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Longitudinal links of negative student–teacher relationships and positive class climate with traditional bullying and cyberbullying perpetration

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Abstract

The current study aimed to investigate whether negative student–teacher relationships and within-class perceptions of the class climate at the individual level, and positive class climates at the classroom level in fifth grade, were associated with traditional bullying and cyberbullying perpetration 1 year later, in sixth grade, in a sample of pre-adolescents. A longitudinal study was conducted with 1318 Swedish students. Data were collected using web-based questionnaires that assessed bullying behaviour, quality of student–teacher relationships and class climate. Negative binomial regression models were used to analyse the associations between the predictors and bullying perpetration, controlling for gender, migration background and previous bullying behaviour. Negative student–teacher relationships in fifth grade were associated with a higher frequency of both traditional bullying and cyberbullying perpetration in sixth grade. A positive classroom climate, measured at the classroom level, was linked to lower levels of both forms of bullying. For traditional bullying, individual perceptions of class climate were also inversely associated with bullying frequency, whereas for cyberbullying, only the classroom-level climate showed a significant effect. Moreover, there was a significant interaction between individual- and classroom-level perceptions

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of class climate, indicating that individual perceptions of classroom climate play a particularly important role in less supportive classroom peer environments. Overall, negative student–teacher relationships increase the risk of bullying perpetration, while a positive class climate acts as a protective factor. These findings underscore the importance of fostering supportive student–teacher relationships and creating a cohesive, respectful class climate to reduce bullying behaviour in schools.

KEYWORDS

bullying, class climate, cyberbullying, pre-adolescents, social–ecological framework, student–teacher relationships

Key insights

What is the main issue that the paper addresses?

This paper examines how negative student–teacher relationships at the individual level and perceptions of class climate, both at the individual and classroom levels, are associated with subsequent traditional bullying and cyberbullying perpetration among Swedish pre-adolescents, using student survey data and a longitudinal, multilevel approach.

What are the main insights that the paper provides?

Negative student–teacher relationships predicted increased perpetration of both traditional bullying and cyberbullying 1 year later, while a positive class climate at the classroom level functioned as a protective factor. Furthermore, students who perceived a more positive class climate than their classmates were less likely to engage in traditional bullying 1 year later.

INTRODUCTION

Bullying among students—defined as repeated aggressive behaviours directed at a student less powerful than those who are enacting the bullying (Olweus, 1993)—is a group phenomenon (Hymel et al., 2015; Salmivalli, 2010), and a damaging social process that harms targeted students (e.g., Badger et al., 2024; Schoeler et al., 2018) and the wider school community (UNESCO, 2024). Traditional bullying refers to repeated physical, verbal or relational aggression that takes place offline. Cyberbullying, in contrast, refers to bullying that takes place online and can be defined as 'a deliberate and repeated aggressive act intentionally performed by an individual or a group, using electronic forms of contact (e.g., computers and smartphones) against an individual who cannot easily defend himself or herself' (Chan & Wong, 2019, p. 5). Given the correlation or overlap between traditional

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bullying and cyberbullying among students (Baldry et al., 2016; Camacho et al., 2023), cyberbullying may be considered an additional arena in which bullying can occur. Camacho et al. (2023) explain this overlap by referencing the role continuity hypothesis and co-construction theory.

According to the role continuity hypothesis, traditional bullying at school continues and is extended into the online environment in the form of cyberbullying (Baldry et al., 2016). The co-construction theory posits that students shape their digital social interactions in much the same way as they do within offline environments (Subrahmanyam et al., 2006). It is therefore plausible to expect that factors within the school context that predict traditional bullying perpetration may also predict cyberbullying perpetration among students. However, due to differences between these two forms of bullying—for example, cyberbullying often occurs outside of school and thus at a greater distance from teachers and other members of the classroom peer ecology—this assumption cannot simply be taken for granted but must be empirically examined. For this reason, both traditional school bullying perpetration and cyberbullying perpetration between students from the same school were investigated in this study.

Theoretical considerations

While influenced by individual characteristics and interactions, bullying also extends to broader dynamics within the school environment (Azeredo et al., 2015; Hong & Espelage, 2012; Saarento et al., 2015). According to the social–ecological framework (Bronfenbrenner, 1979; Hong & Espelage, 2012), bullying emerges, maintains and changes due to the ongoing and complex interplay between individual and contextual factors. Students' most significant and immediate microsystems within the school environment are their classroom units of peers (school classes) and the teachers they interact with on a daily basis. Building on this perspective, the present study examined whether negative student–teacher relationships and the overall social climate among classmates predict traditional bullying and cyberbullying perpetration 1 year later among pre-adolescents.

Negative student–teacher relationships

Consistent with the social–ecological framework (Bronfenbrenner, 1979), student–teacher relationships are crucial microsystems that influence student behaviour and outcomes in school. Teachers are in a unique position to shape the social climate of the classroom and influence students' interactions with peers (Bouchard & Smith, 2017). Accordingly, higher student–teacher relationship quality has been associated with less bullying perpetration (Bae et al., 2019; Berchiatti et al., 2021; Ertesvåg, 2016; Espelage et al., 2015; Hamel et al., 2021; Košir et al., 2020; Longobardi et al., 2018; Thornberg et al., 2022; Wang et al., 2015). Additionally, student–teacher relationship quality has been linked to students' sense of school belonging or connectedness (Allen et al., 2018). In turn, this sense of school connectedness has been associated with less bullying perpetration, as evidenced by a recent study conducted in Wales (Donaldson et al., 2024).

The quality of student–teacher relationships varies significantly across student–teacher dyads, ranging from positive to negative (Pianta, 2006; Roorda et al., 2011, 2017; ten Bokkel et al., 2022). *Positive* (or close) student–teacher relationships are characterised by warmth, care, responsiveness, open communication, trust and the support teachers provide to students. In contrast, *negative* (or conflictual) student–teacher relationships are marked by

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repeated conflicts, mutual dislike, anger, coercive patterns, dissatisfaction, unfair treatment, rejection and a lack of support (Krause & Smith, 2022; ten Bokkel et al., 2022).

The link between negative student–teacher relationships and bullying is of particular concern. Students who perceive their teachers to be unsupportive, critical or unfair are more likely to mimic these interactions in their relationships with peers and maintain aggression and dominant behaviours (Bandura, 1977; Crick & Dodge, 1996). This dynamic not only increases the likelihood of traditional bullying but also extends to cyberbullying, where anonymity may exacerbate the effects of maladaptive social behaviours.

According to meta-analyses (Krause & Smith, 2022, 2023; ten Bokkel et al., 2022), while more positive student–teacher relationships are associated with less bullying perpetration, more negative student–teacher relationships are linked to higher levels of bullying perpetration. Notably, these analyses further highlighted that the latter association is stronger than the former. Additionally, research on the link between negative student–teacher relationships and bullying perpetration is considerably less prevalent than studies examining the link between positive student–teacher relationships and bullying perpetration (Krause & Smith, 2022, 2023; ten Bokkel et al., 2022). Therefore, in this study, we aimed to investigate the potential connection between negative student–teacher relationships and bullying behaviours in both school and online settings, as negative student–teacher relationships appear to be a worrisome risk factor for bullying perpetration. We expected that higher levels of negative student–teacher relationships predict greater levels of bullying perpetration.

Class climate

In Swedish upper primary schools (Grades 4–6), students typically remain within a consistent group of 15–30 peers, referred to as a *school class* or simply as a *class* (‘*skolklass*’ or ‘*klass*’ in Swedish), throughout all three school years. This arrangement applies either for the entire school day or for the majority of lessons. The prolonged and intensive nature of these class groupings suggests that the collective dynamics and quality of interactions within them may significantly influence various aspects of students' school experiences and their behaviour within the school environment. Therefore, ‘classroom level’ and ‘class level’ are used interchangeably in this study. Previous research has demonstrated that bullying prevalence varies significantly across school classes (Salmivalli et al., 2011; Stefanek et al., 2011; for reviews, see Azeredo et al., 2015; Saarento et al., 2015), highlighting the possibility that the social climate within these class units contributes to the prevalence of bullying among students.

The term *classroom climate* refers to ‘the dynamics of classroom interaction, the relationships in the classroom, and the nature of the learning environment’ (Slee & Skrzypiec, 2016, p. 96). This includes teaching quality, classroom management, classroom rules and routines, and the socio-emotional atmosphere produced by the teacher–student and student–student interaction patterns in the classroom (Erdem & Kaya, 2024; Wang et al., 2020). In contrast, we use the term *class climate* in this study to describe the socio-emotional atmosphere within a school class—specifically, the group of peers organised by the school to be and interact with one another both in classrooms and during recess as part of their everyday school life. In other words, ‘class climate’ can be defined as the social climate of a school class; not only within the classroom but also in other school settings such as the playground, hallways and canteen. In this study, we adopt this definition of class climate, referring to ‘the quality of collective interactions and relationships among students’ (Shim et al., 2013, p. 592) within the same school class (Thornberg et al., 2022).

A *positive* class climate is characterised by friendly, caring, respectful, cohesive and supportive patterns of interaction, exchanges and relationships among classmates. In line with

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the social–ecological framework (Bronfenbrenner, 1979; Hong & Espelage, 2012) and group socialisation theory (Harris, 1995; Hymel et al., 2015), it is reasonable to assume that such a positive and supportive peer environment fosters cooperative and prosocial behaviours while reducing the risk of antisocial behaviours, such as bullying perpetration, among its members.

The social–ecological theory emphasises that a child's development occurs through *proximal processes*—repeated, mutual interactions between the child and their immediate environment (Bronfenbrenner & Morris, 2006). Thus, the classroom peer ecology (i.e., the school class) influences students' social behaviour because it is part of their closest everyday environment, where social norms, relationships and daily interactions continuously shape how students behave towards each other. According to group socialisation theory (Harris, 1995), students tend to become more similar to one another as group members, through interactions within the group such as the school class, gradually aligning their behaviour with group prototypes and norms. Peer groups, including school classes, exert a significant influence on individual behaviour by establishing and enforcing social norms (Hymel et al., 2015; Veenstra & Lodder, 2022). Additionally, social learning theory (Bandura, 1977) posits that individuals learn behaviours by observing and imitating others. In school classes where antisocial, hostile, conflictual and aggressive behaviours are prevalent, classmates may adopt these behaviours through observational learning. This process is further reinforced when bullying actions are seen to result in positive outcomes, such as increased social status or power within the group. In contrast, in school classes where kind, caring, respectful and supportive behaviours predominate, students are likely to model and adopt these behaviours rather than antisocial and aggressive behaviours like bullying.

Despite the conceptual importance of class climate in understanding bullying among students, few studies have explored its relationship with bullying perpetration. An early study by Stefanek et al. (2011) focused on Austrian students aged 11–15 and revealed that a positive, cohesive and supportive class climate was associated with lower rates of bullying perpetration. Similarly, Dietrich and Cohen (2021) examined a large American sample of students in Grades 5–12, finding that positive student–student relationship quality at the class level was linked to less bullying perpetration. Although unable to relate their findings to bullying perpetration, Košir et al. (2020) showed that a supportive class climate was associated with lower bullying victimisation among Slovenian students in Grades 6–9. Thornberg et al. (2022) analysed data from the Swedish Health Behaviour in School-Aged Children (HBSC) survey, which included students aged approximately 11, 13 and 15 years. Their study showed that a more positive class climate was associated with a lower likelihood of being a bully/victim and a reduced probability of being a victim of school bullying. Finally, in a study involving a sample of German adolescents, Fischer et al. (2025) found that a negative class climate—specifically, rivalry between classmates—was associated with a higher likelihood of bullying perpetration.

Only a few studies have examined and demonstrated that belonging to a school class with a more positive class climate reduces the risk of cyberbullying victimisation (Aizenkot & Kashy-Rosenbaum, 2018; Kashy-Rosenbaum & Aizenkot, 2020). However, to our knowledge, no study has investigated the association between class climate at the classroom level and cyberbullying perpetration. At the individual level, research has shown that students who perceive a more positive class climate are less likely to engage in cyberbullying perpetration (Gao et al., 2020; Wang et al., 2021, 2024). Despite these findings, research remains surprisingly limited. To the best of our knowledge, all previous studies examining the relationship between class climate at the classroom level and bullying perpetration have been cross-sectional, which leaves an important gap in understanding how positive class climate may contribute to reductions in bullying perpetration. The present study addresses

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this gap by adopting a longitudinal design to investigate whether a positive class climate predicts a reduction in bullying perpetration over time.

Within-class and between-class variation in class climate perceptions

Previous research has typically operationalised class climate by measuring students' individual perceptions and then aggregating these to the classroom level, thus using the average class climate score for each class to represent between-class differences (e.g., Košir et al., 2020; Stefanek et al., 2011). In some studies, individual scores have not been aggregated but instead treated as individual-level variables, meaning that the variable reflected each student's personal perception of their class climate (e.g., Wang et al., 2024). Relying solely on individual-level data risks conflating individual perceptions with the overall class climate, which fails to accurately represent and analyse a class-level construct and make meaningful comparisons and inferences about school classes as social units. In contrast, a classroom-level variable captures how school classes differ from one another as a whole, reflecting the collective class environment rather than individual perceptions. However, measuring only between-class variation risks missing the nuanced, individual-level experiences that are crucial for understanding class climate.

Therefore, we created and investigated both a within-class variable (an individual-level variable centred around the class mean) and a between-class variable (a classroom-level variable aggregated to the class mean) for class climate, as these two variables capture distinct sources of variation and allow for a more accurate and nuanced analysis of class climate in multilevel models. In this context, the individual-level variable represents how each student's perception of the class climate of their school class deviates from their own class's average. By centring individual scores around the class mean, we isolated the within-class differences—how students in the same classroom experienced the climate differently. This enabled us to understand individual-level effects without conflating them with classroom-level influences. By including both variables, we were able to estimate separately how class climate was related to bullying perpetration at the individual level (e.g., how a student's unique perception of the class climate was associated with their propensity to engage in bullying perpetration) and at the group level (e.g., how the average climate in a school class was associated with the prevalence of bullying perpetration in that class).

While it is plausible to assume, based on previous research, that students in school classes with a more positive climate are less likely to engage in bullying perpetration, it is also reasonable to expect that, within a given class, students who perceive the class climate more positively than their peers would be less inclined to bully others compared to classmates who hold more negative perceptions. This can be understood in terms of *perceived* peer influence. According to social information processing (SIP) models (Crick & Dodge, 1994, 1996), the way students interpret and make sense of social situations and peer-group contexts shapes and guides their behaviour in these situations and contexts.

Furthermore, students are nested within various peer groups in the school class, and those who perceive the class climate as more positive than their classmates on average may be more likely to interact with classmates who exhibit greater prosocial and kind behaviours. Such interactions can further reinforce their positive perceptions of the class climate and promote a kinder and more prosocial behavioural pattern. Conversely, students who belong to and frequently interact with peer groups that engage in more aggressive behaviours may develop a more negative view of their class as a whole. In line with group socialisation theory (Harris, 1995; Hymel et al., 2015), these students may also become more similar and be more likely to engage in aggressive behaviours, such as bullying.

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The current study

The current study aimed to investigate whether negative student–teacher relationships and within-class perceptions of the class climate at the individual level and positive class climate at the classroom level in fifth grade were associated with traditional bullying and cyberbullying perpetration 1 year later in sixth grade, in a sample of pre-adolescents. First, we hypothesised that students with more negative relationships with their teachers will be more likely to engage in both traditional bullying and cyberbullying perpetration 1 year later. Second, we hypothesised that students in classrooms with a more positive average class climate will be less likely to engage in both traditional bullying and cyberbullying perpetration 1 year later. Third, we hypothesised that, within each classroom, students who perceive the class climate as more positive than their classmates will be less likely to engage in traditional bullying and cyberbullying perpetration 1 year later.

Gender and immigrant background at the individual level were included in the study as control variables. Consistent with findings from previous meta-analyses (Cook et al., 2010; Mitsopoulou & Giovazolias, 2015), we hypothesised that male gender would be associated with higher levels of bullying perpetration. In contrast, based on non-significant findings from a previous meta-analysis (Vitotoulis & Vaillancourt, 2018), we hypothesised that immigrant background would not be associated with bullying perpetration. However, immigrant background was included as a control variable to account for any potential effects that might influence the relationship between other variables and bullying perpetration.

METHOD

Participants

This study was conducted as part of a longitudinal project investigating the social and moral factors associated with bullying behaviours among students in Swedish schools. The initial sample included 2448 students in fifth grade who were invited to participate in the study. However, 719 students did not receive parental consent, and 40 were either absent on the day of data collection or chose not to participate. Of the remaining 1689 students, 1345 also completed all the scales in sixth grade. Since our focus was on analysing classroom-level variables related to class climate, we excluded students from five classrooms where the participation rate was below 30%. This resulted in a final sample of 1318 students from 106 classrooms (54% girls, mean age in fifth grade = 11.54, SD = 0.32; mean age in sixth grade = 12.58, SD = 0.34). None of the included students changed classrooms between the two timepoints, ensuring stability in classroom composition for all analyses involving classroom-level variables. It is important to note that participants either completed all items on the scales or did not participate at all—no partial responses were recorded.

For the attrition analyses, we examined whether students who continued from fifth to sixth grade differed from those who dropped out after fifth grade in terms of fifth-grade levels of student–teacher relationship quality, individual perceptions of classroom climate, traditional bullying perpetration and cyberbullying perpetration. Independent *t*-tests revealed that students who dropped out from the study displayed higher levels of traditional bullying ($t = 2.79$, $p = 0.005$, $M_{\text{continuers}} = 1.14$, $M_{\text{dropouts}} = 1.20$, Cohen's $d = 0.19$); cyberbullying ($t = 2.83$, $p = 0.005$, $M_{\text{continuers}} = 1.07$, $M_{\text{dropouts}} = 1.12$, Cohen's $d = 0.19$); negative student–teacher relationships ($t = 2.24$, $p = 0.025$, $M_{\text{continuers}} = 1.72$, $M_{\text{dropouts}} = 1.88$, Cohen's $d = 0.15$) and lower levels of classroom climate ($t = 3.55$, $p < 0.001$, $M_{\text{continuers}} = 5.33$, $M_{\text{dropouts}} = 5.04$, Cohen's $d = 0.24$) in fifth grade. While all differences were significant, they were small in magnitude, with Cohen's *d* values ranging from 0.15 to 0.24. These effect sizes fall well below the

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conventional threshold of 0.30 for a small effect (Cohen, 1988), suggesting that the practical significance of the differences is limited. In large samples, even minor differences can reach statistical significance, and we therefore interpret these findings with caution.

Although we did not collect individual-level socioeconomic data, our study included a diverse student population from a variety of socio-geographic backgrounds. The participating schools were located across 10 municipalities in central and southern Sweden. Three municipalities had populations of fewer than 20,000; four had between 20,000 and 100,000 inhabitants; and three had more than 100,000 inhabitants. One municipality was part of the Stockholm metropolitan area. The schools represented a range of socioeconomic contexts, from lower- to upper-middle socioeconomic status. On average, 56% of students in the participating schools had at least one parent with post-secondary education, although this varied considerably between schools. The percentage of students with at least one parent with post-secondary education ranged from 24% to 88%, indicating substantial heterogeneity in the sample. Additionally, about 18% of students were from an immigrant background, defined as either being born outside Sweden or having both parents born in another country.

Procedure

The study was approved by the Regional Ethical Board of Linköping (Approval Nos. 2015/111–31 and 2015/354–32) in 2015. Data for this study were collected during the 2015/2016 and 2016/2017 school years. School principals and teachers were informed about the research and gave permission for classroom access. Written parental consent and student assent were obtained from all participants. Data were collected via a web-based questionnaire completed on tablets during regular classroom sessions, once in fifth grade and again in sixth grade. In most cases, a member of the research team facilitated the sessions, explaining the procedure and offering assistance. In a few instances, teachers administered the questionnaire after receiving a video tutorial on their role, which involved being passive but available for reading help. In these instances, students were also shown a video on how to complete the questionnaire. Before starting, participants received standardised instructions, were assured of confidentiality and were informed that participation was voluntary and that they could withdraw at any time. Completing the questionnaire took about 20–30 min.

Measures

The questionnaire included 13 scales, five of which were used in this study (presented in the following order): background questions (1); class climate (2); student–teacher relationship quality (3); traditional bullying perpetration (9); and cyberbullying perpetration (10).

Background questions

Participants were asked about their gender (girl/boy), their birth year and month, and whether they and their parents were born in Sweden.

Class climate

Class climate was assessed using a seven-item scale. The scale had previously been used among Swedish students of the same age as a subscale of authoritative classroom climate,

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displaying reasonable psychometric properties (Thornberg, Wänström, & Jungert, 2018). The original 15-item scale introduced the question: 'Regarding your class and your teachers: how much do you agree with this?', followed by eight items designed to measure the degree of their teachers' authoritative teaching style and seven items designed to measure the quality of the class climate. The present study used this later subscale, including items such as 'the students are decent to each other in our class', 'it's a good atmosphere in our class peer group' and 'the students in our class treat each other with respect'. Each student's responses to the seven items were averaged to form an individual-level measure of perceived class climate.

To obtain a classroom-level measure, the mean of all students' class climate scores within each classroom was calculated. To disaggregate within- and between-classroom effects, the individual-level scores were group mean centred prior to analysis. Thus, the same scale was used to operationalise both individual- and classroom-level perceptions of class climate. The unidimensionality of the scale was supported by a confirmatory factor analysis (CFA) model, which was estimated using maximum likelihood with the Satorra–Bentler correction to account for the non-normal distribution of the data, and demonstrated reasonable fit: $\chi^2(14) = 139$, $p < 0.001$, comparative fit index (CFI) = 0.98, root mean square error of approximation (RMSEA) = 0.061, 90% confidence interval (CI) (0.052, 0.072), standardised root mean square residual (SRMR) = 0.017. Cronbach's α was 0.94. This measure was collected during fifth grade and used to predict bullying perpetration in sixth grade.

Negative student–teacher relationship quality

Negative student–teacher relationship quality was assessed using six items from the Student–Teacher Relationship Quality (STRQ) scale, which had been previously used among Swedish students of the same age, displaying reasonable psychometric properties (Forsberg et al., 2024). The scale introduced the question: 'Regarding you and your teachers: How much do you agree with this?', followed by 13 items, six of which specifically targeted negative student–teacher relationships. An initial CFA, in which all six items were loaded onto a single factor, indicated an acceptable fit for most indices; however, the RMSEA value was somewhat elevated (RMSEA = 0.124). Given these results, we re-examined the scale and identified three potential subconstructs within negative student–teacher relationships. The first subconstruct, which we labelled 'conflict', included three items: 'I am often scolded by my teachers'; 'my teachers and I often argue'; and 'my teachers are often angry with me'. The second subconstruct, 'disregard and disapproval', comprised two items: 'my teachers don't care about how I feel' and 'my teachers dislike me'. The final subconstruct, 'unfairness', was represented by the item 'I am often treated unfairly by my teachers'.

We subsequently tested a higher-order CFA model, with negative student–teacher relationship quality as a higher-order factor, and the three subconstructs as first-order factors. This model, estimated using maximum likelihood with the Satorra–Bentler correction to account for the non-normal distribution of the data, demonstrated a reasonable fit: $\chi^2(7) = 30.52$, $p < 0.001$, CFI = 0.983, RMSEA = 0.074, 90% CI (0.049, 0.102), SRMR = 0.026. Cronbach's α was 0.84. To assess potential multicollinearity among the subdimensions of negative student–teacher relationships, we computed variance inflation factors using composite mean scores. All variance inflation factors were below 2, suggesting low levels of multicollinearity between the subscales. This measure was collected during fifth grade and used to predict bullying perpetration in sixth grade.

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Traditional bullying perpetration

Traditional bullying perpetration was assessed using an 11-item scale that had previously been used among Swedish students of the same age, displaying good psychometric properties (Sjögren et al., 2024). Instead of mentioning the word 'bullying' and providing an a priori definition of bullying, which may increase the risks of under-reporting and misconception (see Furlong et al., 2010; Huang & Cornell, 2015; Jia & Mikami, 2018), the students were asked: 'Think of the past 3 months. How often have you done the following things at school to one or more students who are less strong, less popular or less powerful than you are?' The following behavioural items included five physical bullying items (e.g., 'hit or kicked the student to hurt him/her'), three verbal bullying items (e.g., 'teased the student and called him/her mean names') and three relational bullying items (e.g., 'spread mean rumours or lies about him/her'). For each item, the participants responded on a five-point scale: 1 = 'I haven't done this'; 2 = 'only a few times'; 3 = 'two or three times a month'; 4 = 'about once a week'; 5 = 'several times a week'.

Initial analyses indicated that the distribution of responses on the bullying perpetration scale was highly positively skewed and leptokurtic, suggesting significant deviations from normality, both in fifth grade (skewness = 5.80; kurtosis = 59.34; Shapiro–Wilk test, $p < 0.001$) and sixth grade (skewness = 4.59; kurtosis = 40.68; Shapiro–Wilk test, $p < 0.001$). Additionally, tests for heteroscedasticity (Breusch–Pagan test, $p < 0.001$) revealed non-constant variance in the data for both grades. To address non-normality and improve the interpretability of the scale, we constructed a count variable reflecting the number of bullying behaviours for which students reported engaging at a frequency of 'two or three times a month' or more. This cutoff is supported by previous research, which often uses a frequency of 'two or three times a month' to distinguish between occasional and regular involvement in bullying behaviours (e.g., Hellström et al., 2021; Solberg & Olweus, 2003). The resulting count variable was then analysed using negative binomial regression, which is suitable for modelling over-dispersed and skewed count data. To evaluate the factorial validity of the traditional bullying perpetration scale, we conducted CFA using the diagonally weighted least squares (DWLS) estimator, which is suitable for categorical data (DiStefano & Morgan, 2014). Each of the 11 bullying items was recoded into a binary format, with 1 representing a frequency of 'two or three times a month' or more and 0 representing lower frequencies. The results indicated good model fit: $\chi^2(44) = 45.43$, $p = 0.412$, CFI = 1.00, RMSEA = 0.005, 90% CI (0.000, 0.019), SRMR = 0.089. These fit indices suggest that the one-factor model provides a good representation of the data, supporting the unidimensionality of the dichotomised bullying perpetration scale.

Cyberbullying perpetration

Cyberbullying perpetration was assessed using a six-item scale that had previously been used among Swedish students of the same age, displaying good psychometric properties (Wänström & Thornberg, 2023). In line with the scale of traditional perpetration, the scale asked: 'Think of the past 3 months. How often have you done the following things to one or more students who are less strong, less popular or less powerful than you are via mobile phone, computer or tablet? This applies both in school and during your free time.' Then followed six items (e.g., 'written negative or mean things about the person', 'posted or shared pictures or videos of the person even though he/she did not want it'). For each item, the participants responded on a five-point scale: 1 = 'I haven't done this'; 2 = 'only a few times'; 3 = 'two or three times a month'; 4 = 'about once a week'; 5 = 'several times a week'.

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Similar to traditional bullying perpetration, initial analyses of the cyberbullying perpetration scale revealed a highly skewed and leptokurtic distribution suggesting significant deviations from normality (skewness = 6.2; kurtosis = 67.10; Shapiro–Wilk test, $p < 0.001$), along with significant heteroscedasticity (Breusch–Pagan test, $p < 0.001$). Therefore, consistent with our approach to traditional bullying perpetration, we constructed a count variable representing the number of cyberbullying behaviours each student reported engaging in at a frequency of 'two or three times a month' or more. The resulting count variable was then analysed using negative binomial regression. To evaluate the factorial validity of the cyberbullying construct, CFA was conducted using the DWLS estimator. Each item was treated as a binary indicator based on the same frequency threshold. The model confirmed the factorial validity of the dichotomised cyberbullying scale: $\chi^2(9) = 4.36$, $p = 0.886$, CFI = 1.00, RMSEA < 0.000, 90% CI (0.000, 0.015), SRMR = 0.043.

Statistical analyses

All analyses were conducted in RStudio using R version 4.4.1 (R Core Team, 2024). Specifically, we used the *lavaan* package (Rosseel, 2012) for CFA and the *glmmTMB* package (Brooks et al., 2017) for the negative binomial regression models. The negative binomial approach was chosen because the outcome variables (i.e., traditional bullying and cyberbullying perpetration) were highly skewed, with a large number of zeros and few students reporting multiple incidents. Additionally, preliminary diagnostics indicated overdispersion, meaning that the variance exceeded the mean, which violates the assumptions of standard Poisson regression and justifies the use of a negative binomial model (Roback & Legler, 2021). In negative binomial regression, the estimated coefficients represent changes in the logarithm of the expected count of the outcome variable. In the context of the present study, each coefficient reflects the expected log change in the frequency of traditional bullying or cyberbullying perpetration incidents in sixth grade, associated with a one-unit increase in the respective predictor (e.g., negative student–teacher relationships).

We conducted separate negative binomial model analyses for traditional bullying and cyberbullying perpetration. In all analyses, the intercepts were allowed to vary between classes to account for the multilevel nature of the data (i.e., students nested in classrooms). Preliminary intraclass correlation coefficients (ICCs) indicated that 8.7% of the variance in traditional bullying and 25.8% of the variance in cyberbullying perpetration could be attributed to between-classroom differences, further supporting the use of multilevel modelling. The first model tested whether bullying perpetration in sixth grade was predicted by the control variables of gender, immigrant background and fifth-grade levels of bullying perpetration (i.e., traditional bullying in the traditional bullying analysis and cyberbullying in the cyberbullying analysis). The second model added the individual-level variables negative student–teacher relationship quality and individual perceptions of class climate centred within classrooms. In the third model, we also included the classroom-level mean of perceived class climate and an interaction term between the individual-level deviation and the classroom-level mean. This allowed us to test whether the association between students' individual perceptions of class climate and bullying perpetration varied depending on the overall climate of the classroom.

A random slope for the individual-level class climate component was specified to account for potential variability in its effect across classrooms, in line with multilevel modelling recommendations (Heisig & Schaeffer, 2019). We also considered including an additional cross-level interaction between negative student–teacher relationship quality at the individual level and class climate at the classroom level. However, when both cross-level interactions were included in the same model (each with a random slope), the model failed to converge due to estimation problems and a non-positive-definite Hessian matrix. When tested separately, the

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interaction involving student–teacher relationship quality was non-significant and resulted in near-zero random slope variance. Therefore, to ensure model stability and parsimony, only the cross-level interaction between individual-level and classroom-level perceptions of class climate was retained in the final model specification.

RESULTS

Descriptive statistics and correlations

Descriptive statistics for the study variables are presented in Table 1. To provide an overview of the prevalence of bullying perpetration, we calculated the percentage of students who reported at least one incident. Specifically, 8% and 11% of students reported engaging in at least one traditional bullying incident in fifth and sixth grade, respectively, while 3% and 4% reported engaging in at least one cyberbullying incident in fifth and sixth grade, respectively. While these proportions were relatively low, the full distributions were positively skewed, with most students reporting zero incidents and a small number reporting multiple instances. Among those who reported any traditional or cyberbullying, the most common pattern was having engaged in one type of behaviour, followed by two or three types, with fewer students endorsing higher counts. The count distributions were retained in the analyses and modelled using negative binomial regression.

For the continuous predictors, the mean and standard deviation were as follows: negative student–teacher relationship quality had a mean of 1.72 and a standard deviation of 1.04; perceived class climate at the individual level had a mean of 5.35 and a standard deviation of 1.18; and class climate at the classroom level had a mean of 5.30 and a standard deviation of 0.72.

At the individual level, Spearman's rank correlations were calculated to assess the associations between the count-based bullying perpetration variables and the individual-level predictors measured in fifth grade. Negative student–teacher relationship quality was positively correlated with both traditional bullying (fifth grade: $r_s = 0.23$, $p < 0.001$; sixth grade: $r_s = 0.23$, $p < 0.001$) and cyberbullying (fifth grade: $r_s = 0.15$, $p < 0.001$; sixth grade: $r_s = 0.14$, $p < 0.001$). In contrast, individual perceptions of class climate were negatively associated with traditional bullying (fifth grade: $r_s = -0.14$, $p < 0.001$; sixth grade: $r_s = -0.12$, $p < 0.001$) and with cyberbullying in fifth grade ($r_s = -0.11$, $p < 0.001$); the corresponding correlation with cyberbullying in sixth grade was weaker and did not reach

TABLE 1 Percentages (%), means (*M*) and standard deviations (SD) of the study variables.

	%	*M*	SD
Individual-level variables			
1. Gender (girls)	54	—	—
2. Immigrant background	18	—	—
3. Traditional bullying perpetration$_{T1}$	8	—	—
4. Traditional bullying perpetration$_{T2}$	11	—	—
5. Cyberbullying perpetration$_{T1}$	3	—	—
6. Cyberbullying perpetration$_{T2}$	4	—	—
7. Negative student–teacher relationships$_{T1}$	—	1.72	1.04
Classroom-level variable			
8. Class climate$_{T1}$	—	5.30	0.72

Note: $N_{\text{individual-level variables}} = 1318$, $N_{\text{class-level variables}} = 106$; T1 = timepoint 1 (fifth grade), T2 = timepoint 2 (sixth grade).

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statistical significance ($r_s = -0.05$, $p = 0.051$). At the classroom level, Spearman's rank correlations were calculated to examine the associations between perceived class climate in fifth grade and the class-level proportions of students engaging in bullying perpetration. Class climate was negatively associated with traditional bullying perpetration in both fifth grade ($R_s = -0.28$, $p = 0.003$) and sixth grade ($R_s = -0.32$, $p < 0.001$). Similarly, class climate was negatively associated with cyberbullying perpetration in both fifth grade ($R_s = -0.24$, $p = 0.012$) and sixth grade ($R_s = -0.42$, $p < 0.001$).

Regression analyses

We examined predictors of both traditional bullying and cyberbullying perpetration in sixth grade using two separate models (for a summary of the estimates and standard errors, see Table 2). In the first step, we included gender, immigrant background and prior perpetration in fifth grade. For both types of bullying, neither gender nor immigrant background were significant predictors. However, prior perpetration significantly predicted subsequent bullying behaviour (Est. = 0.75, SE = 0.13, $p < 0.001$ for traditional bullying; Est. = 1.00, SE = 0.30, $p = 0.001$ for cyberbullying).

TABLE 2 Estimates and standard errors from negative binomial regression analyses predicting traditional and cyber bullying perpetration in sixth grade.

Effects	Traditional bullying$_{T2}$		Cyberbullying$_{T2}$	
	Est.	SE	Est.	SE
Model 1				
Gender	0.37	0.20	0.32	0.30
Immigrant background	0.38	0.26	0.37	0.37
Bullying$_{T1}$	0.75***	0.13	1.00***	0.30
Model 2				
Gender	0.25	0.20	0.17	0.30
Immigrant background	0.38	0.24	0.36	0.37
Bullying$_{T1}$	0.55***	0.12	0.82*	0.33
Negative student-teacher relationships$_{T1}$	0.40***	0.09	0.39**	0.13
Individual CC$_{T1}$	−0.48***	0.15	0.09	0.14
Model 3				
Gender	0.31	0.20	0.29	0.30
Immigrant background	0.43	0.25	0.54	0.36
Bullying$_{T1}$	0.51***	0.12	0.70*	0.29
Negative student-teacher relationships$_{T1}$	0.39***	0.09	0.28*	0.12
Individual CC$_{T1}$	−0.41***	0.11	−0.29	0.17
Classroom CC$_{T1}$	−0.52***	0.15	−0.92***	0.22
Individual CC$_{T1}$ × Classroom CC$_{T1}$	−0.44***	0.11	−0.42**	0.16

Note: $N = 1318$; Bullying$_{T1}$ = bullying behavior in fifth grade to control for (i.e., traditional bullying in the traditional bullying model and cyberbullying in the cyberbullying model), Individual CC = individual perceptions of class climate, Classroom CC = classroom-level class climate; T1 = time point 1/fifth grade, T2 = time point 2/sixth grade.

*$p < 0.05$.

**$p < 0.01$.

***$p < 0.001$.

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In the second step, we added negative student–teacher relationships and students' individual perceptions of class climate. Prior perpetration remained a significant predictor in both models, and negative student–teacher relationships were also significantly associated with higher levels of both traditional (Est. = 0.40, SE = 0.09, $p < 0.001$) and cyberbullying perpetration (Est. = 0.82, SE = 0.33, $p = 0.002$). Individual perceptions of class climate were significantly negatively related to lower levels of traditional bullying (Est. = −0.48, SE = 0.15, $p < 0.001$) but not to cyberbullying (Est. = 0.09, SE = 0.14, $p = 0.51$).

In the third step, we added class-level class climate and tested a cross-level interaction between individual- and class-level class climate perceptions. For both traditional bullying and cyberbullying perpetration, prior perpetration and negative student–teacher relationships remained significant predictors. Moreover, the class-level class climate was significantly associated with lower perpetration in both cases (Est. = −0.52, SE = 0.15, $p < 0.001$ for traditional; Est. = −0.92, SE = 0.22, $p < 0.001$ for cyberbullying). The cross-level interaction was also significant in both models (Est. = −0.44, SE = 0.11, $p < 0.001$ for traditional; Est. = −0.42, SE = 0.16, $p = 0.007$ for cyberbullying).

Simple slope analyses revealed similar interaction patterns across both outcomes. Among students in classes with a highly positive climate (+1 SD), there was a strong and significant negative association between individual perceptions and perpetration (Est. = −1.01, SE = 0.21, $p < 0.001$ for traditional; Est. = −0.72, SE = 0.29, $p = 0.014$ for cyberbullying). At lower levels of class average climate (−1 SD), the association remained significant for traditional bullying (Est. = −0.24, SE = 0.12, $p = 0.044$) but was not significant for cyberbullying (Est. = 0.13, SE = 0.14, $p = 0.37$). These interactions are illustrated in Figures 1 and 2. This pattern indicates that individual perceptions of classroom climate play a particularly important role in less supportive classroom environments. In classes with a generally negative climate, students who still perceived the climate as positive were substantially less likely to engage in bullying.

DISCUSSION

This study investigated whether negative student–teacher relationships and within-class perceptions of the class climate at the individual level, and a positive class climate at the classroom level, were associated with traditional bullying and cyberbullying perpetration 1 year later within a sample of pre-adolescents. While there is a growing body of research examining the link between positive student–teacher relationships and bullying perpetration, fewer studies have specifically explored the association between negative student–teacher relationships and bullying perpetration (Krause & Smith, 2022, 2023; ten Bokkel et al., 2022). Moreover, to the best of our knowledge, no previous study has adopted a longitudinal design to examine whether negative student–teacher relationships predict later bullying perpetration while simultaneously including and controlling for the quality of the class climate at the classroom level and the within-classroom perceptions of the class climate within the same model. The present study was the first to adopt this longitudinal and multilevel approach.

In line with our first hypothesis, we found that students with a more negative relationship with their teachers were more likely to engage in both traditional bullying and cyberbullying perpetration 1 year later. This finding held true even after controlling for bullying perpetration, gender, immigrant background and within-class perceptions of class climate at the individual level, as well as class climate at the classroom level in the first wave. In other words, students with more negative, conflictual, disliking, uncaring and unsupportive student–teacher relationships in fifth grade were more likely to engage in bullying behaviours, both in school and online, by sixth grade. Our results align with previous findings showing that student–teacher relationship quality is negatively associated with bullying perpetration (e.g., Bae et al., 2019;

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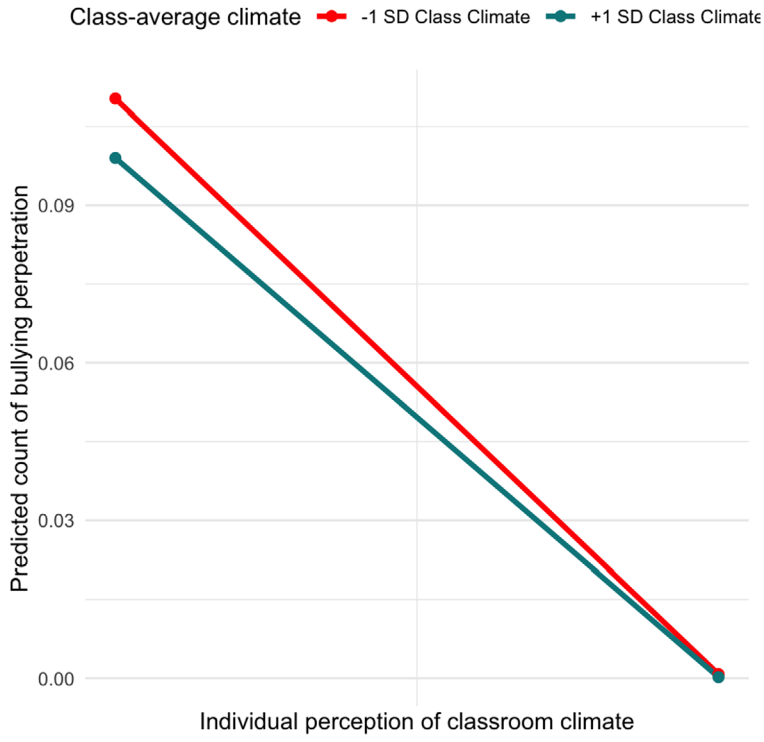


FIGURE 1 Interaction effect of individual- and classroom-level perceptions of class climate on traditional bullying perpetration. [Colour figure can be viewed at wileyonlinelibrary.com]

Espelage et al., 2015; Hamel et al., 2021; Košir et al., 2020; Thornberg et al., 2022). In particular, they support the findings of the relatively few studies that demonstrate a link between negative and conflictual student–teacher relationships and greater involvement in bullying (e.g., Longobardi et al., 2018; Marengo et al., 2018).

With reference to the social–ecological framework (Bronfenbrenner, 1979), the quality of students' relationships with their teachers is associated with the quality of their peer relationships with other students (Bouchard & Smith, 2017; Endedijk et al., 2022). Negative student–teacher relationships increase the likelihood of negative behaviours in school (Endedijk et al., 2022; Krause & Smith, 2022). Relationships between teachers and students marked by hostility and coercive patterns may heighten the risk of students developing or further deepening social information-processing patterns—such as hostile attributional bias, social dominance goals, positive evaluation of aggression and aggressive latent structures—which make them more prone than their peers to engage in aggressive behaviours, including bullying perpetration (Crick & Dodge, 1994, 1996). Furthermore, students may model the aggressive, hostile, harsh and coercive behaviours they observe during their interactions with teachers (Bandura, 1977).

Additionally, negative relationships with teachers can impair students' emotional regulation skills and increase their negative affectivity and emotional lability (Talty et al., 2023). Students who experience more negative emotions and struggle to manage them effectively are more likely to engage in aggressive behaviours, including bullying, as a maladaptive coping mechanism (Navas-Casado et al., 2023). This aligns with the findings from Krause and Smith (2022), who conclude in their meta-analysis that 'students who experience a relationship with their teacher that is hostile, conflictual, and discordant will also manifest these characteristics in their relationships with their peers' (p. 324). These students may

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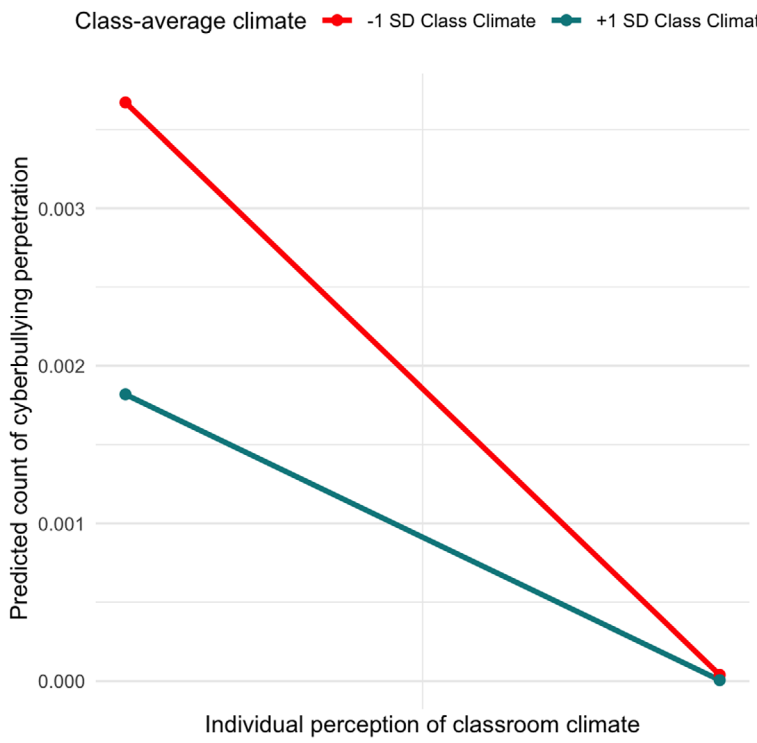


FIGURE 2 Interaction effect of individual- and classroom-level perceptions of class climate on cyberbullying perpetration. [Colour figure can be viewed at wileyonlinelibrary.com]

internalise such interaction patterns and replicate them with peers, leading to increased peer aggression and bullying perpetration.

The present findings also support our second hypothesis, demonstrating that students in classrooms with a more positive average class climate were less likely to engage in both traditional bullying and cyberbullying perpetration 1 year later. This effect persisted even after controlling for individual-level factors, including gender, immigrant background and first-wave measures of bullying perpetration, negative student–teacher relationship quality and within-class perception of class climate. Students who were part of a school class characterised by a friendly, caring, respectful, cohesive and supportive pattern of peer interactions and relationships in fifth grade were less likely to engage in bullying behaviours, both at school and online, in sixth grade. Although only a few studies have examined this link using a cross-sectional design—showing that a positive class climate at the classroom level is negatively associated with bullying perpetration (Dietrich & Cohen, 2021; Stefanek et al., 2011), being a bully/victim (Thornberg et al., 2022) and bullying victimisation (Košir et al., 2020; Stefanek et al., 2011; Thornberg, Wänström, Pozzoli, & Gini, 2018; Thornberg et al., 2022, 2024)—this study is the first to investigate and demonstrate that a positive class climate at the classroom level also predicts less bullying perpetration over time, both in the school setting and online.

In accordance with the social–ecological framework (Bronfenbrenner, 1979; Hong & Espelage, 2012), our findings suggest that the school class is an immediate social environment (i.e., microsystem) within the school that plays a critical role in shaping bullying behaviours. The quality of peer-group dynamics, including social cohesion, socio-emotional atmosphere and general patterns of interactions and treatment among classmates, can significantly influence students' propensity to engage in bullying. According to group socialisation theory

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(Harris, 1995), peers increase in similarity through their interactions within the group—such as a school class—gradually adjusting their behaviour with group prototypes and norms. The actual class climate expresses widespread peer norms, leading to group socialisation in which group members internalise and comply to these norms. Therefore, classmates may be more inclined to display prosocial behaviours and refrain from aggression, or conversely, to engage in more antisocial and aggressive behaviours—including bullying behaviours—in order to maintain status and secure peer acceptance, depending on the specific norms (Hymel et al., 2015; Veenstra & Lodder, 2022). Social learning theory (Bandura, 1977) suggests that individuals acquire behaviours by observing and imitating others. While a more positive class climate promotes social learning of prosocial behaviours, in school classes where antisocial or aggressive behaviours are common, students are more likely to adopt such behaviours through observational learning.

The present results are broadly consistent with previous research suggesting an overlap between traditional bullying and cyberbullying (Baldry et al., 2016; Camacho et al., 2023), in that negative student–teacher relationships and poorer class climate predicted increased perpetration in both arenas. However, the findings also highlight some domain-specific patterns. In particular, poor student–teacher relationships were a somewhat stronger predictor of traditional bullying, whereas a positive class climate at the classroom level emerged as a comparatively stronger protective factor against cyberbullying. One possible explanation for these differences is that traditional bullying typically occurs within the physical school environment, where the quality of student–teacher relationships is highly visible and influential (Bouchard & Smith, 2017). In contrast, cyberbullying frequently takes place outside the direct supervision of teachers and beyond the immediate context of the school. While poor student–teacher relationships may still exert some influence, their impact is attenuated in the online environment, where adult authority is less present and peer dynamics operate differently, with group influence becoming more prominent than teacher influence.

Furthermore, our findings partly support our third hypothesis by demonstrating that, within each classroom, students who perceived the class climate as more positive than their classmates were less likely to engage in traditional bullying perpetration 1 year later. However, this did not predict cyberbullying perpetration. In line with social information processing (SIP) models (Crick & Dodge, 1994, 1996), when an individual student perceives the class climate as positive and supportive, they are likely to process social information in their everyday school life accordingly (e.g., exhibiting less hostile attribution bias, more frequently activating positive and prosocial social schemas and scripts, and developing more adaptive and prosocial goals and behavioural repertoires), which in turn influences their social behaviours and interactions with classmates. Students who perceive a more positive class climate than their peers are therefore more likely to interpret and internalise prosocial class norms and experience a stronger sense of classroom peer community, rendering them less likely to engage in traditional school bullying perpetration.

While a positive overall class climate contributes to reducing cyberbullying at the classroom level, the individual perception of class climate may be less salient in the digital context, where other factors—such as online disinhibition, social norms outside school and individual attitudes towards aggression—may exert greater influence. This may help to explain the non-significant association between within-class climate and cyberbullying behaviour observed in this study. Future research is needed to examine this further. Nevertheless, in both traditional bullying and cyberbullying, we found that students in classrooms characterised by the poorest class climate, who also held the most negative perceptions of the class climate within their class, were most likely to engage in bullying perpetration over time. This finding underscores the powerful interplay between individual-level and classroom-level factors in shaping bullying behaviour, both offline and online (Bronfenbrenner, 1979; Hong & Espelage, 2012).

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Overall, the findings of this study support the social–ecological framework, group socialisation theory and social learning theory by underscoring the importance of both students' individual relationships with teachers and their classroom-level peer climate in predicting bullying behaviours. While negative student–teacher relationships may heighten the risk of bullying perpetration, a positive class climate appears to act as a protective factor against it. Our findings further suggest that, although cyberbullying may indeed serve as an additional arena for bullying linked to in-school dynamics, it also operates under partly distinct conditions as it frequently occurs outside the immediate context of the school, perhaps reflecting the reduced salience of teacher authority and in-class peer perceptions in online contexts.

Limitations and suggestions for future research

Some limitations of the study should be noted, as they have significant implications for school-based practice. Data were collected solely from students, which might have introduced measurement bias, especially when it comes to measures, such as positive class climate and negative student–teacher relationships. Future research should incorporate multiple data sources, such as teacher and peer reports, to enhance the validity of the findings. Additionally, future research should investigate the mechanisms underlying the link between student–teacher relationships and bullying, including emotion regulation, social information processing, role modelling and peer-group dynamics, as well as exploring potential mediating mechanisms, such as peer norms and social-cognitive factors. Investigating these factors could enable targeted interventions. Furthermore, studies should explore the bidirectional nature of these relationships and consider how students' behaviours and characteristics shape teachers' perceptions and interactions over time. The present study only covered two waves, approximately a year apart. Future research should include more waves, and thus include repeated measures of class climate to assess stability as well as changes over time. By adding more waves, future studies could also integrate a more nuanced analysis of cyberbullying that considers the interplay between offline and online contexts.

Another limitation concerns the study's demographic measures. Students were asked whether they and their parents were born in Sweden. To more accurately capture immigration status, future research should include questions about acculturation and length of residence. In addition, we did not measure and control for socioeconomic status in the analysis. The limited age range of participants was also a constraint. Furthermore, we did not employ probability sampling procedures, which limits the generalisability of the findings. This sample of students from Sweden may or may not be comparable to the populations readers primarily work with or are interested in. However, research findings are always partial, provisional and fallible estimations and approximations that can, in turn, be supported, revised, elaborated upon or criticised in light of future studies. Future research should seek to replicate these findings with samples of students from different age groups and cultural backgrounds, ensuring that socioeconomic data at individual, class and school levels are included in the analyses. Finally, future studies should aim to develop and evaluate school-based interventions targeting the improvement of both student–teacher relationships and class climate.

Practical implications

The results underline the pivotal role of student–teacher relationships in shaping students' social behaviour. Schools should prioritise professional development for teachers, with a particular focus on strategies that foster supportive and equitable relationships with students.

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Initiatives such as restorative practices and socio-emotional learning can provide teachers with the tools to build trust, manage conflict and promote a positive class climate. Early implementation of programmes aimed at enhancing student–teacher relationship quality within the school system may be especially effective. For instance, Aasheim et al. (2018) found that the implementation of the Incredible Years Teacher Classroom Management programme—a school-wide universal preventive intervention aimed at students aged 6–8 years—in primary schools led to an increase in positive (close) student–teacher relationships and a decrease in negative (conflictual) ones.

In addition, interventions targeting class climate—such as peer mentoring and cooperative learning activities—can further mitigate bullying behaviours by reinforcing prosocial norms. There is a conceptual overlap between classroom climate (i.e., the quality of interactions and relationships between teachers and students within learning environments and in the physical classroom) and class climate (i.e., the quality of interactions and relationships among students within the same school class in classrooms and during recess as part of their everyday school life). Thus, establishing a supportive classroom climate—including developing positive student–teacher relationships—should be fundamental in encouraging positive peer relationships within the school class (see Bear, 2020). This approach might involve setting clear expectations for respectful behaviour, modelling inclusivity and addressing conflicts constructively. A warm and structured classroom environment reduces social hierarchies and exclusionary behaviours, fostering an inclusive, supportive, cohesive and respectful atmosphere where positive peer relationships can thrive.

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CONFLICT OF INTEREST STATEMENT

The author has no conflict of interest to declare.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

The study was approved by the Regional Ethical Board of Linköping (Approval Nos. 2015/111–31 and 2015/354–32) in 2015.

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REFERENCES

Aasheim, M., Drugli, M.-B., Reedtz, C., Handegård, B. H., & Martinussen, M. (2018). Change in teacher–student relationships and parent involvement after implementation of the Incredible Years Teacher Classroom Management programme in a regular Norwegian school setting. *British Educational Research Journal*, *44*(6), 1064–1083. https://doi.org/10.1002/berj.3479

Aizenkot, D., & Kashy-Rosenbaum, G. (2018). Cyberbullying in WhatsApp classmates' groups: Evaluation of an intervention program implemented in Israeli elementary and middle schools. *New Media & Society*, *20*(12), 4709–4727. https://doi.org/10.1177/1461444818782702

14693518, 2026, 1, Downloaded from https://bera-journals.onlinelibrary.wiley.com/doi/10.1002/berj.70025 by Ewha Womans University Library, Wiley Online Library on [27/05/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Allen, K., Kern, M. L., Vella-Brodrick, D., Hattie, J., & Waters, L. (2018). What schools need to know about fostering school belonging: A meta-analysis. *Educational Psychology Review*, *30*, 1–34. https://doi.org/10.1007/s10648-016-9389-8

Azeredo, C. M., Rinaldi, A. E. M., de Moraes, C. L., Levy, R. B., & Menezes, P. R. (2015). School bullying: A systematic review of contextual-level risk factors in observational studies. *Aggression and Violent Behavior*, *22*, 65–76. https://doi.org/10.1016/j.avb.2015.04.006

Badger, J. R., Holst, C. G., Thompson, P., Bowes, L., Hayes, R., Clarkson, S., Hutchings, J., & Hastings, R. P. (2024). Effects of educational disruption and changes in school context on children's mental health: Associations with school level disadvantage and individual bullying involvement. *British Educational Research Journal*, *50*(5), 2300–2319. https://doi.org/10.1002/berj.4022

Bae, H., Choo, H., & Lim, C. Y. (2019). Bullying experience of racial and ethnic minority youth in South Korea. *Journal of Early Adolescence*, *39*, 561–575. https://doi.org/10.1177/0272431618776121

Baldry, A. C., Farrington, D. P., & Sorrentino, A. (2016). Cyberbullying in youth: A pattern of disruptive behaviour. *Psicología Educativa*, *22*, 19–26. https://doi.org/10.1016/j.pse.2016.02.001

Bandura, A. (1977). *Social learning theory*. Prentice-Hall.

Bear, G. G. (2020). *Improving school climate: Practical strategies to reduce behavior problems and promote social and emotional learning*. Routledge.

Berchiatti, M., Badenes-Ribera, L., Galiana, L., Ferrer, A., & Longobardi, C. (2021). Bullying in students who stutter: The role of the quality of the student–teacher relationship and student's social status in the peer group. *Journal of School Violence*, *20*, 17–30. https://doi.org/10.1080/15388220.2020.1812077

Bouchard, K. L., & Smith, J. D. (2017). Teacher–student relationship quality and children's bullying experiences with peers: Reflecting on the mesosystem. *The Educational Forum*, *81*(1), 108–125. https://doi.org/10.1080/00131725.2016.1243182

Bronfenbrenner, U. (1979). *The ecology of human developments: Experiment by nature and design*. Harvard University Press.

Bronfenbrenner, U., & Morris, P. A. (2006). The bioecological model of human development. In W. Damon & R. M. Lerner (Eds.), *Handbook of child psychology: Theoretical models of human development* (pp. 793–828). Wiley.

Brooks, M. E., Kristensen, K., van Benthem, K. J., Magnusson, A., Berg, C. W., Nielsen, A., Skaug, H. J., Mächler, M., & Bolker, B. M. (2017). glmmTMB balances speed and flexibility among packages for zero-inflated generalized linear mixed modelling. *The R Journal*, *9*(2), 378–400. https://doi.org/10.32614/RJ-2017-066

Camacho, A., Runions, K., Ortega-Ruiz, R., & Romera, E. M. (2023). Bullying and cyberbullying perpetration and victimization: Prospective within-person associations. *Journal of Youth and Adolescence*, *52*, 406–418. https://doi.org/10.1007/s10964-022-01704-3

Chan, H. C., & Wong, D. S. W. (2019). Traditional school bullying and cyberbullying perpetration: Examining the psychosocial characteristics of Hong Kong male and female adolescents. *Youth & Society*, *51*(1), 3–29. https://doi.org/10.1177/0044118X16658053

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences*. Lawrence Erlbaum.

Cook, C. R., Williams, K. R., Guerra, N. G., Kim, T. E., & Sadek, S. (2010). Predictors of bullying and victimization in childhood and adolescence: A meta-analytic investigation. *School Psychology Quarterly*, *25*(2), 65–83. https://doi.org/10.1037/a0020149

Crick, N. R., & Dodge, K. A. (1994). A review and reformulation of social information-processing mechanisms in children's social adjustment. *Psychological Bulletin*, *115*(1), 74–101. https://doi.org/10.1037/0033-2909.115.1.74

Crick, N. R., & Dodge, K. A. (1996). Social information-processing mechanisms in reactive and proactive aggression. *Child Development*, *67*(3), 993–1002. https://doi.org/10.1111/j.1467-8624.1996.tb01778.x

Dietrich, L., & Cohen, J. (2021). Understanding classroom bullying climates: The role of student body composition, relationships, and teaching quality. *International Journal of Bullying Prevention*, *3*(1), 34–47. https://doi.org/10.1007/s42380-019-00059-x

DiStefano, C., & Morgan, G. B. (2014). A comparison of diagonal weighted least squares robust estimation techniques for ordinal data. *Structural Equation Modeling: A Multidisciplinary Journal*, *21*(3), 425–438. https://doi.org/10.1080/10705511.2014.915373

Donaldson, C., Morgan, K., Page, N., Angel, L., & Moore, G. (2024). Mental health, bullying and school connectedness: A comparative analysis of school transition at age 11 from within the Welsh education system. *British Educational Research Journal*, *50*(3), 1533–1555. https://doi.org/10.1002/berj.3985

Endedijk, H. M., Breeman, L. D., van Lissa, C. J., Hendrickx, M. M. H. G., den Boer, L., & Mainhard, T. (2022). The teacher's invisible hand: A meta-analysis of the relevance of teacher–student relationship quality for peer relationships and the contribution of student behavior. *Review of Educational Research*, *92*(3), 370–412.

Erdem, C., & Kaya, M. (2024). The relationship between school and classroom climate, and academic achievement: A meta-analysis. *School Psychology International*, *45*(4), 380–408. https://doi.org/10.1177/01430343231202923

14693518, 2026, 1, Downloaded from https://bera-journals.onlinelibrary.wiley.com/doi/10.1002/berj.70025 by Ewha Womans University Library, Wiley Online Library on [27/05/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Ertesvåg, S. K. (2016). Students who bully and their perceptions of teacher support and monitoring. *British Educational Research Journal*, *42*, 826–850. https://doi.org/10.1002/berj.3240

Espelage, D. L., Hong, J. S., Rao, M. A., & Thornberg, R. (2015). Understanding ecological factors associated with bullying across the elementary to middle school transition in the United States. *Violence and Victims*, *30*, 470–487. https://doi.org/10.1891/0886-6708.VV-D-14-00046

Fischer, S. M., Macaulay, P. J. R., & Bilz, L. (2025). Staff communication at school and student–student relationship quality in the classroom: Direct and indirect effects on students' experiences as bullies, bullied, and bully-victims. *International Journal of Bullying Prevention*. Advance online publication. https://doi.org/10.1007/s42380-024-00283-0

Forsberg, C., Sjögren, B., Thornberg, R., Hong, J. S., & Longobardi, C. (2024). Longitudinal reciprocal associations between student–teacher relationship quality and verbal and relational bullying victimization. *Social Psychology of Education*, *27*, 151–173. https://doi.org/10.1007/s11218-023-09821-y

Furlong, M. J., Sharkey, J. D., Felix, E. D., Tanigawa, D., & Green, J. G. (2010). Bullying assessment: A call for increased precision of self-reporting procedures. In S. R. Jimerson, S. W. Swearer, & D. L. Espelage (Eds.), *Handbook of bullying in schools: An international perspective* (pp. 329–345). Routledge.

Gao, L., Liu, J., Wang, W., Yang, J., Wang, P., & Wang, X. (2020). Moral disengagement and adolescents' cyberbullying perpetration: Student–student relationship and gender as moderators. *Children and Youth Services Review*, *116*, Article 105119. https://doi.org/10.1016/j.childyouth.2020.105119

Hamel, N., Schwab, S., & Wahl, S. (2021). Bullying: Group differences of being victim and being bully and the influence of social relations. *Studies in Educational Evaluation*, *68*, Article 100964. https://doi.org/10.1016/j.stueduc.2020.100964

Harris, J. R. (1995). Where is the child's environment? A group socialization theory of development. *Psychological Review*, *102*(3), 458–489. https://doi.org/10.1037/0033-295X.102.3.458

Heisig, J. P., & Schaeffer, M. (2019). Why you should always include a random slope for the lower-level variable involved in a cross-level interaction. *European Sociological Review*, *35*(2), 258–279. https://doi.org/10.1093/esr/jcy053

Hellström, L., Thornberg, R., & Espelage, D. (2021). Definitions of bullying. In P. Smith & J. O'Higgins Norman (Eds.), *The Wiley Blackwell handbook of bullying: A comprehensive and international review of research and intervention* (pp. 2–21). Wiley-Blackwell.

Hong, J. S., & Espelage, D. L. (2012). A review of research on bullying and peer victimization in school: An ecological system analysis. *Aggression and Violent Behavior*, *17*(4), 311–322. https://doi.org/10.1016/j.avb.2012.03.003

Huang, F. L., & Cornell, D. G. (2015). The impact of definition and question order on the prevalence of bullying victimization using student self-reports. *Psychological Assessment*, *27*(4), 1484–1493. https://doi.org/10.1037/pas0000149

Hymel, S., McClure, R., Miller, M., Shumka, E., & Trach, J. (2015). Addressing school bullying: Insights from theories of group processes. *Journal of Applied Developmental Psychology*, *37*, 16–24. https://doi.org/10.1016/j.appdev.2014.11.008

Jia, M., & Mikami, A. (2018). Issues in the assessment of bullying: Implications for conceptualizations and future directions. *Aggression and Violent Behavior*, *41*, 108–118. https://doi.org/10.1016/j.avb.2018.05.004

Kashy-Rosenbaum, G., & Aizenkot, D. (2020). Exposure to cyberbullying in WhatsApp classmates' groups and classroom climate as predictors of students' sense of belonging: A multi-level analysis of elementary, middle and high schools. *Children and Youth Services Review*, *108*, Article 104614. https://doi.org/10.1016/j.childyouth.2019.104614

Košir, K., Klasinc, L., Špes, T., Pivec, T., Cankar, G., & Horvat, M. (2020). Predictors of self-reported and peer-reported victimization and bullying behavior in early adolescents: The role of school, classroom, and individual factors. *European Journal of Psychology of Education*, *35*, 381–402. https://doi.org/10.1007/s10212-019-00430-y

Krause, A., & Smith, J. D. (2022). Peer aggression and conflictual teacher–student relationships: A meta-analysis. *School Mental Health*, *14*, 306–327. https://doi.org/10.1007/s12310-021-09483-1

Krause, A., & Smith, J. D. (2023). The interconnected school context: Meta-analyses of the associations between peer aggression involvement and teacher–student relationship closeness. *School Psychology International*, *44*(4), 396–446. https://doi.org/10.1177/01430343221138038

Longobardi, C., Iotti, N. O., Jungert, T., & Settanni, M. (2018). Student–teacher relationships and bullying: The role of student social status. *Journal of Adolescence*, *63*, 1–10. https://doi.org/10.1016/j.adolescence.2017.12.001

Marengo, D., Jungert, T., Iotti, N. O., Settanni, M., Thornberg, R., & Longobardi, C. (2018). Conflictual student–teacher relationship, emotional and behavioral problems, prosocial behavior, and their associations with bullies, victims, and bullies/victims. *Educational Psychology*, *38*, 1201–1217. https://doi.org/10.1080/01443410.2018.1481199

Mitsopoulou, E., & Giovazolias, T. (2015). Personality traits, empathy and bullying behavior: A meta-analytic approach. *Aggression and Violent Behavior*, *21*, 61–72. https://doi.org/10.1016/j.avb.2015.01.007

14693518, 2026, 1, Downloaded from https://bera-journals.onlinelibrary.wiley.com/doi/10.1002/berj.70025 by Ewha Womans University Library, Wiley Online Library on [27/05/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Navas-Casado, M. L., García-Sancho, E., & Salguero, J. M. (2023). Associations between maladaptive and adaptive emotion regulation strategies and aggressive behavior: A systematic review. *Aggression and Violent Behavior*, *71*, Article 101845. https://doi.org/10.1016/j.avb.2023.101845

Olweus, D. (1993). *Bullying at school: What we know and what we can do*. Blackwell.

Pianta, R. C. (2006). Classroom management and relationships between children and teachers: Implications for research and practice. In C. M. Evertson & C. S. Weinstein (Eds.), *Handbook of classroom management: Research, practice, and contemporary issues* (pp. 685–709). Lawrence Erlbaum.

R Core Team. (2024). *R: A language and environment for statistical computing*. R Foundation for Statistical Computing. https://www.R-project.org/

Roback, P., & Legler, J. (2021). *Beyond multiple linear regression: Applied generalized linear models and multilevel models in R*. Chapman & Hall.

Roorda, D. L., Jak, S., Zee, M., Oort, F. J., & Koomen, H. M. Y. (2017). Affective teacher–student relationships and students' engagement and achievement: A meta-analytic update and test the mediating role of engagement. *School Psychology Review*, *46*, 239–261. https://doi.org/10.17105/SPR-2017-0035.V46-3

Roorda, D. L., Koomen, H. M. Y., Spilt, J. L., & Oort, F. J. (2011). The influence of affective teacher–student relationships on students' school engagement and achievement: A meta-analytic approach. *Review of Educational Research*, *81*, 493–529. https://doi.org/10.3102/0034654311421793

Rosseel, Y. (2012). Lavaan: An R package for structural equation modeling. *Journal of Statistical Software*, *48*, 1–36. https://doi.org/10.18637/jss.v048.i02

Saarento, S., Garandeau, C. F., & Salmivalli, C. (2015). Classroom- and school-level contributions to bullying and victimization: A review. *Journal of Community & Applied Social Psychology*, *25*(3), 204–218. https://doi.org/10.1002/casp.2207

Salmivalli, C. (2010). Bullying and the peer group: A review. *Aggression and Violent Behavior*, *15*(2), 112–120. https://doi.org/10.1016/j.avb.2009.08.007

Salmivalli, C., Voeten, M., & Poskiparta, E. (2011). Bystanders matter: Associations between reinforcing, defending, and the frequency of bullying behavior in classrooms. *Journal of Clinical Child & Adolescent Psychology*, *40*(5), 668–676. https://doi.org/10.1080/15374416.2011.597090

Schoeler, T., Duncan, L., Cecil, C. M., Ploubidis, G. B., & Pingault, J.-B. (2018). Quasi-experimental evidence on short- and long-term consequences of bullying victimization: A meta-analysis. *Psychological Bulletin*, *144*(12), 1229–1246. https://doi.org/10.1037/bul0000171

Shim, S. S., Kiefer, S. M., & Wang, C. (2013). Help seeking among peers: The role of goal structure and peer climate. *Journal of Educational Research*, *106*(4), 290–300. https://doi.org/10.1080/00220671.2012.692733

Sjögren, B., Bjereld, Y., Thornberg, R., Hong, J. S., & Espelage, D. L. (2024). Prevalence rates of bullying: A comparison between a definition-based scale and a behavior-based scale. *Journal of Interpersonal Violence*, *40*(7–8), 1530–1552. https://doi.org/10.1177/08862605241262216

Slee, P. T., & Skrzypiec, G. (2016). *Well-being, positive peer relations and bullying in school settings*. Springer International. https://doi.org/10.1007/978-3-319-43039-3

Solberg, M. E., & Olweus, D. (2003). Prevalence estimation of school bullying with the Olweus bully/victim questionnaire. *Aggressive Behavior*, *29*(3), 239–268.

Stefanek, E., Strohmeier, D., van de Schoot, R., & Spiel, C. (2011). Bullying and victimization in ethnically diverse schools: Risk and protective factors on the individual and class level. *International Journal of Developmental Science*, *5*(1–2), 73–84. https://doi.org/10.3233/DEV-2011-11073

Subrahmanyam, K., Smahel, D., & Greenfield, P. (2006). Connecting developmental constructions to the internet: Identity presentation and sexual exploration in online teen chat rooms. *Developmental Psychology*, *42*(3), 395–406. https://doi.org/10.1037/0012-1649.42.3.395

Talty, A., Speyer, L. G., Eisner, M. P., Ribeaud, D., Murray, A. L., & Obsuth, I. (2023). The role of student–teacher relationships in the association between negative parenting practices and emotion dynamics: Combining longitudinal and ecological momentary assessment data. *Journal of Research on Adolescence*, *23*(4), 1268–1280.

ten Bokkel, I. M., Roorda, D. L., Maes, M., Verschueren, K., & Colpin, H. (2022). The role of affective teacher–student relationships in bullying and peer victimization: A multilevel meta-analysis. *School Psychology Review*, *52*(2), 110–129. https://doi.org/10.1080/2372966X.2022.2029218

Thornberg, R., Wänström, L., & Jungert, T. (2018). Authoritative classroom climate and its relations to bullying victimization and bystander behaviors. *School Psychology International*, *39*, 663–680.

Thornberg, R., Wänström, L., Pozzoli, T., & Gini, G. (2018). Victim prevalence in bullying and its association with teacher–student and student–student relationships and class moral disengagement: A class-level path analysis. *Research Papers in Education*, *33*(3), 320–335. https://doi.org/10.1080/02671522.2017.1302499

Thornberg, R., Wänström, L., Sjögren, B., Bjereld, Y., Edling, S., Francia, G., & Gill, P. (2024). A multilevel study of peer victimization and its associations with teacher support and well-functioning class climate. *Social Psychology of Education*, *27*, 69–88. https://doi.org/10.1007/s11218-023-09828-5

14693518, 2026, 1, Downloaded from https://bera-journals.onlinelibrary.wiley.com/doi/10.1002/berj.70025 by Ewha Womans University Library, Wiley Online Library on [27/05/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License

Thornberg, R., Wegmann, B., Wänström, L., Bjereld, Y., & Hong, J. S. (2022). Associations between student–teacher relationship quality, class climate, and bullying roles: A Bayesian multilevel multinomial logit analysis. *Victims & Offenders*, *17*(8), 1196–1223. https://doi.org/10.1080/15564886.2022.2051107

UNESCO. (2024). *Defining school bullying and its implications on education, teachers and learners*. https://www.unesco.org/en/articles/defining-school-bullying-and-its-implications-education-teachers-and-learners

Veenstra, R., & Lodder, G. M. A. (2022). On the microfoundations of the link between classroom social norms and behavioral development. *International Journal of Behavioral Development*, *46*(5), 453–460. https://doi.org/10.1177/01650254221100228

Wang, C., Swearer, S. M., Lembeck, P., Collins, A., & Berry, B. (2015). Teachers matter: An examination of student–teacher relationships, attitudes toward bullying, and bullying behavior. *Journal of Applied School Psychology*, *31*(3), 219–238. https://doi.org/10.1080/15377903.2015.1056923

Wang, L., Ge, T., & Gao, X. (2024). Unveiling the protective role of school engagement: Mitigating cyberbullying perpetration through mastery and student–student relationship. *Children and Youth Services Review*, *162*, Article 107725. https://doi.org/10.1016/j.childyouth.2024.107725

Wang, M.-T., Degol, J. L., Amemiya, J., Parr, A., & Guo, J. (2020). Classroom climate and children's academic and psychological wellbeing: A systematic review and meta-analysis. *Developmental Review*, *57*, Article 100912. https://doi.org/10.1016/j.dr.2020.100912

Wang, P., Wang, X., & Lei, L. (2021). Gender differences between student–student relationship and cyberbullying perpetration: An evolutionary perspective. *Journal of Interpersonal Violence*, *36*(19–20), 9187–9207. https://doi.org/10.1177/0886260519865970

Wänström, L., & Thornberg, R. (2023). Validations of bullying victimization and bullying perpetration scales on Swedish adolescents. Paper presented at the *4th World Anti-Bullying Forum*, North Carolina, USA, October 25–27, 2023.

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14693518, 2026, 1, Downloaded from https://bera-journals.onlinelibrary.wiley.com/doi/10.1002/berj.70025 by Ewha Womans University Library, Wiley Online Library on [27/05/2026]. See the Terms and Conditions (https://onlinelibrary.wiley.com/terms-and-conditions) on Wiley Online Library for rules of use; OA articles are governed by the applicable Creative Commons License