the school as a cluster variable in the model.

Model 1 of Table 2 showed that teachers' anti-bullying attitudes ($b=.15$, $p<.001$) and perceived seriousness ($b=.63$, $p<.001$), but not general empathy, were related to the likelihood of intervening. Model 2 showed significant associations of both teachers' self-efficacy ($b=.15$, $p=.03$) and internal attribution ($b=.14$, $p<.001$) with likelihood of intervening. Model 3 tested the elements of perceived support, and showed a significant association only between perceived leadership and the likelihood of intervening ($b=.14$, $p=.04$). Finally, Model 4 showed that teachers who scored higher for knowledge were also more likely to intervene ($b=.05$, $p=.02$).

Model 5 in Table 2 shows the results of the multilevel regression model with all elements included. Teachers' attitudes ($b=.20$, $p<.001$) and the extent to which they took bullying seriously ($b=.61$, $p<.001$) remained positively related to the likelihood of intervening, in line with H1a and H1c. Teachers' empathy with the victim did not relate significantly with the likelihood of intervening (H1b).

With regard to behavioral control, the positive relation between teachers' internal attribution and their likelihood of intervening remained ($b=.13$, $p<.001$) (H2b); there was no effect for teachers' self-efficacy (H2a).

Teachers' perceptions of colleagues and management being supportive, referring to collegiality, collective efficacy (H3a), and leadership and shared decision-making (H3b), were unrelated to the likelihood of intervening. Additionally, we found no effect for knowledge about bullying (H4). Finally, female teachers ($b=.15$, $p=.005$) were more likely to intervene than male teachers.

Compared with the empty model, Model 5 explained 58.7% ($R^2=[.184-.076]/.184*100$) of the variance in teachers' likelihood of intervening at the teacher level, and had an acceptable goodness of fit (decrease in deviance compared with the intercept-only model = 160.80; $df=14$; $p<.001$).

Additional analyses examined whether there were differences between primary and secondary school teachers in the associations between the predictor variables and teachers' likelihood of intervening. Interactions of the predictor variables with secondary school were only significant for empathy ($b=-.21$, $p=.02$) and internal attribution ($b=-.16$, $p=.02$). The associations of both empathy and internal attribution with likelihood of intervening were weaker for secondary than primary school teachers.

Discussion

The aim of our study was to test a framework based on the Theory of Planned Behavior explaining teachers' likelihood of intervening in bullying (van Aalst et al., 2022). Our findings indicate that elements about teachers themselves were most robustly associated with teacher intervention in six hypothetical bullying scenario's. Specifically, teachers' anti-bullying attitudes, the

Table 2 Multilevel regression, DV: Teachers' Likelihood of Intervening

	Model 1			Model 2			Model 3			Model 4			Model 5		
	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>	<i>b</i>	<i>SE</i>	<i>p</i>
Attitudes															
Attitudes	0.15	0.05	<.01										0.20	0.04	<.001
Empathy scale	0.02	0.04	.59										-0.03	0.05	.52
Seriousness of scenarios	0.63	0.10	<.001										0.61	0.07	<.001
Behavioral Control															
Teachers' self-efficacy				0.15	0.07	.03							-0.03	0.04	.48
Attribution				0.14	0.04	<.01							0.13	0.03	<.01
Subjective Norms															
Collegiality							0.04	0.06	.50				-0.02	0.05	.69
Collective efficacy							0.10	0.06	.12				0.09	0.06	.12
Leadership							0.14	0.07	.04				0.03	0.06	.58
Shared decision-making							0.01	0.05	.82				0.01	0.05	.92
Knowledge															
Knowledge total score										0.05	0.02	.02	0.02	0.02	.46
Control Variables															
Sex (female=1)	0.11	0.08	.15	0.13	0.05	.02	0.15	0.05	<.01	0.12	0.06	.06	0.15	0.05	.01
Educational experience	0.00	0.00	.54	0.00	0.00	.12	0.00	0.00	.16	0.01	0.01	.04	0.00	0.00	.98
Victimization history	0.02	0.04	.64	0.01	0.05	.85	0.00	0.04	.93	0.01	0.05	.87	0.03	0.03	.38
Secondary school	0.04	0.04	.33	-0.11	0.07	.12	0.03	0.10	.73	-0.07	0.07	.31	0.06	0.05	.24
Variance likelihood of intervening	0.09	0.01	<.001	0.16	0.02	<.001	0.16	0.02	<.001	0.18	0.02	<.001	0.08	0.01	<.001
Deviance difference ^a	126.79, <i>df</i> =7			26.48, <i>df</i> =6			26.71, <i>df</i> =8			13.43, <i>df</i> =5			160.80, <i>df</i> =14		

^aDeviance difference with regard to intercept-only model

extent to which they take bullying seriously, and internal attributions were all associated with teacher intervention. Elements that constitute the working environment for teachers were in separate models associated with teacher intervention, but these were no longer related in the full model. These findings suggest that teachers' tendencies to act in bullying situations depend more on teachers' attitudes toward bullying and their attribution styles than on the perceived support from colleagues, the management, and the group's collective efficacy to achieve a common goal.

Many previous studies tested the association of teachers' anti-bullying attitudes and self-efficacy with the likelihood of intervening (see for an overview: van Aalst et al., 2022). The finding that general anti-bullying attitudes and the perceived seriousness of a bullying incident were strongly associated whereas general empathy was not associated with the likelihood of intervening, suggests that condemning bullying is more important than feeling another's emotions. For behavioral control, we found an association between teachers' internal attributions and the likelihood of intervening. This demonstrates that it is important that teachers see it as their task to address bullying and avoid to diffuse the responsibility to colleagues, children, or parents.

The analyses tested directly the association of all key elements of the Theory of Planned Behavior with teacher intervention. It may also be possible that some of the subscales of the elements have indirect mediation effects on the likelihood of intervention. For example, subjective norms were measured using the collegial environment and the perceived support and openness of the management. These elements had no direct relation with the likelihood of intervening, but may have influenced the other elements of the model. For example, a supportive anti-bullying environment in terms of collegiality, collective efficacy and leadership was associated with teachers' perceived seriousness of bullying incidents, which was, in turn, associated with their likelihood of intervening. No direct effects were found for knowledge about bullying, but similar to perceived support, it may indirectly contribute to the likelihood of intervening through changes in attitudes (Strohmeier et al., 2021). Future research with a larger sample is needed to examine such a mediation model.

There were also differences between teachers in primary and secondary schools. The likelihood of intervention in the bullying scenarios was higher for primary school teachers, and primary school teachers rated the scenarios as more serious than did secondary school teachers. Primary school teachers also had more knowledge about bullying, reported greater general empathy, and perceived the support as part of the school culture as more favorable (see also van Aalst et al., 2021). Furthermore, the associations between both empathy and internal attribution with the likelihood of intervening were weaker for secondary than for primary school teachers. These findings may explain why anti-bullying interventions are less effective in secondary schools than in primary schools (Yeager et al., 2015).

Limitations, Strengths, and Directions for Further Research

A strength of this study was that we tested an integrated model, in which we included several elements contributing to teachers' likelihood of intervening. According to the framework, teachers' likelihood of intervening in a bullying situation is an antecedent of their actual intervention behavior (van Aalst et al., 2022). The intention of behavior, in this case teachers' likelihood of intervening in bullying situations, may indicate the motivation to exhibit certain behavior. Previous studies found a mean correlation between intention and actual behavior of .53 (Ajzen, 2012; Sheeran, 2002), and a meta-analysis confirmed the causal relation between intention of behavior and subsequent actual behavior (Webb & Sheeran, 2006). So-called implementation intentions indicate actual behavior more accurately when a person specifies not only what they intend to do but also in which situation (Sheeran, 2002). We aimed to incorporate this in our study through describing specific situations in the bullying vignettes, which might provide a more accurate measure of teachers' likelihood of intervening than simply using general statements. However, we did not include an additional step in the model by incorporating teachers' actual behavior against bullying. An avenue for further research would be to include observational data or self-reports of both teachers and students in order to have a multi-informant measure of actual teacher behavior in bullying situations (Nickerson & Ostrov, 2021; Wang et al., 2015; Zhao et al., 2021).

Despite that our measure of teacher intervening using six vignettes provides more context than a general question on whether teachers would intervene in bullying, it may be less accurate than observational data on teachers' behavior in response to bullying (Yoon, 2004). It is, therefore, unclear to what extent it captures real acts aimed at tackling bullying. A recent study (Fischer et al., 2020) measured teachers' likelihood of intervening by asking teachers to recall a recent bullying situation which they witnessed, and whether they intervened, observed, or ignored that situation. Measuring teachers' likelihood of intervening in this way, together with using vignettes and asking students about their perceptions of teachers' interventions, may provide insight into the validity of these measures.

Subjective norms might also be measured more comprehensively. It is a multicomponent concept, which was measured in this study using reflections on the collegiality and collective efficacy of the team of teachers and the perceived support and openness in terms of shared decision-making of the management. Future studies might measure these norms more directly, by examining perceived norms as evident in teachers' or management's anti-bullying attitudes or behaviors, or the average attitude (prescriptive norms) or behavior (descriptive norms) in a school team (Veenstra & Lodder, 2022). Measuring these norms more explicitly, including norm conformity to norm setters,

might shed more light on how individual teacher behavior is impacted by their environment.

Additional analyses suggested that primary and secondary school teachers differ in their mean levels for all predictor variables, and in some associations between predictor variables and the likelihood of intervening. Future research might therefore take differences between primary and secondary school teachers into account, and collect larger samples of data from both primary and secondary school teachers, in order to contribute to the development of more tailored anti-bullying interventions at both levels of school.

Future researchers could examine differences between schools. Some schools, or teachers, follow anti-bullying programs and have received training in dealing with bullying, while others have not, and it would be relevant to examine the malleability of teachers' attitudes, behavioral control, perceived subjective norms, and knowledge, and the impact of this on the likelihood of intervention.

Our findings show the complexity of relations between various elements that play a role in teachers' likelihood of intervening in bullying. Especially teachers' attitudes, the extent to which they take bullying seriously, and their internal attribution of the causes of bullying were found to be important for their tendency to act; it may be useful to take account of these findings in the implementation of anti-bullying programs and teacher training at schools. However, the perceived effectiveness of teacher interventions differs (e.g., Garandau et al., 2016; Johander et al., 2020). Therefore, anti-bullying programs and teacher training should be accompanied by practical exercises to help teachers exhibit effective intervention behavior.

Appendix A

Table 3 Bullying Vignettes

Scenario 1 Verbal At school	At the coat rack, you hear a student yelling to another student: "Nerd, loser, teacher's pet!". Other students laugh about it. The student tries to ignore it, but sits down at his table, dejected. You've seen this happen to this student before.
Scenario 2 Relational At school	You gave the kids some free time because they worked so hard. You see a few students in a group tell another student, "No, I already told you, you can't join us!" The student is isolated and plays by himself the rest of the time, his eyes full of tears. It's not the first time this has happened.
Scenario 3 Physical At school	You have instructed the children to work on a project in groups of four. As the children sit in their groups, you see a student pushing a fellow student so hard that he falls to the ground. The push was clearly intentional and unprovoked. The child who falls shouts: 'Stop pushing, you always do! Just go away!'
Scenario 4 Relational Outside school	In the classroom, the children talk enthusiastically about a (class) party last weekend. One student, however, looks gloomy. When you ask the student about it later, it turns out that the student was kicked out of the class WhatsApp group by classmates some time ago and therefore didn't know anything about the party last weekend.
Scenario 5 Physical Outside school	In the morning when the class fills up, a child comes toward you, visibly upset. The student tells that yesterday he was chased by classmates after school for the third time, that he was pushed off the bicycle and that his backpack was destroyed. This was also filmed and distributed in an app group.
Scenario 6 Verbal Outside school	Monday morning the atmosphere in the classroom feels tense. When you ask (the children) about it, it turns out that a team including students from your class had a football match over the weekend. One of the children, who is targeted often, accidentally scored an own goal and was ridiculed on Instagram. The incident continues to affect the group, and the child looks scared and defeated.

We made slight adjustments for secondary schools. This version, and Dutch translations, are available upon reasonable request

Appendix B

Table 4 Testing differences between types of vignettes

	<i>M</i>	<i>SD</i>	
Form			$F(2,522)=27.23, p < .001$
Physical	3.50 ^a	0.49	
Verbal	3.21 ^b	0.59	
Relational	3.07 ^b	0.58	
Location			$t(170)=1.41, p = .148$
Inside the school	3.29 ^a	0.46	
Outside the school	3.24 ^a	0.55	

Means in the same row that do not share superscripts differ at $p < .05$ in the Scheffé test.

Table 5 Testing differences between Primary and Secondary School Teachers

	<i>M_{primary}</i>	<i>SE_{primary}</i>	<i>M_{secondary}</i>	<i>SE_{secondary}</i>	<i>t</i>	<i>df</i>	<i>p</i>
Attitude	3.13	0.04	3.11	0.06	0.36	176	.36
Empathy	3.01	0.04	2.76	0.05	4.01	177	<.001
Seriousness	3.41	0.04	3.18	0.06	3.51	177	<.001
Self-efficacy	2.56	0.07	2.71	0.10	1.21	177	.89
Internal attribution	1.96	0.03	1.87	0.04	1.55	176	.06
Collegiality	2.96	0.04	2.41	0.06	7.77	169	<.001
Collective efficacy	3.05	0.04	2.72	0.08	4.11	162	<.001
Leadership	3.00	0.05	2.47	0.09	5.89	151	<.001
Decision-making	2.54	0.07	1.98	0.10	4.94	147	<.001
Knowledge	1.79	0.09	1.30	0.12	3.28	172	<.001

Authors' Contributions D.v.A. designed and executed the study and data analyses, and wrote the paper. G.H. and R.V. assisted in data analysis and collaborated in the writing and editing of the final manuscript.

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Availability of Data and Material The data that support the findings of this study are available from D.v.A and G.H. Upon reasonable request.

Declarations

Ethics Approval The Internal Ethical Committee of Sociology of the University of Groningen has approved the questionnaire and data collection procedures. (Ethics approval number: ECS-190418, ECS-190521).

Consent to Participate Informed consent was obtained from all individual participants included in the study.

Conflicts of Interests The authors declare that they have no conflicts of interest.

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