



A multilevel study of peer victimization and its associations with teacher support and well-functioning class climate

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Abstract

The aim of the current study was to examine whether students' perceptions of teacher support at an individual-level, teacher support and well-functioning class climate at classroom-level, and teacher support and well-functioning class climate at school-level were associated with peer victimization. Data were obtained from a Student School Survey administered by the selected Swedish municipality. Multilevel analyses were based on 5,646 students in 277 classes and 27 schools. At the individual-level, girls and students who perceived greater teacher support than their classmates were victimized less often by their peers. In addition, students in schools with classes characterized by greater cooperation, cohesion, working atmosphere and respect toward their teachers tended to score lower on peer victimization. Within schools, students belonging to classes with a more well-functioning class climate than what was average in the school, and students belonging to classes that scored their teacher as more caring, fair and respectful compared to other classes in the school, were less likely to be targets of peer victimization.

Keywords Peer victimization · Bullying · School climate · Well-functioning class climate · Teacher support

1 Introduction

Peer victimization, defined as students' experience of being targets of any form (e.g., physical, verbal, and relational) of aggressive, harmful, abusive, or unwanted behavior perpetrated by other students (Finkelhor et al., 2012; Sjögren

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et al., 2021), is a worldwide phenomenon in schools (Cosma et al., 2020). It increases risks of mental health problems (Christina et al., 2021; Gini et al., 2018; Liao et al., 2023) and poor academic achievement among students (Fry et al., 2018). While cross-national studies have shown a low prevalence of peer victimization at schools in Sweden, compared to many other countries (e.g., Chester et al., 2015), more recent national reports indicate a worrisome increase in Sweden (Bjereld et al., 2020; Public Health Agency of Sweden, 2023). Reasons for this break in trend remain unknown. A report from Friends (2022) found that 49% of students are either occasionally or frequently victimized by their peers in Swedish schools.

The present study has been conducted in Sweden. According to the Swedish Educational Act (Skollagen 2010:800), everyone who works in school, when they become aware of such behavior, is obliged to respond to and counteract all forms of peer victimization in terms of acting. However, a national plan for preventing peer victimization is not in place. Unfortunately, the school debate in Sweden, including, policy and practice, has focused more on reactive interventions when school staff have identified or received information about peer victimization, rather than on proactive promotion and prevention guided by research on protective and risk factors in school contexts and scientifically evaluated programs (Swedish National Agency for Education, 2022).

According to the social-ecological framework, rooted in Bronfenbrenner's (1979) seminal work, peer victimization cannot be reduced to within-child explanations. It is the product of an ongoing interplay between individual and contextual factors (Hong & Espelage, 2012). Seen as a social phenomenon, peer victimization arises within the social context in which it occurs (Williford et al., 2019), making the school setting a significant factor in understanding peer victimization at school. Supportive and safe social contexts are considered to promote healthy and positive development while preventing youth from violence and victimization (Bear, 2020; Cohen & Espelage, 2020; Mayer & Jimerson, 2019). Accordingly, previous research has found that students' perceptions of supportive and caring teachers are linked to less peer victimization at the individual-level (for a meta-analysis, see Ten Bokkel et al., 2022), whereas a supportive and caring school climate is associated with less peer victimization at school-level (for meta-analyses, see Reaves et al., 2018; Steffgen et al., 2013).

While individual- and school-level analyses are common in the research literature, what is often missing is analysis at classroom-level. There are good reasons for considering classroom-level as a unit of analysis. Firstly, students have everyday direct contact with their peers and teachers at classroom-level; these social interactions, in turn, being nested within their schools (Saarento et al., 2015). From a social-ecological perspective (Hong & Espelage, 2012; Swearer & Hymel, 2015), peers in their classrooms, and the teachers they meet and interact with during their schooldays, may be regarded as the students' most proximal microsystems in the school context (Thornberg et al., 2022). Therefore, in addition to the more distal school climate at school-level, the degree of teacher support, and the quality of the social climate among peers at classroom-level, needs to be considered when studying peer victimization at school.

Secondly, peer victimization varies significantly across classrooms (Salmivalli et al., 2011; Stefanek et al., 2011), while the social context of a school, at both the classroom- and school-levels is clearly linked to the prevalence of peer victimization (Hong & Espelage, 2012).

1.1 Teacher support

With reference to the social-ecological framework, teachers, frequently interacting with their students at school, are in a unique position to influence peer interactions and relationships (Bouchard & Smith, 2017). *Teacher support* has been defined as “student perceptions that teachers and other school staff members are supportive, respectful, and willing to help” (Cornell et al., 2015, p. 1187). It also refers to how they “respond to the social and emotional needs of the students at school by demonstrating respect and care” (Kim et al., 2021, p. 502). Previous studies have found that students who perceive their teachers to be more supportive, caring, and fair tend to be less victimized by their peers (e.g., Berchiatti et al., 2021; Demol et al., 2020; Serdiouk et al., 2016; Sulkowski & Simmons, 2018; Thornberg et al., 2022).

Research on whether teacher support, at classroom- and school-levels, is associated with peer victimization is limited. There are some studies that support this link at classroom-level (Di Stasio et al., 2016; Kloo et al., 2023; Thornberg et al., 2018) though there are exceptions (see Košir et al., 2020; Thornberg et al., 2022), and at school-level (Cornell et al., 2015; Wang et al., 2019). Richard et al. (2011) demonstrated that positive student–teacher relationships at school-level are related to less bullying perpetration. In addition, Cappella and Neal (2012) found that in classrooms with higher levels of teachers’ emotional support, students victimized by their peers were less socially isolated than peer victims in classrooms with lower levels of emotional support from teachers. Being ignored, rejected, isolated, and excluded by classmates can be seen as extended or additional peer victimization in terms of indirect, relational, or social victimization (Archer & Coyne, 2005; Voulgaridou & Kokkinos, 2015).

1.2 Well-functioning class climate

The current study was conducted in Sweden where students in elementary and lower secondary school usually remain in a single formal group of 20–30 peers in the same grade (school year), arranged and organized by the school for the full school day or most of their lessons, and for more than one year. This unit of students is termed a *school class* or just *class* in the literature (e.g., Alm & Låftman, 2016; Coelho & Sousa, 2018; Pozzoli et al., 2012; Thornberg et al., 2022; “skolklass” and “klass” in Swedish). The terms *class-level* and *classroom-level* are, therefore, used interchangeably in the current study. Considering that the school class is the most proximal everyday microsystem organized within a school system, the collective quality within such a peer group ought to be expected to be related to the prevalence of peer victimization.

Class climate can be defined as the quality of collective interpersonal relationships among students belonging to the same school class (Thornberg et al., 2022). Only a few studies have investigated its link to peer victimization, and have shown how a more positive class climate is associated with less peer victimization (Košir et al., 2020; Stefanek et al., 2011; Thornberg et al., 2018, 2022). However, as Peter and Dalbert (2010) argue, there is no consensus in how to define, conceptualize and measure class climate, but “different instruments have been used to assess various elements of class climate” (p. 298). Different elements or dimensions of class climate can, therefore, be investigated.

In the current study, we propose a delimited concept of class climate that we term *well-functioning class climate* to refer to a school class characterized by high cohesiveness and cooperation among the classmates and respectfulness toward teachers, which contribute to a supportive learning environment. To the best of our knowledge, no study has examined the well-functioning class climate, and included both classroom-level and school-level, when investigating a possible relationship between class climate and peer victimization, or between teacher support and peer victimization, which is remarkable, considering the absolute fact, that universally, most students are nested within school classes, which, in turn, are nested within schools.

1.3 The current study

The aim of the current study was to examine whether students’ perceptions of teacher support at individual level, teacher support and well-functioning class climate at classroom-level, and teacher support and well-functioning class climate at school-level are associated with peer victimization. Firstly, we hypothesized that teacher support at individual level would be associated with less peer victimization. Secondly, we hypothesized that teacher support and well-functioning class climate at classroom-level would be associated with less peer victimization. Thirdly, we hypothesized that teacher support and well-functioning class climate at school-level would be associated with less peer victimization.

Sex at individual level and grade at classroom-level were included as covariates. Meta-analyses have not found any significant sex differences in bullying victimization (Cook et al., 2010; Kljakovic & Hunt, 2016) or in relational peer victimization, while girls have been shown to score slightly lower in estimates of overt or direct peer victimization (Casper & Card, 2017). Due to the mixed findings in the literature, we did not have any directional hypotheses related to sex. Further, longitudinal studies have shown that peer victimization declines with age (Casper & Card, 2017; Troop-Gordon, 2017) suggesting that peer victimization would be expected to be less prevalent in higher grade classes (i.e., classes with older students). Therefore, we hypothesized a negative association between school grade at the classroom-level and peer victimization.

2 Methods

2.1 Participants and procedure

We obtained an anonymous dataset from a local authority. The data came from a Swedish municipality's Student School Safety Survey. This is part of the local authority's bi-annual assessment of school culture and peer victimization. The questionnaire was administrated anonymously and online by the Municipal School Authority, to both public and private schools, in October 2018. All school classes in upper elementary school (grades 4–6: approximates ages, 10–12) and lower secondary school (grades 7–9: ages 13 to 15) were included. The participation rate was 91%. Students completed the questionnaire in their ordinary classrooms. Analyses were based on 5646 students (49.31% girls; 936 in fourth grade, 983 in fifth grade, 964 in sixth grade, 1011 in seventh grade, 995 in eighth grade, 757 in ninth grade), in 277 classes, from 27 schools.

2.2 Measures

2.2.1 Teacher support (TS)

Students' perception of teacher support was measured by three items referring to the present school semester: "Do you feel that the adults at school care about you?", "Do the adults treat you and your classmates equally (fair)?", and "Do the adults treat you and your classmates with respect?" Students rated each item on a six-point scale (1="no adults", 2="one adult", 3="a few adults", 4="about half of the adults", 5="most adults", 6="all adults"; Cronbach's $\alpha=0.81$).

2.2.2 Well-functioning class climate (WFCC)

Well-functioning class climate was measured by four items referring to the present school semester: "I have been able to cooperate with my classmates during the lessons", "the cohesion in my class has been good", "it has been quiet in most of the lessons, and I have had a good working atmosphere", and "students have treated teachers with respect". Students rated each item on a five-point scale (1="strongly disagree", to 5="strongly agree"; Cronbach's $\alpha=0.79$).

2.2.3 Peer victimization (PV)

The scale used by the schools in this study estimated peer victimization based on a revised version of a scale developed by the Swedish Agency for Education (2011; cf., Flygare et al., 2013). The timeframe used referenced respondents' current school semester and consisted of seven items that included physical, verbal, relational, and cyber victimization (e.g., "Have you been mocked, teased or name-called by other students?"; "Have you been excluded or rejected by [not

been allowed to join-in with] other students?”, “Have other students used the Internet, for example *TikTok*, *Snapchat* or *Instagram*, to send and spread mean messages about, or pictures, of you?”, and “Have you been beaten or kicked by other students?”. For each item, students could respond on a five-point scale from 0=“No, it has not happened to me” to 4=“Almost every day” (Cronbach’s $\alpha=0.89$).

2.3 Statistical models

Because students were nested within school classes, which in turn were nested within schools, we estimated multilevel models with students at the first level, classes at the second level, and schools at the third level. In model 1, individual student variables sex and teacher support (TS; centered around its mean), were added at the first level:

$$PV_{ijk} = \alpha_{jk} + \beta_1 \text{Sex} + \beta_2 \text{TS} + \epsilon_{ijk}$$

$$\alpha_{jk} = \alpha_k + u_{jk}$$

$$\alpha_k = \alpha + v_k$$

where PV_{ijk} is the peer victimization score for the i th student in the j th class in the k th school, α_{jk} is the intercept in the j th class in the k th school, β_1 is the regression coefficient for sex (boy=0, girl=1), β_2 is the regression coefficient for TS, ϵ_{ijk} is the student residual, α_k is the intercept for the k th school, u_{jk} is a class residual, α is the general intercept, and v_k is a school residual. The residuals were assumed to be multivariate normally distributed within levels, and covariances between levels were assumed to be zero.

In model 2, grade level, the class means of Teacher Support (TS) and Well-Functioning Class Climate (WFCC; centered around its mean) were added at the second level. To avoid overlapping variance between individual and class variables (O’Keefe & Rodgers, 2017), the variable TS was divided into within-class and between-class parts: TS-TScm and TScm, where TScm is the class mean of TS and TS-TScm represents each student’s deviation from his/her class mean:

$$PV_{ijk} = \alpha_{jk} + \beta_1 \text{Sex} + \beta_2 \text{TS} - \text{TScm} + \epsilon_{ijk}$$

$$\alpha_{jk} = \alpha_k + \beta_3 \text{Grade} + \beta_4 \text{TScm} + \beta_5 \text{WFCCcm} + u_{jk}$$

$$\alpha_k = \alpha + v_k$$

where β_2 is the regression coefficient for TS-TScm, β_3 is the regression coefficient for Grade, β_4 is the regression coefficient for TScm, β_5 is the regression coefficient for WFCCcm, and WFCCcm is the class mean of WFCC.

In model 3, school means for TS and WFCC were added at the third level, and, as above, deviations between class means and school means were created in order to avoid overlapping class- and school effects:

$$PV_{ijk} = \alpha_{jk} + \beta_1 \text{Sex} + \beta_2 \text{TS} - \text{TScm} + \epsilon_{ijk}$$

$$\alpha_{jk} = \alpha_k + \beta_3 \text{Grade} + \beta_4 \text{TScm} - \text{TSsm} + \beta_5 \text{WFCCcm} - \text{WFCCsm} + u_{jk}$$

$$\alpha_k = \alpha + \beta_6 \text{TSsm} + \beta_7 \text{WFCCsm} + v_k$$

where TSsm is the school mean of TS, WFCCsm is the school mean of WFCC, β_4 is the regression coefficient for TScm-TSsm, β_5 is the regression coefficient for WFC-Ccm—WFCCsm, β_6 is the regression coefficient for TSsm, and β_7 is the regression coefficient for WFCCsm.

All multilevel analyses were run in SAS using Proc Mixed.

3 Results

3.1 Descriptive statistics and correlations

Table 1 shows descriptive statistics for the variables at individual, class, and school levels. Pairwise correlations are presented in Table 2 at the individual-level, class-level, and school-level respectively. As expected student perception of teacher support was negatively correlated with peer victimization at the individual level. Accordingly, students who perceived their teachers as more caring, fair, and respectful tended to be less victimized by their peers.

Table 1 Descriptive statistics for the study variables

| | Mean | SD | Min | Max |
|---|------|------|------|------|
| <i>Individual variables (N=5646)</i> | | | | |
| Peer victimization | 0.38 | 0.55 | 0.00 | 4.00 |
| Teacher support | 5.04 | 0.92 | 1.00 | 6.00 |
| <i>Variables at class-level (M=227)</i> | | | | |
| Grade | 6.45 | 1.72 | 4.00 | 9.00 |
| Peer victimization | 0.39 | 0.20 | 0.00 | 1.15 |
| Teacher support | 5.05 | 0.39 | 3.85 | 6.00 |
| W–F class climate | 3.85 | 0.34 | 2.95 | 4.88 |
| <i>Variables at school-level (K=28)</i> | | | | |
| Peer victimization | 0.44 | 0.15 | 0.22 | 0.85 |
| Teacher support | 5.05 | 0.23 | 4.39 | 5.51 |
| W–F class climate | 3.84 | 0.21 | 3.30 | 4.23 |

All variables at class-level (except grade) are aggregated at class-level (class means); all variables at school-level are aggregated at school-level (school means)

Table 2 Correlations for the study variables

| Level | Study variables | | | | |
|-------------------------|---------------------------|------------------------|--------------------------|--------------|--|
| <i>Individual level</i> | <i>Peer victimization</i> | <i>Teacher support</i> | | | |
| Peer victimization | 1 | -.38*** | | | |
| Teacher support | | 1 | | | |
| <i>Class-level</i> | <i>Peer victimization</i> | <i>Teacher support</i> | <i>W-F class climate</i> | <i>Grade</i> | |
| Peer victimization | 1 | -.29*** | -.50*** | -.36*** | |
| Teacher support | | 1 | 0.58*** | -.42*** | |
| W-F class climate | | | 1 | -.17** | |
| Grade | | | | 1 | |
| <i>School-level</i> | <i>Peer victimization</i> | <i>Teacher support</i> | <i>W-F class climate</i> | | |
| Peer victimization | 1 | -.05 | -.62*** | | |
| Teacher support | | 1 | 0.60*** | | |
| W-F class climate | | | 1 | | |

All variables at class-level (except grade) are aggregated at class-level (class means); all variables at school-level are aggregated at school-level (school means); *** $p < .001$

Among the class-level variables, we found that higher grade, higher teacher support and more well-functioning class climate were associated with less peer victimization. In other words, classes that consisted of older students, classes that scored their teacher as more caring, fair and respectful, and classes that had a greater sense of cohesion, cooperation, learning atmosphere and respect toward their teachers tended to have fewer problems with peer victimization. There was also a positive correlation between perceived teacher support and well-functioning class climate, which suggests, not unexpectedly, that classes that interacted with more caring, fair, and respectful teachers tended to have a greater cohesion, cooperation, learning atmosphere and respect.

Among school variables, a well-functioning class climate was inversely correlated with peer victimization. Thus, schools with classes having higher scores on the well-functioning class climate index, on average, compared with other schools in the survey sample, were less likely to have problems with peer victimization. There was also a positive correlation between teacher support and well-functioning class climate at school-level, indicating that schools with classes scoring their teachers as more caring, fair, and respectful, on average, compared to other schools, tended, on average, to have classes scoring higher for well-functioning class climate. However, teacher support, at school-level, did not correlate with peer victimization, at school-level.

3.2 Multilevel analyses

Multilevel analyses showed that 4.4% of the variance in peer victimization is between schools, while 4.1% of the variance is between classes within schools. Table 3 shows the results of multilevel analyses of models 1, 2, and 3. When individual variables were included (model 1), girls scored lower, on average, on peer

Table 3 Estimates and standard errors from multilevel analyses of models 1, 2, and 3

| | Model 1 | | Model 2 | | Model 3 | |
|--|----------|-------|----------|-------|----------|-------|
| | Estimate | SE | Estimate | SE | Estimate | SE |
| Sex | -0.08*** | 0.01 | -0.08*** | 0.01 | -0.08*** | 0.01 |
| TS | -0.24*** | 0.01 | | | | |
| Grade | | | -0.06*** | 0.01 | -0.06*** | 0.01 |
| TS-TS _{class} | | | -0.25*** | 0.01 | -0.25*** | 0.01 |
| TS _{class} | | | -0.16*** | 0.03 | | |
| WFCC _{class} | | | -0.22*** | 0.03 | | |
| TS _{class} - TS _{school} | | | | | -0.18*** | 0.03 |
| WFCC _{class} - WFCC _{school} | | | | | -0.19*** | 0.03 |
| TS _{school} | | | | | 0.08 | 0.08 |
| WFCC _{school} | | | | | -0.53*** | 0.09 |
| Var (v_k) | 0.016** | 0.006 | 0.004* | 0.002 | 0.002* | 0.001 |
| Var(u_{jk}) | 0.012*** | 0.002 | 0.004** | 0.001 | 0.004** | 0.001 |
| Var(ϵ_{ijk}) | 0.231*** | 0.004 | 0.231*** | 0.004 | 0.231*** | 0.004 |
| -2LL | 8027.2 | | 7903.1 | | | |

TS: teacher support, WFCC: well-functioning class climate, class: class means, school: school means; * $p < .05$, ** $p < .01$, *** $p < .001$

victimization compared to boys. There was also a negative association between teacher support at an individual-level and peer victimization. In other words, students who perceived their teachers to be more caring, fair, and respectful were less likely to be victimized by their peers.

When class variables were added, and when teacher support was divided into an individual component and a class component (model 2), sex was still significantly associated with peer victimization. The model also revealed that students in higher-grade school classes, students in school classes with a more well-functioning class climate, and students in school classes where teachers were more caring, fair, and respectful tended to be less victimized by their peers. In addition, students who scored higher than their classmates in perceiving their teachers as caring, fair, and respectful were less prone to be victimized by their peers. The variance of the class residuals showed that unexplained variance between classes decreased by about 67% ((0.012-0.004)/0.012) when the class variables were added.

When school variables were added, and class variables were divided into class and school components (model 3), sex, grade, and within-class teacher support were still significantly linked with peer victimization. Thus, girls, students in higher grades and students who perceived their teachers to be more supportive, were less prone to be peer victimized. Further, a more well-functioning class climate at school-level was related to less peer victimization, meaning that students, belonging to schools where classes, on average, had greater cohesion, more cooperation, and a more positive learning atmosphere, tended to score lower on peer victimization.

Within schools, students coming from classes with a more well-functioning class climate, than the school average, were less prone to be targets of peer victimization.

The association between teacher support, at school-level, and peer victimization was not significant, indicating that the link between greater teacher support and less peer victimization only operated at class-level and individual-level. Within schools, students who belonged to school classes that scored their teachers as more caring, fair, and respectful than other classes, in the same school, were less likely to be targets of peer victimization. The unexplained variance between schools decreased by about 50% (0.004–0.002)/0.004) when school variables were added.

4 Discussion

The social-ecological framework (Hong & Espelage, 2012) underscores the importance of studying peer victimization as a social phenomenon linked to both individual and contextual factors. Because students spend a great deal of time in school, this everyday context has a significant influence on their social development and wellbeing (Bear, 2020; Bonell et al., 2013; Dawes, 2017), and is also an important social context where peer victimization is likely to, and does take place (Hong & Espelage, 2012; Saarento et al., 2015). Thus, quality of social climate and social relationships at school must be taken into account, to better understand peer victimization among school-aged children and adolescents (Bear, 2020; Cohen & Espelage, 2020; Hong & Espelage, 2012; Mayer & Jimerson, 2019; Saarento et al., 2015).

While research has revealed that students are less likely to be peer victimized in schools with a more positive school climate (Reaves et al., 2018; Steffgen et al., 2013), it should be remembered that students are also nested within classrooms, which in turn are nested within schools. In addition, whereas class climate is a more general construct, we have delimited our focus to the well-functioning class climate. As far as we can ascertain, the present study is the first to examine how teacher support at individual level, and how teacher support and well-functioning class climate at classroom- and school-level might relate to school students reports of peer victimization. Because of the nested data and multilevel analysis, we were able to concurrently investigate these possible links within classrooms, between classrooms within schools, and between schools.

4.1 Teacher support

Consistent with our hypothesis, we found that perceived teacher support at individual-level was associated with less peer victimization. This finding supports previous studies showing that students who perceive their teachers to be warmer, more supportive, caring, and fair, are less inclined to be victimized by their peers (Berchiatti et al., 2021; Demol et al., 2020; Serdiouk et al., 2016; Sulkowski & Simmons, 2018; Thornberg et al., 2022). This finding can also be related to the body of research demonstrating that positive, warm, and supportive student–teacher relationships are associated with less peer victimization (Ten Bokkel et al., 2022), notwithstanding, that the data we used did not measure student–teacher relationship quality per se,

but, rather, the degree to which students perceived that teachers and other school staff cared about them, and treated them and their classmates fairly and with respect.

A possible interpretation of our findings at the individual-level is that individual experiences of teachers, as caring, fair, and supportive, may function as a protective factor. It is also possible to make the interpretation that peers avoid bullying students who are on good terms with teachers. Other student characteristics, for which we did not have data, might have acted as confounders. For example, students who are more prosocial or have higher social skills may be more likely to have better relations with both teachers and peers, and be less likely to be victimized by their peers. A more worrisome possible interpretation is that students who are victimized are more often also maltreated by teachers. For example, in their study on teacher-to-student victimization in Chilean public schools, López et al. (2020) found a positive association between teacher-to-student victimization and various forms of peer victimization. In addition, negative and conflictual student–teacher relationships have been linked, in research literature, to bullying victimization (Krause & Smith, 2022; Longobardi et al., 2022; Marengo et al., 2018).

Most studies on how teacher support and student–teacher relationship quality are associated with peer victimization have been conducted with individual-level data (Krause & Smith, 2022; Ten Bokkel et al., 2022). Research on how teacher support at classroom-level and school-level is linked with peer victimization is still scarce. Therefore, it is important to untangle whether these dimensions of school climate are associated with peer victimization. In accordance with our hypothesis, we found that students, belonging to school classes with higher levels of teacher support, were less often victimized by their peers. The findings support Hughes et al. (2014) when they state, with reference to the social-ecological framework, that “as chief architects and managers of classroom contexts, teachers exert considerable influence on the classroom peer ecology” (p. 309). Through professional and efficient classroom management, teachers, together with their students, create a positive learning environment, leading to better student outcomes (Sabornie & Espelage, 2023), and fewer instances of bullying and peer victimization (Kloo et al., 2023; Roland & Galloway, 2002; Yoon et al., 2023). The cross-sectional data in the present study do not allow us to draw causal conclusions, but our results confirm a few previous studies showing that positive, warm, and supportive student–teacher relationships, at the classroom level, are associated with less peer victimization (Di Stasio et al., 2016; Kloo et al., 2023; Thornberg et al., 2018). Since, a few other studies did not find this link to be significant (Košir et al., 2020; Thornberg et al., 2022), this calls for future research to take additional individual and contextual variables into account and to examine other possible mediating and moderating factors.

In addition to possible methodological and contextual differences, another possible explanation for these inconsistent findings might be that a well-functioning class climate acts as a mediator. According to Thornberg et al.’s (2018) class-level analysis, student–teacher relationship quality was not directly associated with peer victimization. Instead, this association was found to be indirect, via the class climate. Most peer victimization incidents in school occur outside the classroom, in the playground and in hallways during school-day breaks, and hence, occurring within a peer context rather than in contexts where teachers are involved (Craig et al., 2000;

Vaillancourt et al., 2010). Thus, a possible interpretation is that the relationship between a caring and supportive teacher style in the classroom is indirectly linked with peer victimization outside the classroom through elements of the class climate, such as the degree of being well-functioning. Accordingly, we found a bivariate correlation at class-level that was strong (i.e., greater than 0.50, see Cohen, 1988), demonstrating that school classes with higher teacher support tended to have a more well-functioning class climate. Further research is needed to examine and to test this possible indirect association with well-functioning class climate as a mediating factor.

In contrast to individual and class-level effects, and to our expectations, teacher support at school-level was not significantly related to peer victimization. Therefore, our results do not support Cornell et al.'s (2015) and Wang et al.'s (2019) findings showing that teacher support at school-level was associated with less peer victimization. Possible explanations—in addition to cultural and methodological differences—could be that while we included teacher support at individual-, class-, and school-level, the studies mentioned only included teacher support at school-level; also, while we examined peer victimization, Wang et al. (2019) investigated bullying victimization (i.e., a specific subset of peer victimization, characterized by intentionality, repetitiveness, and imbalance of power, see Olweus, 1993).

A possible interpretation of our findings is that, in schools, proximal microsystems are more strongly associated with peer victimization than more distal contexts. Thus, how students perceive support from their teachers, and how teachers interact with and treat the school class to which the students belong (i.e., the immediate school environment), seems to be more crucial than how teachers interact with and treat other students beyond the boundary of their school class. An alternative, or complementary, possible explanation for our findings is that greater teacher support at school-level might be indirectly linked to less peer victimization via an overall more well-functioning class climate at school-level. The findings showed a strong correlation between teacher support and well-functioning class climate, at school-level, and the later was, in turn, strongly correlated with school-level peer victimization.

4.2 Well-functioning class climate

Consistent with our hypothesis, the current findings revealed that students, belonging to school classes with a more well-functioning class climate, were less often victimized by their peers. This can be compared with previous studies showing a negative relationship between class climate and peer victimization (Košir et al., 2020; Stefanek et al., 2011; Thornberg et al., 2018, 2022). Our findings add to the literature by suggesting that school classes, characterized by greater cooperation, cohesiveness, learning atmosphere, and respectfulness toward teachers, have fewer problems with peer victimization.

In addition, students in schools characterized by school classes having greater cohesiveness, cooperation, learning atmosphere, and respect toward their teachers, tended to score lower on peer victimization. The panorama of collective

well-functioning class climates in any given school should be considered as a critical dimension of overall school climate. Therefore, these findings contribute to the research literature on links between school climate and peer victimization (Reaves et al., 2018; Steffgen et al., 2013) by demonstrating that peer victimization can be related to a particular component of school climate, namely, the overall collective composition of well-functioning class climates in a school. Our findings support the importance of considering students as *nested* within classrooms which, in turn, are *nested* within schools (Saarento et al., 2015), and thus, the importance of conducting multilevel analysis when examining the effects of the social climate at classroom- and school-level.

4.3 Limitations

The findings of the present study are based on self-report data. Consequently, one limitation is that the findings may have been affected by inaccurate memory recall or response bias; or the data might have been inaccurate due to participants responding carelessly; or in line with perceived social desirability (Cornell & Bandyopadhyay, 2010). Because we were not present during data collection, we were unable to assess the extent to such bias may have existed. However, since participating students answered the questionnaire in their classrooms, under the guidance of their teachers, and had been informed that their responses would be anonymous, a decreased risk of socially desirable answers can be assumed (Joinson, 1999).

Despite the risks mentioned above, self-reported data are considered to be more reliable than parent- or teacher-reported data, because adults are often unaware of peer victimization (e.g., Boulton et al., 2017; Demaray et al., 2013; Rigby, 2017). Nevertheless, future research could benefit from using other or multiple data sources. When it comes to measuring well-functioning class climate, an alternative approach could be to make assessments based on teachers' reports. However, this approach would arguably be less suitable in assessing teacher support. Regarding peer victimization, peer reports are a potential alternative to self-reports. However, peer reports carry with them a significant risk of bias relating to, among other things, reputational effects, and hidden peer victimization incidents (Volk et al., 2017).

Another limitation of the present study is the cross-sectional design which prevents drawing concurrent causal inferences. Thus, based on our findings, we cannot determine whether, for example, greater teacher support leads to less peer victimization, whether less peer victimization leads to greater teacher support, or whether this association is bidirectional. To gain a better understanding of directionalities, predictions, and causal relationships, future research would benefit from adopting longitudinal and experimental designs.

The findings reported here have been based on a secondary data analysis. As researchers, we had no control over item construction and wording, thereby limiting the possibility of developing and tweaking measures that might more fully assess teacher support and class climate. Even though Cronbach's alpha values indicated that the measures involved were reliable (despite the few items), an increased number of items would improve validity. Future studies, therefore, should include more

comprehensive and validated instruments for assessing teacher support and class climate. In addition, researchers might also consider generating extensive qualitative data, to give voice to student experiences and to flesh out the reported statistical data.

Finally, because student responses were limited to a single Swedish municipality, and were gathered at a particular point in time, the transferability of our conclusions may be limited. Also, our sample may not be representative of the wider population of school students (Swedish, or internationally) with whom readers primarily work or have an interest in. However, with reference to pragmatist (e.g., Biesta & Burbules, 2003; Dewey, 1929) and post-positivist (e.g., Phillips & Burbules, 2000; Popper, 1959) approaches to epistemology, we argue that research findings are always partial, provisional, and fallible estimations and approximations, which in turn, can be confirmed, revised, elaborated, and criticized in light of future studies. As Cronbach (1975) puts it, “When we give proper weight to local conditions, any generalization is a working hypothesis, not a conclusion” (p. 125).

4.4 Practical implications

These limitations aside, the present study adds important insights to the literature on how peer victimization relates to school contextual factors (e.g., Bouchard & Smith, 2017; Hong & Espelage, 2012; Saarento et al., 2015; Ten Bokkel et al., 2022). The findings suggest that a caring, fair, and respectful approach toward students and efforts in developing a well-functioning class climate, in every school class, are important school climate components that should be considered and included in peer victimization and bullying prevention. Teaching and working with students in everyday school life ought to be seen as a moral activity, where teachers must consider the ethical dimension of their work and the moral impact they may have on their students (Colnerud, 2006; Edling & Frelin, 2013, 2016). Although we cannot draw causal conclusions, our results showed that students were less likely to be victimized by other peers if they perceived teachers to be caring, fair and respectful, and if they belong to a school class that had caring, fair and respectful teachers.

This study emphasizes the importance of including a social psychology approach in comprehensive prevention policies and practices designed to counteract peer victimization in school. While the occurrence of peer victimization is clearly associated with factors at the individual-level, this analysis concluded that well-functioning class climate and teacher support at class-level were also associated with peer victimization. School climate seems to be especially associated with peer victimization at both class-level and school-level, since students in schools with classes indicating a more well-functioning class climate scored lower on peer victimization.

In the light of the juridification of peer victimization and school violence in the Swedish educational system, resulting in a strong focus on reactive interventions and documentation (see Lunneblad, 2019), the Swedish National Agency for Education (2022) has recently published a review on international and national research on protective and risk factors. Their review emphasizes the importance of research-based promotion of school safety and prevention of peer victimization. Although

causal conclusions cannot be drawn from our findings, the associations between our study variables are in line with the Swedish National Agency for Education's (2022) recommendations, as stated in and based on their review. In line with a whole-school approach, their review concludes that schools should improve school climate and school safety at class-level and school-level through: (a) establishing positive, warm, caring, respectful and supportive student–teacher relationships and classroom management; (b) promoting positive, respectful and supportive student–student relationships; and (c) creating a positive, warm, supportive and respectful classroom climate conducive to learning in each class together with students, and with a carrying-over effect in terms of a positive class climate outside the classroom (e.g., in the schoolyard and in school corridors).

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Declarations

Conflict of interest The authors report there are no competing interests to declare.

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