



Students as victims of bullying by teachers: Longitudinal antecedents and consequences

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Abstract

The longitudinal associations of bullying by teachers with (a) social and academic student characteristics, (b) supportive relationships with peers and adults, and (c) the school context were investigated. Three waves of data were collected over two years among 630 adolescents in Austria (50% girls; 78.8% non-immigrants; mean age = 12.52 years, $SD=0.67$). Controlling for the nested data structure at class level, a series of cross lagged panel models controlling for gender, immigrant status, and age were conducted. Social student characteristics (e.g., high levels of peer victimization and high levels of peer bullying) were concurrent, but not longitudinal risk factors for being bullied by teachers. Academic student characteristics (e.g., low levels of school motivation and low levels of learning interest) were longitudinal risk factors for being bullied by teachers, but high levels of supportive peer relationships and high levels of school bonding were longitudinal protective factors. Low levels of perceived support from adults were both an antecedent and a consequence of teacher bullying. Bullying by teachers should be integrated into bullying prevention programs.

Keywords Bullying by teachers · Teacher bullying · Teacher abuse · Emotional violence by teachers · Cross-lagged panel model · Adolescence · Longitudinal study

1 Introduction

Although school corporal punishment is legally prohibited in two thirds of countries around the world, and emotional abuse and bullying by teachers clearly violates the convention on the rights of the child (United Nations, 1989), a substantial number of students report that they have been punished, abused, harassed, or bullied by their

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teachers in countries all over the world (Gershoff, 2017; Gusfre et al., 2023; Heekes et al., 2022; Scharpf et al., 2023). Bullying by teachers is described as a relational dynamic characterized by hostile intent, power imbalance and repetition (Gusfre et al., 2023). A large body of predominantly concurrent studies has demonstrated that bullying, emotional violence, and corporal punishment by teachers is associated with a multitude of psycho-social and academic difficulties among students (Gusfre et al., 2023; Heekes et al., 2022; Scharpf et al., 2023). However, few theoretical models have been proposed to better understand possible risk and protective factors (e.g., Chen et al., 2023; Nearchou, 2018). Importantly, even if theoretically meaningful and statistically significant, unless models are not tested with longitudinal data (as only done by Brendgen et al., 2006 and Chen et al., 2023), the direction of effects remains unclear.

The present study aims to fill this gap by testing the longitudinal antecedents and consequences of several theoretically meaningful associations with the help of a three-wave longitudinal dataset that has been collected over a period of two years, when youth were between 12 and 14 years old. The associations that are tested in this study are grounded in socio-ecological developmental theorizing (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006), acknowledging the multiple spheres of environmental influence that impact youth development (e.g., individual characteristics, relationships with peers and adults, and the school and cultural context). Several longitudinal associations that were previously found to be concurrently related to bullying by teachers are investigated in the present study, including student characteristics, the absence of protecting relationships, and an unfavorable school environment.

1.1 Student characteristics

On the individual student level, we focused on social and academic characteristics as possible antecedents and consequences of being bullied by teachers. Two systematic reviews have found consistent, positive concurrent associations between involvement in peer bullying (including victimization and perpetration) and bullying and emotional violence by teachers (Gusfre et al., 2023; Scharpf et al., 2023). Likewise, in cross-sectional studies, experiencing emotional violence by teachers is related to lower academic adjustment, including poor school grades (Baier et al., 2019; Kızıltepe et al., 2020), decreased school engagement (Savi Çakar & Uzun, 2021), as well as lower teacher-rated academic potential and a higher intention to leave school without graduating (Delfabbro et al., 2006).

In one of the rare longitudinal studies on this topic conducted in Canada by Brendgen and colleagues (2006, 2007), researchers found that the vast majority (85%) of children did not report any kind of victimization by their elementary school teachers. However, high levels of antisocial behavior and inattention in kindergarten were risk factors for experiencing verbal abuse by the teacher during elementary school. In turn, verbal abuse by the teacher in elementary school was related to subsequent delinquent behavior and academic difficulties in early adolescence (Brendgen et al., 2006). Using a subsequent prospective design spanning 17 years, verbal abuse by the teacher during childhood was positively related to poor perceived academic competence in adolescence, more behavior problems in early adulthood for both boys and

girls, as well as a low probability of having obtained a high school diploma by age 23 years for girls, even when controlling for childhood levels of antisociality, anxiety, school performance, and social preference in the peer group (Brendgen et al., 2007). Thus, externalizing behavior and peer relationship problems may be an important precursor to experiencing negative relationships with teachers at school, including being bullied by them.

Other student characteristics that might be perceived as challenging by teachers are gender and immigrant status. Consistent evidence shows that boys are more often targeted by teachers than girls (Gusfre et al., 2023; Scharpf et al., 2023). Especially teachers holding ethnic prejudice (D'Urso et al., 2023) might be prone to pick on immigrant students. To the best of our knowledge, only one cross-sectional large-scale study conducted in Germany investigated whether the immigrant status of students is a risk factor for being bullied by teachers (Baier et al., 2018). In a large sample of 10,638 ninth grade students a very small positive effect ($r=.07$) was detected indicating that immigrant students were more often targets of bullying by teachers compared to non-immigrants.

Current evidence suggests that bullying by teachers begins when they first perceive some socially or academically challenging student characteristics which they then try to correct through inappropriately aggressive strategies. However, because a bullying dynamic usually unfolds in the context of a specific relationship dynamic over a shorter time span (e.g., within a school year between a student and their teacher), longitudinal data needs to be collected within one or two school years to answer this question. Previous associations between harsh disciplinary strategies and student's gender and immigrant status also need to be included in longitudinal models to understand their possible effects on teacher-student relationship dynamics.

1.2 Protective relationships

Since bullying by teachers occurs when teachers exploit their power to coercively correct, punish or harass them (Gusfre et al., 2023), youth who have supportive relationships with other adults and peers in the school environment might be protected from getting picked on by their teachers. One mechanism that could explain why such a temporal order might exist is that positive relationships might work as a protective shield against bullying by teachers. Well integrated students might not represent "easy" targets for potential perpetrators, mainly because they would be defended by either their parents/caregivers or their peers. However, it is possible that the protective function of positive peer relationships and support by adults differs. For instance, it might be that adult support is more protective than peer relationships, because parents or other adult caregivers have more behavioral options to intervene when bullying by teachers occurs in comparison to peers who might be frightened to be the next targets. In any case, it is necessary to investigate these two types of relationships separately as studies to date do not offer conclusive evidence.

For instance, a German study found that higher perceived social support from peers predicted lower levels of student reported psychological bullying by teachers in a concurrent dataset (Baier et al., 2019). Similarly, a study conducted in Greece showed that a composite of social support from family, friends, school, and com-

munity buffered the negative effect of emotional abuse by teachers on psychological functioning via self-confidence (2018). However, because this model was also tested with a concurrent dataset, it was impossible to examine the direction of effects. Thus, it is unclear whether the presence of social support already prevents the onset of teacher bullying or whether emotional abuse by teachers triggers social support later on. Furthermore, because this study used a composite social support score, it is not clear whether different types of social support (e.g., support offered by peers versus adults) have the same or different associations with being bullied by teachers.

There are at least two arguments to support the assumption that adult support serves a protective role against teacher abuse. First, students who are supported by other adults in and outside the school might be perceived as difficult targets by teachers, because these students could tell other teachers and their parents/caregivers about the bullying. Secondly, students who are supported by adults might have higher levels of psychological functioning, and this could make them less prone to being victims of teacher bullying.

This argument is indirectly supported by a two-wave longitudinal study conducted in Hong Kong (Chen et al., 2023). Secondary school students were surveyed at the beginning and the end of a school year with a nine-month interval. The temporal order of psychological functioning (e.g., depression, anxiety, and somatization) and teacher victimization was investigated with cross-lagged panel models controlling for peer victimization. For both boys and girls, it was shown that lower levels of depression, anxiety, and somatization at the beginning of the school year were a protective factor for victimization by teachers at the end of the school year. However, victimization by teachers at the beginning of the school year did not predict higher levels of depression, anxiety, and somatization at the end of the school year. One explanation of this finding is that high levels of psychological functioning might work as a protective shield for being bullied by teachers, because high levels of psychological functioning might indicate high levels of social integration. However, Chen and colleagues (2023) did not investigate social support in their study and therefore, they were only able to speculate about the meaning of their findings.

There are reasons to assume that supportive relationships are not only activated after the bullying by teachers has already happened, but that supportive relationships could also function as protective factors that prevent the onset of teacher bullying, because it might be too costly for them to pick on socially well integrated targets. Furthermore, it is possible that support by adults and positive peer relations have different longitudinal associations with teacher bullying. Because no study to date investigated these possibilities, the present study is the first that examines whether peer relations and adult support are antecedents and/or consequences of being bullied by teachers.

1.3 School environment

Bullying by teachers does not occur in a vacuum. Instead, it happens more often in schools that are characterized by an overall high level of unsupportive student-teacher relationships (Khoury-Kassabri, 2006). Cross sectional studies show that peer victimization and peer bullying are more likely to occur in classes character-

ized by poor class climate (Stefanek et al., 2011) and that teachers are less likely to respond to bullying perpetrated by students in a school that is characterized by low levels of teacher communication and collaboration (Kollerová et al., 2021). Thus, it is possible that a negative climate longitudinally precedes bullying by teachers, and that bullying by teachers might then contribute to further decreasing the quality of an already negative classroom climate.

Although this process has not yet been investigated with longitudinal data, one study found that US teachers working in schools with higher rates of suspensions reported more perpetration of bullying against students, more witnessing of other teachers' bullying students, and having worked with more bullying colleagues compared to teachers in schools with lower rates of suspensions (Twemlow & Fonagy, 2005). Likewise, Chilean students who perceived that their school had a policy related to reporting bullying based on one's sexual orientation reported hearing teachers or school staff make homophobic comments less frequently compared to students who did not perceive such a policy at their school (Berger et al., 2017). Thus, it is possible that bullying by teachers is enabled in school environments that are characterized by an overall negative climate, while in environments that are characterized by caring relationships the onset of bullying by teachers might already be prevented.

1.4 The Austrian context

Austria is an interesting national context, because bullying by teachers is a pervasive problem although corporal and psychological harassment at school is legally prohibited (Kassis et al., 2013). A nationally representative study comprising 15-year-old students showed that 5% of the girls and 17% of the boys reported that they have been intentionally insulted or hurt by a teacher at least twice a month during the last half year (Strohmeier, Gradinger et al., 2012).

For youth in Austria, compulsory school starts with a child's 6th birthday and lasts nine years. All children are enrolled in primary school for four years (grade 1 to grade 4). Starting in grade 5, students can be enrolled in two different school types, and they are usually grouped according to their academic ability, in either academic or vocational secondary schools. Students attend eight years of academic secondary schools before they are qualified to enter universities. Students attending vocational secondary schools do so for four years before they qualify for either pre-vocational or vocational high schools, which they may attend for one to five years. In vocational secondary schools, students usually have the same peers and homeroom teacher for four years. While the homeroom teacher usually teaches several subjects and meets the students every day, subject teachers usually teach one or two subjects and meet the students once or twice a week. Usually, some subject teachers—but not homeroom teachers - change between grades because of organizational reasons or when subjects change in the timetables.

1.5 The present study

Applying a series of cross-lagged panel models, the temporal order of (a) social and academic characteristics of students, (b) positive peer relationships and adult sup-

port, and (c) class climate and school belonging is investigated. To the best of our knowledge, this is the first longitudinal study on teacher bullying that collected three waves of measurement. Because the existing longitudinal evidence is very limited, the conducted cross-lagged-panel models are exploratory. The three research questions that guided our analyses were:

1. Do social and academic challenges precede and/or follow being bullied by teachers?
2. Do positive peer relations and adult support prevent being bullied by teachers and/or does bullying by teachers interfere with subsequent relationships with peers and/or adults?
3. Does a positive class climate and high levels of school belonging prevent the onset of being bullied by teachers and/or are low levels of class climate and school belonging mainly consequences of being bullied by teachers?

2 Method

2.1 Procedure

The present study used longitudinal data collected as part of a larger study assessing the effectiveness of a life skills programme aimed at preventing the early onset of smoking and drinking behaviour among adolescents (Strohmeier, 2018). In line with the regulations in Austria, the ethical approval to conduct this intervention study was granted by the directorate of education of the federal state where the study was conducted (Upper Austria), decision # B5–14/37–2014. All vocational secondary schools located in Upper Austria were invited to participate in the intervention in the school year 2014/15 with the result that 13 vocational secondary schools volunteered to be part in the intervention group, while five vocational secondary schools volunteered to be part in the project as control group. All grade 7 students enrolled in these schools were invited to participate in the evaluation study ($N=677$). Study participation was voluntary and confidential for schools and students. Active parental and student consent was obtained prior to participation. The parental consent rate was 93% and all students with parental consent also agreed to participate. These students ($N=630$) participated in at least one wave of data collection. Trained research assistants collected the data with an internet-based survey in the school's computer labs in October 2014, June 2015, and June 2016. Thus, time 1 and 2 data were collected at the beginning and at the end of the same academic year when students were in grade 7, while time 3 data was collected at the end of the following academic year when students were in grade 8. To avoid any systematic order effect, items within scales were counterbalanced across participants. All students who were present at the day of data collection and who had active parental consent, participated in the study. The sample comprised 583 adolescents at time 1, 591 adolescents at time 2, and 582 adolescents at time 3. In total, 491 adolescents participated in all three waves of data collection, 117 participated in two waves of data collection, and 22 participated in one

wave of data collection. Descriptive analyses showed that there were no differences in study variables between students who participated in all three waves, in two waves or in just one wave of data collection with ANOVA effect sizes ranging between 0.00 and 0.01 (missing data patterns see Table S1). Moreover, Chi-Square Tests for MCAR were non-significant indicating that missing data were completely at random. Therefore, missing data across the three waves were handled using Full information maximum likelihood (FIML) in Mplus. Thus, information from 630 adolescents were used in the main analyses.

2.2 Participants

In total, 630 adolescents (50% girls) who were 12.52 years ($SD=0.67$) at time 1, from 37 classes and 18 schools participated in at least in one wave of data collection. In total, 78.8% of the adolescents were non-immigrants, 6.8% were first generation immigrants and 14.3% were second generation immigrants with at least one parent born in another country than Austria. Most adolescents (83.6%) spoke German as their first language and were members of the Roman Catholic church (79.5%).

2.3 Measures

2.3.1 Demographic information

Gender, age, country of birth, first language, religious affiliation, and father's and mother's country of birth were measured with multiple-choice items.

2.3.2 Peer victimization

After providing students with a definition of peer victimization, ten items measuring their frequency of experiencing different forms of peer victimization during the last school year were provided (Strohmeier, Gradinger, et al., 2012). The "last school year" was used as temporal reference because wave 1 data were collected one month after the summer break in October, while wave 2 and 3 data were collected in May, e.g., one month before the summer break in Austria. Thus, using this time frame it was our intention that students always think about the last school year (e.g., about grade 6 at wave 1, about grade 7 at wave 2, about grade 8 at wave 3). Peer victimization was defined as follows: "*Sometimes it happens in school that one or more adolescents intentionally hurt or insult another adolescent. It is possible that mean things are being said, that somebody is called names, is given a mean look, is shoved around, is ignored, is excluded from a group, or is otherwise treated unfairly. Sometimes these things happen repeatedly, and it is very difficult for the target to defend him- or herself.*" After providing this definition, students were asked "how often during the last school year did the following things happen to you?" with answers provided on a five-point response scale ranging from 1 (never), 2 (rarely), 3 (sometimes), 4 (often) to 5 (always): (1) hit, (2) shoved around, pushed or kicked, (3) insulted or hurt with mean words, (4) excluded from a group, (5) insulted or hurt because mean rumors were spread about you, (6) threatened by others that they will not like

you anymore if you don't do what they want, (7) threatened by others that they will publish embarrassing photos or videos from you online, (8) insulted or hurt with mean text messages, emails, videos or photos, (9) intentionally excluded from social media (WhatsApp, Facebook, etc.), (10) insulted or hurt, because you speak another first language, you come from another country or you have another religion? The ten-item-peer victimization scale was highly reliable, $\alpha_{t1}=0.90$, $\alpha_{t2}=0.91$; $\alpha_{t3}=0.92$.

2.3.3 Being bullied by teachers

Bullying by teachers was measuring using a single, global item: *How often during the last school year have you been intentionally insulted or hurt by a teacher?* This formulation was used, because it is difficult to directly translate "bullying" into German language and the phrases "hurt and insult" come closest to the meaning (Yanagida et al., 2016). The global, one-item measurement is a common practice in the peer bullying literature and the validity of this approach has been extensively discussed (Solberg & Olweus, 2003). The item was answered with a five-point response scale ranging from 1 (never), 2 (rarely), 3 (sometimes), 4 (often) to 5 (always).

2.3.4 Peer bullying

Students answered ten items about their experiences as a perpetrator of peer bullying during the last school year (Strohmeier, Grading, et al., 2012) on a five-point response scale ranging from 1 (never), 2 (rarely), 3 (sometimes), 4 (often) to 5 (always): (1) hit other students, (2) showed around, pushed or kicked other students, (3) insulted or hurt other students with mean words, (4) excluded other students from a group, (5) insulted or hurt other students by spreading rumors about them, (6) threatened other students by saying that you will not like them anymore if they don't do what you want, (7) threatened other students that you will publish embarrassing photos or videos from them online, (8) insulted or hurt other students with mean text messages, emails, videos or photos, (9) intentionally excluded other students from social media (WhatsApp, Facebook, etc.), (10) insulted or hurt other students, because they speak another first language, come from another country or have another religion than you? The ten-item-peer bullying scale was highly reliable, $\alpha_{t1}=0.89$, $\alpha_{t2}=0.92$; $\alpha_{t3}=0.90$.

2.3.5 School motivation

Three items measured school motivation. "I want to be a good student," "Education is so important that it is worth putting up with things at school I don't like," "I work hard in school." The items were answered with a five-point response scale that ranged from 1 (never), 2 (rarely), 3 (sometimes), 4 (often) to 5 (always). The reliabilities of the three-item-scale were acceptable, $\alpha_{t1}=0.67$, $\alpha_{t2}=0.69$; $\alpha_{t3}=0.71$. Strict measurement invariance (e.g., factor loadings, intercepts and residuals freely estimated but constrained over the three measurement points) could be established for this scale, $\chi^2(33)=92.85$, $p<.01$, $CFI=0.94$, $RMSEA=0.054$, 90% CI [0.041, 0.067] indicating satisfactory construct validity.

2.3.6 Learning interest

Four items taken from Malti et al. (2018) measured learning interest. “I try to learn new things outside of school,” “I want to learn as much as I can whenever I can,” “I like to learn new things,” “I am curious about new ideas.” The items were answered with a five-point response scale that ranged from 1 (never), 2 (rarely), 3 (sometimes), 4 (often) to 5 (always). The reliabilities of the four-item-scale were acceptable, $\alpha_{t1}=0.75$, $\alpha_{t2}=0.73$; $\alpha_{t3}=0.74$. Strict measurement invariance (e.g., factor loadings, intercepts and residuals freely estimated but constrained over the three measurement points) could be established for this scale, $\chi^2(63)=110.85$, $p<.01$, $CFI=0.97$, $RMSEA=0.035$, 90% CI [0.024, 0.045] indicating satisfactory construct validity.

2.3.7 Positive peer relations

Six items from Malti et al. (2018) measured positive peer relations. “It is easy for me to make friends,” “I have friends whom I can trust,” “I am liked by other adolescents.”, “I get along with other adolescents,” “I have friends for whom I am important,” “I get along well with peers.” The items were answered with a five-point response scale that ranged from 1 (never), 2 (rarely), 3 (sometimes), 4 (often) to 5 (always). The reliabilities of the six-item-scale were good, $\alpha_{t1}=0.78$, $\alpha_{t2}=0.82$; $\alpha_{t3}=0.82$. Strict measurement invariance (e.g., factor loadings, intercepts and residuals freely estimated but constrained over the three measurement points) could be established for three parceled indicators of this scale, $\chi^2(33)=124.51$, $p<.01$, $CFI=0.94$, $RMSEA=0.066$, 90% CI [0.054, 0.079] indicating satisfactory construct validity.

2.3.8 Adult support

Six items from Malti et al. (2018) measured adult support. “There are adults I look up to and admire”, “I talk with adults if I have problems”, “I do at least one fun thing with an adult each week.”, “There is at least one adult I can talk to about my problems.”, “Adults are interested in what I have to say.” “Adults ignore me (recoded).” The items were answered with a five-point response scale that ranged from 1 (never), 2 (rarely), 3 (sometimes), 4 (often) to 5 (always). The reliabilities of the six-item-scale were good, $\alpha_{t1}=.72$, $\alpha_{t2}=.75$; $\alpha_{t3}=.77$. Strict measurement invariance (e.g., factor loadings, intercepts and residuals freely estimated but constrained over the three measurement points) could be established for three parceled indicators of this scale, $\chi^2(33)=73.94$, $p<.01$, $CFI=0.97$, $RMSEA=.044$, 90% CI [.031, .058] indicating satisfactory construct validity.

2.3.9 Perceived class climate

Three items from the “community” subscale of the class climate measure LFSK 4–8 (Eder & Mayr, 2000) were used. “In our class pupils work together and help each other,” “In our class being a good community is important to everyone,” “In our class it’s important to everyone to get along well.” The items were answered with a five-point response scale that ranged from 1 (never), 2 (rarely), 3 (sometimes), 4 (often)

to 5 (always). The reliabilities of the three-item-scale were very good, $\alpha_{t1}=0.79$, $\alpha_{t2}=0.87$; $\alpha_{t3}=0.85$. Strict measurement invariance (e.g., factor loadings, intercepts and residuals freely estimated but constrained over the three measurement points) could be established for this scale, $\chi^2(33)=44.70$, $p<.01$, $CFI=0.97$, $RMSEA=0.024$, 90% CI [0.000, 0.040] indicating satisfactory construct validity.

2.3.10 School bonding

Four items taken from Malti et al. (2018) measured school bonding. “Most days I look forward to spending time at school,” “School is an important place to be with my friends,” “I care about my school community,” “I feel like people understand me at my school.” The items were answered with a five-point response scale that ranged from 1 (never), 2 (rarely), 3 (sometimes), 4 (often) to 5 (always). The reliabilities of the four-item-scale were acceptable, $\alpha_{t1}=0.66$, $\alpha_{t2}=0.71$; $\alpha_{t3}=0.72$. Strict measurement invariance (e.g., factor loadings, intercepts and residuals freely estimated but constrained over the three measurement points) could be established for this scale, $\chi^2(63)=144.85$, $p<.01$, $CFI=0.94$, $RMSEA=0.045$, 90% CI [0.036, 0.055] indicating satisfactory construct validity.

2.4 Analytic strategy

To examine the bidirectional associations between being bullied by teachers and the potential antecedents and consequences, a series of three-wave cross-lagged panel models (CLPM) were estimated using Mplus 8.8 (Muthén & Muthén, 1998–2017). Models were estimated controlling for the nested data structure on class level and using the robust maximum likelihood estimation method and the Montecarlo integration. Thus, class was used as level 2 variable in all analyses. We did not also control for school as level 3 variable, because of the small number of schools ($N=18$) and because we controlled for the intervention that took place on school level in all analyses. Manifest variables (e.g., the means of the scales) were used in these models to reduce model complexity. Gender, age, first- and second-generation immigrant status were included as control variables by regressing being bullied by teachers and the potential mechanisms on them at time 1. Intervention effects were controlled by regressing being bullied by teachers and the potential mechanisms on group condition (intervention vs. control) at each time point. Group condition, gender, and first- and second-generation immigrant status were defined as count variables. Second-order autoregressive paths were included in the model (Little, 2013), representing delayed effects across the variables from T1 to T3 (Newsom, 2015). Peer victimization was included in all models to be able to estimate unbiased effects for being bullied by teachers. Because all analyses in the CLPM were exploratory, all possible longitudinal paths were modelled and only the significant paths were reported in the Figures. As there were no model comparisons, the BIC, AIC, and χ^2 test are not reported.

3 Results

3.1 Descriptive statistics

The means and standard deviations of the study variables are displayed in Table 1. Separately for each wave, a 2×3 MANOVA (multivariate analyses of variance) was performed with gender and immigrant status as the independent variables and all study variables as dependent variables. According to multivariate tests, significant differences in study variables depending on gender were found for each wave, whereas the main effect of immigrant status was only significant at waves 2 and 3. The overall effects of the interaction between gender and immigrant status was non-significant. Results of the univariate tests are displayed in Table 1. During all three waves boys reported higher levels of being bullied by teachers compared to girls, while no significant differences were reported between non-immigrants and first- and second-generation immigrants. Boys also reported higher levels of peer victimization and peer bullying in all three waves. Again, no differences were reported based on immigration status.

3.2 Student characteristics

The temporal patterns of four student characteristics (peer victimization, peer bullying, school motivation and learning interest) are displayed in Figs. 1, 2 and 3.

3.2.1 Social challenges

Being bullied by teachers was moderately stable during grade 7 but being bullied by teachers at the end of grade 7 did not predict being bullied by teachers at the end of grade 8. Being bullied by teachers was concurrently associated with higher rates of both peer victimization and peer bullying at all three waves (Fig. 1). No cross-lagged paths were detected between any of the variables. Boys reported higher levels of being bullied by teachers, peer victimization, and peer bullying at wave 1.

3.2.2 Academic challenges

School motivation was moderately stable between wave 1 and wave 2, and between wave 2 and wave 3 (Fig. 2). Younger students reported higher levels of school motivation at wave 1. Significant cross-lagged effects from wave 1 to wave 2 revealed that lower levels of school motivation preceded higher levels of being bullied by teachers and higher levels of peer victimization within grade 7. However, no longitudinal associations were found between wave 2 and wave 3.

Learning interest was also moderately stable between wave 1 and wave 2, and between wave 2 and wave 3 (Fig. 3). As with school motivation, lower levels of learning interest preceded higher levels of being bullied by teachers and higher levels of peer victimization within grade 7, while no longitudinal associations were found across grades. At the end of grade 7 and the end of grade 8, lower levels of learning interest were concurrently associated with higher levels of peer victimization.

Table 1 Gender and immigrant status differences

	Whole Sample N=630	Boys N=315	Girls N=315	<i>F</i> (1,624)	Non-Immigrants N=495	1st Gen. Immigrants N=43	2nd Gen. Immigrants N=90	<i>F</i> (2, 624)
Being Bullied by Teachers T1	1.37 (0.80)	1.50 (0.94)	1.25 (0.62)	11.19**	1.35 (0.78)	1.57 (0.90)	1.45 (0.91)	2.29
Peer Victimization T1	1.41 (0.55)	1.51 (0.63)	1.31 (0.45)	12.79**	1.40 (0.55)	1.42 (0.59)	1.46 (0.59)	0.69
Peer Bullying T1	1.2 (0.52)	1.54 (0.62)	1.29 (0.37)	14.22**	1.41 (0.53)	1.35 (0.54)	1.46 (0.50)	0.53
School Motivation T1	3.82 (0.69)	3.76 (0.67)	3.89 (0.70)	5.08*	3.82 (0.69)	3.73 (0.81)	3.87 (0.65)	0.71
Learning Interest T1	3.77 (0.75)	3.80 (0.70)	3.73 (0.80)	0.01	3.78 (0.75)	3.65 (0.74)	3.75 (0.9)	0.57
Positive Peer Relations T1	4.06 (0.62)	4.05 (0.59)	4.07 (0.66)	3.44	4.07 (0.63)	3.92 (0.66)	4.03 (0.60)	1.44
Adult Support T1	3.72 (0.72)	3.76 (0.69)	3.67 (0.75)	0.52	3.76 (0.70)	3.61 (0.76)	3.52 (0.81)	3.72*
Class Climate T1	3.63 (0.67)	3.61 (0.66)	3.65 (0.67)	1.74	3.66 (0.66)	3.59 (0.68)	3.49 (0.71)	2.47
School Bonding T1	3.80 (0.69)	3.68 (0.66)	3.92 (0.69)	4.64*	3.81 (0.69)	3.68 (0.61)	3.76 (0.70)	1.07
Being Bullied by Teachers T2	1.40 (0.83)	1.52 (0.93)	1.28 (0.69)	11.06**	1.40 (0.83)	1.43 (0.77)	1.37 (0.81)	0.16
Peer Victimization T2	1.43 (0.59)	1.53 (0.67)	1.33 (0.48)	26.37**	1.41 (0.56)	1.52 (0.67)	1.47 (0.70)	2.09
Peer Bullying T2	1.42 (0.57)	1.58 (0.70)	1.26 (0.35)	40.09**	1.40 (0.55)	1.56 (0.79)	1.45 (0.57)	3.66**
School Motivation T2	3.74 (0.73)	3.63 (0.75)	3.85 (0.70)	10.19**	3.75 (0.74)	3.86 (0.82)	3.62 (0.67)	1.80
Learning Interest T2	3.73 (0.71)	3.69 (0.71)	3.78 (0.70)	9.18**	3.78 (0.68)	3.59 (0.82)	3.57 (0.76)	5.01**
Positive Peer Relations T2	4.11 (0.64)	4.06 (0.68)	4.16 (0.59)	5.28*	4.14 (0.62)	4.13 (0.55)	3.95 (0.74)	3.49*
Adult Support T2	3.71 (0.73)	3.69 (0.74)	3.72 (0.72)	1.50	3.76 (0.69)	3.57 (0.88)	3.51 (0.79)	5.16**
Class Climate T2	3.64 (0.68)	3.54 (0.69)	3.74 (0.66)	14.72**	3.68 (0.65)	3.61 (0.77)	3.45 (0.76)	5.37**
School Bonding T2	3.74 (0.73)	3.61 (0.72)	3.87 (0.71)	14.19**	3.80 (0.71)	3.68 (0.76)	3.48 (0.79)	8.18**
Being Bullied by Teachers T3	1.42 (0.83)	1.51 (0.95)	1.32 (0.69)	5.43**	1.40 (0.80)	1.33 (0.72)	1.55 (1.05)	1.29
Peer Victimization T3	1.40 (0.61)	1.48 (0.66)	1.33 (0.54)	5.83**	1.41 (0.60)	1.31 (0.50)	1.41 (0.71)	0.15
Peer Bullying T3	1.44 (0.57)	1.59 (0.66)	1.30 (0.42)	24.86**	1.42 (0.54)	1.46 (0.65)	1.55 (0.69)	2.59
School Motivation T3	3.64 (0.79)	3.47 (0.82)	3.80 (0.72)	21.61**	3.66 (0.77)	3.80 (0.87)	3.43 (0.84)	3.43*
Learning Interest T3	3.68 (0.71)	3.67 (0.72)	3.68 (0.71)	0.87	3.68 (0.70)	3.78 (0.62)	3.57 (0.81)	1.02
Positive Peer Relations T3	4.06 (0.67)	3.95 (0.69)	4.16 (0.64)	4.62*	4.06 (0.69)	4.10 (0.60)	4.00 (0.61)	0.44

Table 1 (continued)

	Whole Sample N=630	Boys N=315	Girls N=315	F(1,624)	Non-Immigrants N=495	1st Gen. Immigrants N=43	2nd Gen. Immigrants N=90	F(2, 624)
Adult Support T3	3.54 (0.78)	3.51 (0.72)	3.58 (0.84)	1.32	3.57 (0.78)	3.48 (0.74)	3.42 (0.79)	1.52
Class Climate T3	3.57 (0.74)	3.44 (0.74)	3.70 (0.72)	12.06**	3.58 (0.75)	3.60 (0.60)	3.49 (0.72)	0.74
School Bonding T3	3.64 (0.78)	3.47 (0.76)	3.81 (0.76)	13.05**	3.69 (0.76)	3.68 (0.87)	3.37 (0.78)	6.09**

Note Answer options of all scales ranged from 1 (never) to 5 (always)

Sample size slightly differs by scales and waves due to missing values

* $p < .05$

** $p < .01$

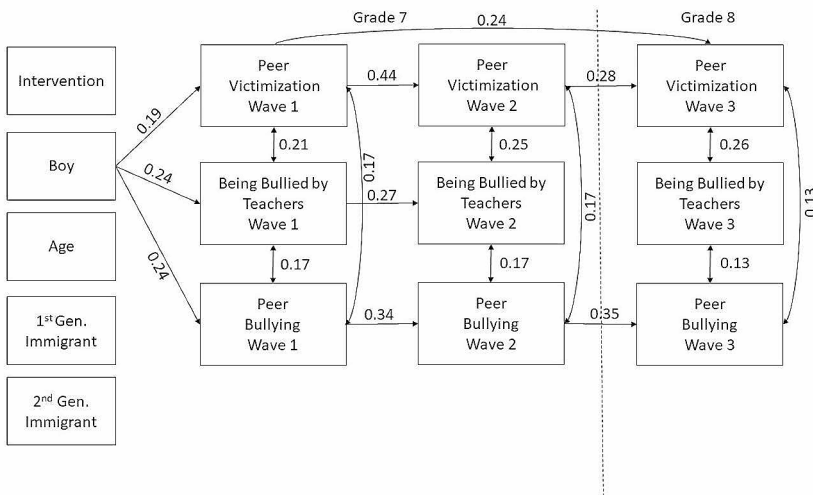


Fig. 1 Associations between being bullied by teachers, peer victimization and peer bullying. Note Unstandardized results of the significant paths are displayed

3.3 Protecting relationships

The temporal patterns of two types of protecting relationships (positive peer relationships and adult support) are displayed in Figs. 4 and 5.

3.3.1 Positive peer relations

Positive peer relations were moderately stable between wave 1 and wave 2, and between wave 2 and wave 3. At all three waves, lower levels of positive peer relations were concurrently associated with higher levels of peer victimization. Similarly, lower levels of positive peer relations preceded higher levels of being bullied by

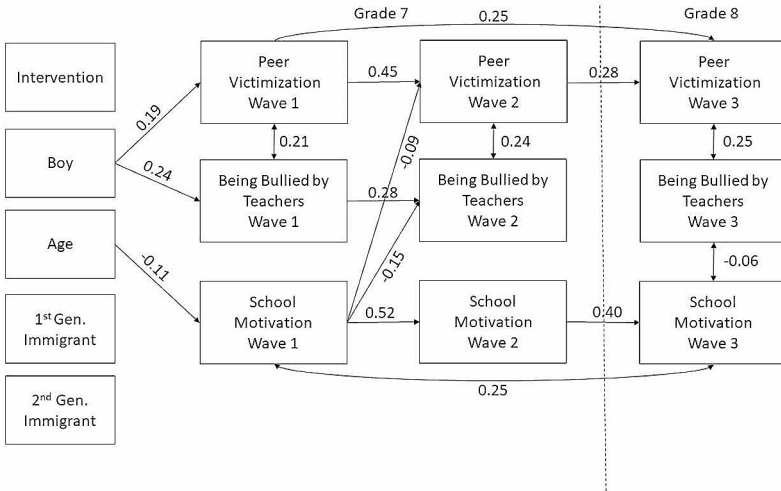


Fig. 2 Longitudinal associations between being bullied by teachers, peer victimization and school motivation. *Note* Unstandardized results of the significant paths are displayed

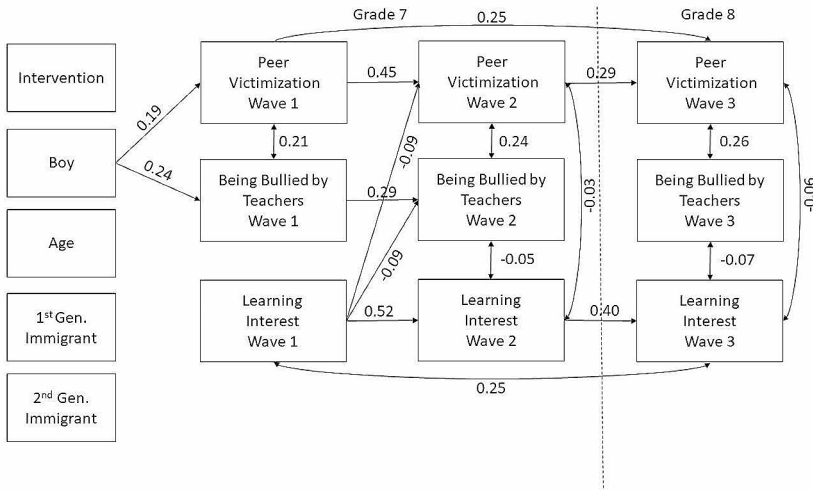


Fig. 3 Longitudinal associations between being bullied by teachers, peer victimization and learning interest. *Note* Unstandardized results of the significant paths are displayed

teachers and higher levels of peer victimization within grade 7, but no differences were found between grades 7 and 8 (Fig. 4).

3.3.2 Adult support

Adult support was moderately stable between wave 1 and wave 2, and between wave 2 and wave 3 (Fig. 5). Lower levels of adult support were concurrently associated

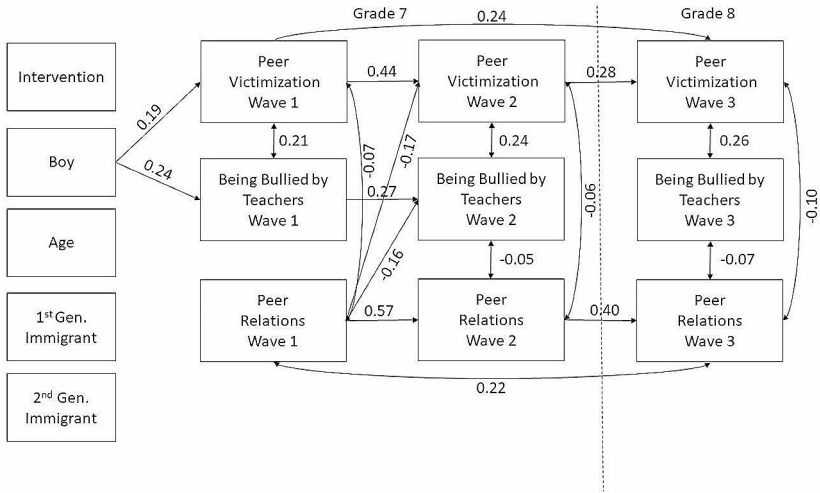


Fig. 4 Longitudinal associations between being bullied by teachers, peer victimization and peer relations. *Note* Unstandardized results of the significant paths are displayed

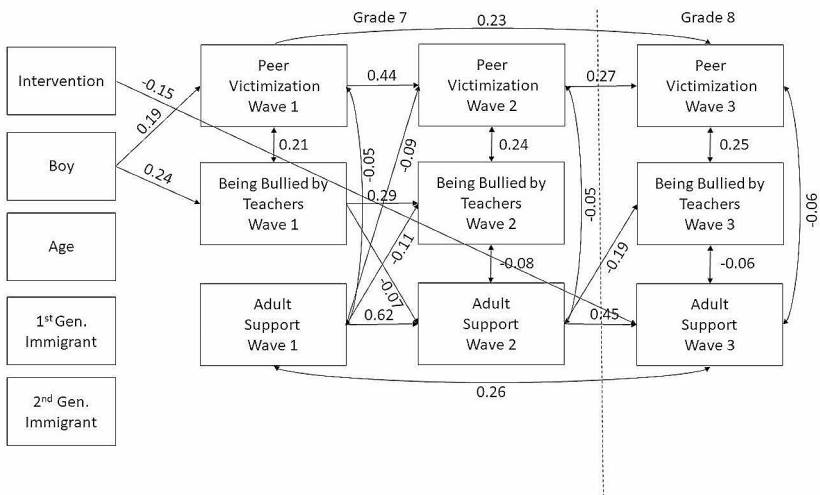


Fig. 5 Longitudinal associations between being bullied by teachers, peer victimization and adult support. *Note* Unstandardized results of the significant paths are displayed

with higher levels of peer victimization at all three waves. Longitudinally, lower adult support preceded higher levels of being bullied by teachers within grade 7, and between the end of grade 7 and the end of grade 8. Within grade 7, higher levels of being bullied by teachers was also an antecedent of lower levels of adult support indicating a transactional pattern. Lower levels of adult support also preceded higher levels of peer victimization within grade 7, suggesting that support from adults impacts the quality of youth's relationships at school with both peers and other adults. The

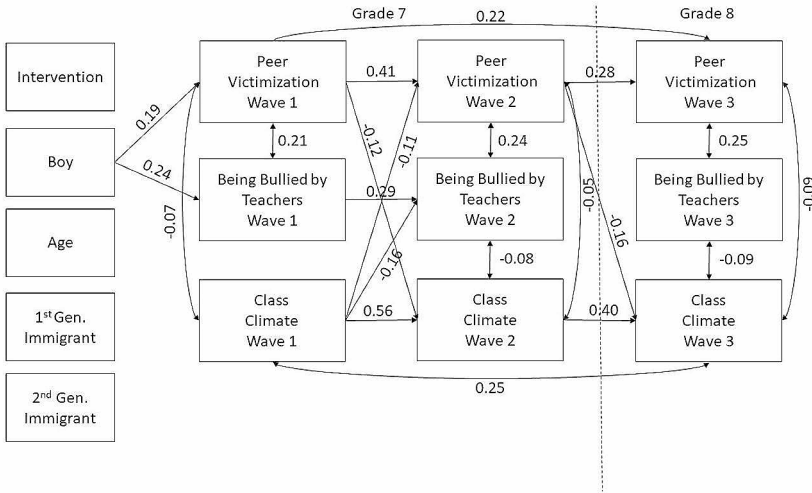


Fig. 6 Longitudinal associations between being bullied by teachers, peer victimization and class climate. *Note* Unstandardized results of the significant paths are displayed

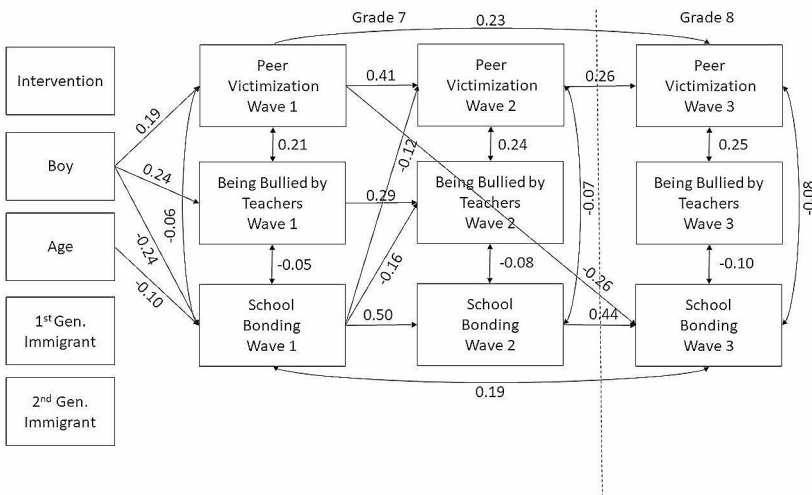


Fig. 7 Longitudinal associations between being bullied by teachers, peer victimization and school bonding. *Note* Unstandardized results of the significant paths are displayed

intervention (not in the focus of this study) had an iatrogenic effect on adult support at wave 3.

3.4 School environment

The temporal patterns of two aspects of school environment (class climate and school bonding) are displayed in Figs. 6 and 7.

3.4.1 Class climate

Class climate was moderately stable between wave 1 and wave 2, and between wave 2 and wave 3 (Fig. 6). Lower levels of class climate were concurrently associated with higher levels of peer victimization at all three waves. Longitudinally, students who perceived a more negative class climate were more likely to report being bullied by teachers and peers in grade 7. Importantly, within grade 7, peer victimization was also an antecedent of less positive perceptions of class climate indicating a transactional pattern. Between the end of grade 7 and the end of grade 8, higher levels of peer victimization predicted fewer positive perceptions of class climate.

3.4.2 School bonding

School bonding was moderately stable across three waves (Fig. 7). Lower levels of school bonding were concurrently associated with higher levels of being bullied by teachers and peer victimization at all three waves. Lower levels of school bonding were antecedents of being bullied by teachers and peers within grade 7. Finally, boys and older adolescents reported lower levels of school bonding compared to girls and younger students.

4 Discussion

Bullying is widely studied in the peer context, but such a dynamic can also unfold between teachers and their students, when teachers exploit their power to coercively correct, punish or otherwise harass them (Gusfre et al., 2023). Being bullied by teachers does not mean to be the target of just one mean or aggressive act but represents a relational dynamic that unfolds over a longer time span and therefore is characterized by repetition. A characteristic of a bullying dynamic is that perpetrators do not pick their targets randomly, but that certain characteristics put some targets more at risk to get bullied than others. Furthermore, bullying does not occur in a social vacuum, but it is enabled by the absence of protective relationships and a negative school environment (Strohmeier, Hoffmann, et al., 2012). Extending the existing literature that is mainly comprised of concurrent studies (Gusfre et al., 2023; Scharpf et al., 2023), the current study used three waves of data collected over a period of two years to identify antecedents and consequences of teacher bullying at the individual, relational, and school level.

Bullying by teachers was moderately stable between the beginning and the end of the schoolyear in grade 7 but being bullied by teachers in grade 7 appeared to have no bearing on their relationship with teachers in grade 8. This is in line with the two-wave study conducted in Hong Kong (Chen et al., 2023) that reported a similar level of within schoolyear stability. The instability of teacher bullying between grade 7 and 8 could be caused by several mechanisms. For instance, it is possible that some subject teachers have changed between grade 7 and 8, and therefore victims of teacher bullying were able to escape the harassment. Another explanation could be associated with the school transition that occurs at the end

of grade 8 in Austria. It is possible that teachers stop bullying their victims by the end of grade 8 because these students are leaving the school soon, and therefore teachers lose the motivation to punish or correct them. It is also possible that teachers are exhausted and overburdened with other matters related to their role. More research is needed to better understand these potential mechanisms.

4.1 Student characteristics

It has been discussed in the literature that socially challenging students who are actively or passively involved in peer bullying might be at higher risk to get bullied by their teachers, or that peer victimization and peer bullying might follow from being bullied by teachers (e.g., Gusfre et al., 2023). The present analyses show that peer victimization and peer bullying are indeed associated with being bullied by teachers, but only concurrently. Between grade 7 and grade 8 when students are between 12 and 14 years old, being bullied by teachers was not longitudinally associated with peer victimization and peer bullying, neither as an antecedent nor a consequence. Because social challenges in kindergarten were indeed found to be antecedents of verbal victimization by teachers in elementary school (Brendgen et al., 2006), the present results might only hold for this particular age group and need to be replicated in future studies.

In line with previous studies, being a boy was a risk factor for being bullied by teachers (Gusfre et al., 2023, Scharpf et al., 2023). Future studies could investigate the role of prejudice and morality to better understand the gender gap in teacher bullying (D'Urso et al., 2023). In contrast, the current study results diverged from the only other existing study on this topic (Baier et al., 2018), finding that being a first- or second-generation immigrant was not associated with greater odds of being bullied by teachers compared to non-immigrant youth. In line with studies on peer victimization (e.g., Stefanek et al., 2011) the immigrant status of students does not seem to be a risk factor for being bullied by teachers in Austria.

Having academic challenges, (e.g., low school motivation and low learning interest), preceded being bullied by teachers in grade 7, while no longitudinal associations were detected between the end of grade 7 and the end of grade 8. Thus, academic challenges are both antecedents and not consequences of teacher bullying, at least within grade 7. It is possible that bullying by teachers represents inappropriate and incompetent means to correct and punish unmotivated students, maybe because some teachers don't know or don't use other interpersonal and didactic strategies. It is also possible that students who are not performing well in school, are more sensitive in perceiving their teachers' behavior as intentionally insulting and hurtful. In either case, this is an important topic that should be explored further, especially considering the concurrent associations between teacher bullying and peer victimization that may place social and academically vulnerable students at even greater risk.

4.2 Protective relationships

When a bullying dynamic is going on between a teacher and a student, it is reasonable to assume that positive peer and adult relationships will have different functions. Thus, extending the existing literature (e.g., Nearchou, 2018) these two types of potentially protective relationships were investigated separately. It was found that the presence of many positive peer relations at the beginning of grade 7 was a protective factor for lower levels of bullying by teachers at the end of grade 7. Students who have many friends and who are accepted in their peer group might not represent a typical target for teachers that needs to be punished or corrected. In addition, higher levels of adult support were both an antecedent and a consequence of lower levels of bullying by teachers in grade 7, indicating that supportive relationship with adults in and outside of school is an important protective factor. Importantly, high adult support at the end of grade 7 also predicted lower levels of bullying by teachers at the end of grade 8. Thus, high adult support was the strongest protective factor for reducing the likelihood of being bullied by teachers in the present study. This finding is important, because it also implies that students who are bullied by teachers lack supporting relationships with other adults and these students are in a highly troubling situation. Additional research that attempts to better understand these dynamics is a promising avenue for future studies. It is important to raise awareness among teachers about this issue and to better understand the moral justifications of teachers who bully their students.

4.3 School environment

Low levels of school bonding, (i.e., the perception that school is an important and positive place to spend time), was an antecedent of higher levels of bullying by teachers at the end of grade 7. The same patterns of results were found for perceived class climate. Low levels of perceived class climate at the beginning of grade 7 were antecedents of higher levels of bullying by teachers at the end of grade 7. Thus, in a school environment that is perceived to be negative students are more likely to report being bullied by their teachers. Importantly, and in line with previous studies (e.g., Stefanek et al., 2011), class climate was also the strongest risk factor for being bullied by peers in the present study, as it was both an antecedent and a consequence for peer victimization. Taken together, the present study clearly demonstrates that bullying by teachers is a consequence of a negative school and class environment. Thus, it is possible that teacher bullying might represent a maladaptive response to re-establish power and authority.

4.4 Longitudinal risk and protective factors of peer victimization

We controlled for peer victimization in all cross-lagged panel models to rule out possible confounding effects. Therefore, we are able to compare the longitudinal patterns for peer victimization and being bullied by teachers. For instance, higher levels of academic challenges (e.g., low levels of school motivation and low

levels of learning interest) and higher levels of positive peer relationships and adult support had very similar longitudinal associations and were longitudinal risk factors for both peer victimization and being bullied by teachers between the beginning and the end of grade 7. In contrast, the school environment variables (e.g., class climate and school bonding) had reciprocal negative associations with peer victimization but worked only as risk factors for being bullied by teachers.

4.5 Methodological considerations

Although the present study applied a strong methodology and statistical approach, future studies should not rely on self-assessments only. It is possible that adolescents may have under- or over-reported their experiences due to social desirability. Multi-informant approaches that include the perspectives of students and teachers would have provided a fuller picture and should be included in future studies. Although measuring bullying with one global item is an established practice in the peer bullying literature (Solberg & Olweus, 2003), it is rather uncommon when measuring harassment by teachers because this construct is usually theorized to be multi-dimensional (e.g., Chen et al., 2023; Zıltepe et al., 2020). Also, when measuring bullying by teachers, future studies should ideally use more than one item to increase the reliability and the validity of the measurement (Yanagida et al., 2016).

The three waves of data collection are a strength. Nevertheless, more thoughts should also be spent on the timing of the data collection in future studies. In the present study, waves 1 and 2 were collected at the beginning and at the end of the same school year, while wave 3 was collected at the end of the following school year. The observed stabilities and longitudinal patterns could be related to these measurement points. It is advisable to collect a minimum of two waves within the same school year in future studies to be able to conclusively interpret the longitudinal patterns. Moreover, it is advisable that future studies also take into consideration that teachers might change when collecting data over a period of two or more academic years. It is possible that bullying by teachers was not stable between grade 7 and 8 in the present study, because teachers changed. To rule out this possibility, future studies should collect this information.

Finally, the present study has been conducted in vocational secondary schools only. The choice of this target groups limits the generalizability of the findings. Ideally, future studies should also include academic secondary schools to cover the full spectrum of school types serving this age group. Because the present study looked on the temporal associations of potential risk and protective factors of being bullied by teachers in several separate cross-lagged models, it was not possible to examine even more complex temporal patterns. Future longitudinal studies could examine the complex interplay of potential mediating and/or moderating factors giving rise to bullying by teachers. Such knowledge would be highly informative for prevention and intervention efforts.

4.6 Implications for prevention

There are several important implications for the prevention of teacher bullying. To begin with, bullying by teachers needs to be openly discussed as a societal issue also in countries where the corporal and psychological punishment of students in schools is legally prohibited like it is the case in Austria. As the present study shows, bullying by teachers is an important issue that needs to be integrated in teacher education. It is possible that some teachers use bullying as an inappropriate method to coerce their unmotivated students. These teachers need to learn how to achieve these goals by being a positive authority. The present study also showed that bullying by teachers is evoked in negative school environments. When implementing whole-school anti-bullying programs, teachers also need to be trained in a variety of positive strategies to establish a positive school climate without using coercion or bullying (Strohmeier, Hoffmann, et al., 2012). For example, additional curricula could be embedded in the school's lessons and activities that focus on enhancing the social-emotional skills of staff and students alike, for example by create an emotional grammar suitable for pupils and teachers. At the population level, public policies should focus on monitoring schools, and the actors that comprise them with a view to improving social relations among students and between students and teachers to ensure that schools are safe learning spaces where all students have equal opportunities to thrive.

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Data availability The data is available from the first author upon request.

Declarations

Competing interests The authors report there are no competing interests to declare.

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