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Abstract

Collective efficacy, defined as informal social controls that operate under social norms of trust, is an emerging theoretical concept that has been applied to explain violence rates in neighborhoods, affiliation with deviant peers, partner violence, and adolescent delinquency. This study employed a multilevel design to examine the association between collective efficacy at the class-level and individual-level bullying perpetration and victimization using survey data from 1,729 Greek students, aged 11 to 14 years. School class collective efficacy was defined as cohesion and trust among class members combined with their willingness to intervene in the case of aggressive or bullying incidents. Our findings indicate that individual-level victimization is more frequent in classes with lower levels of collective efficacy. We conclude that the notion of collective efficacy might also prove useful in explaining bullying involvement.

Keywords

bullying, victimization, multilevel modeling, collective efficacy, social capital, class effects

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Bullying in schools is a widespread phenomenon, with victimization rates ranging from 5% to 46% across countries (Nansel, Craig, Overpeck, Saluja, & Ruan, 2004). Bullying is considered a type of intentional aggressive behavior which is repeated against a victim who is incapable of successfully defending himself or herself (Baldry & Farrington, 2000). It can take the form of a direct (name calling, threatening, hitting) or relational (exclusion from a group, spreading nasty rumors) attack.

To date, most studies on bullying behavior have focused on the individual characteristics of bullies and victims including gender, age, social cognition (i.e., attitudes, moral disengagement) and interpersonal skills (i.e., prosocial behavior, popularity) despite growing evidence that bullying arises within a peer-based context and, therefore, is best explained by factors that operate at multiple levels (Roland & Idsøe, 2001). So far only a few studies (Espelage, Holt, & Henkel, 2003; Salmivalli & Voeten, 2004) have examined how involvement in bullying is influenced by class-level factors. The purpose of the current study is to examine the impact of the class social environment on bullying by modeling the effects of class-level collective efficacy on individual-level bullying involvement.

Individual Characteristics of Bullies and Victims

It is a common finding in the literature that levels of bullying victimization and perpetration are influenced by the child's gender and age. Recent studies find that boys are more often perpetrators of direct (especially physical) forms of bullying (Scheithauer, Hayer, Petermann, & Jugert, 2006; Wolke, Woods, Bloomfield, & Karstadt, 2000), whereas gender differences in relational bullying are either small or nonexistent (Salmivalli & Kaukiainen, 2004). No consistent and significant gender differences are reported in rates of direct and relational victimization (Wolke et al., 2000). With respect to age differences, there is evidence to suggest that relational bullying increases with age as students develop more social skills (Lagerspetz & Björkqvist, 1994). Direct physical (but not verbal) bullying decreases with age (Craig, 1998). Both direct and relational victimization show a steady decline as students get older (Scheithauer et al., 2006).

Furthermore, it has been suggested that in multicultural schools with a high percentage of ethnic minority students, such as the schools in this study, children's ethnic identities influence bullying dynamics over and above gender and age differences (Verkuyten & Thijs, 2002). Moran, Smith, Thompson, and Whitney (1993) have found that ethnic minority children face increased risk of racist name-calling. Also, Hanish and Guerra (2000) studied an ethnically

diverse sample of 1,956 elementary school children and reported that pupils of certain ethnic background were more at risk of being victimized by their peers although this relationship was moderated by the school ethnic composition. According to other authors, ethnic minority students are no more at risk of being bullied (Seals & Young, 2003).

Previous research indicates that victims of bullying are rejected children that lack prosocial skills and behaviors that will help them make and maintain friends (Baldry & Farrington, 2000; Johnson et al., 2002). Low levels of prosocial behavior that have been associated with rejection by peers increase the risk of victimization as unpopular children are less likely to be able to draw on the support of friends who can protect them from victimization and defend them against the bullies (Hodges & Perry, 1999; Wolke, Woods & Samara, 2009).

Finally, previous research indicates that social and moral cognition is important in regulating the bullies' behavior. Bullies tend to express the most positive attitudes toward bullying in that they are more inclined to justify and reinforce the behavior of those who bully others (Boulton, Bucci, & Hawker, 1999; Boulton, Trueman, & Flemington, 2002; Eslea & Smith, 2000). They are also more likely to morally justify their behavior, for example, by placing the blame on the victim (Gini, 2006).

Empirical Evidence of Class-Level Effects on Bullying

Recent research has examined the influential role of class-level variables in the development of bullying behavior. The concepts that appear most often in the literature refer to peer rejection and acceptance, peer hierarchies, and classroom norms. For example, victims are children with low status in the classroom, often rejected by their peers (Boulton et al., 1999). However, bullies can enjoy high status, especially among other aggressive children (Pellegrini, Bartini, & Brooks, 1999) with whom they mix together as friends (Espelage, Green, & Wasserman, 2007). Recently, Schäfer, Korn, Brodbeck, Wolke, and Schulz (2005) showed that victims from primary school classes that exhibited a higher level of hierarchical structuring were more likely to remain a victim in secondary school. In addition, classroom probullying norms are found to predict bullying behavior at the individual level (Salmivalli & Voeten, 2004). Finally, recent evidence suggests that bullying within the peer context explains additional variance in individual bullying for both boys and girls (Espelage et al., 2003).

Few studies have examined aspects of the classroom social climate. Roland and Galloway (2002), in a research conducted with 2,002 Norwegian pupils

aged 10 to 13 and 99 teachers found that both the social structure of the class and the classroom management by the teacher had a direct impact on bullying behavior, even when the family conditions of the pupils were taken into account.

The Theoretical Framework: Social Capital and Collective Efficacy Theories

Social capital theory describes the mechanisms through which social environments can affect aggressive behavior. Coleman (1990) defines social capital as the real or potential resources gained from high levels of trust and norms of mutual aid which are important features of social life. Empirical research has revealed that high levels of solidarity, mutual trust, and civic participation predict low rates of delinquency (Gatti, Tremblay, & Larocque, 2003; Ross, Mirowsky, & Pribesh, 2001).

One useful indicator of social capital is *collective efficacy*, defined by Sampson, Raudenbush, and Earls (1997) as the link between the trustworthiness of community residents and their willingness to intervene for the common good. One of the basic propositions of collective efficacy theory is that the social capital that exists in the relationships among individuals and is reflected in the density of ties within a group needs to be activated by taking specific actions to realize collective goals such as the reduction of crime (Sampson, Morenoff, & Earls, 1999). According to the theory, just as individuals vary in terms of self-efficacy, so do neighborhoods. Criminal behavior is more effectively controlled in areas where residents share mutual trust and solidarity that enables them to mobilize resources and services that intend to control problem-related behaviors. Furthermore, it was found that collective efficacy largely mediates the relationships between structural features of neighborhoods, such as concentrated disadvantage or residential instability, and violence. For example, high residential mobility in an area disrupts the formation of close bonds and friendship networks between residents, therefore reducing opportunities for shared action toward an intended outcome (i.e., control of criminal behavior). It has been argued, however, that the relationship between collective efficacy and crime is bidirectional in the sense that in high crime areas, informal mechanisms that can foster collective efficacy are disrupted (Duncan, Duncan, Okut, Strycker, & Hix-Small, 2003). More recent studies have confirmed that collective efficacy is negatively associated with neighborhood violent criminal activity (Duncan et al., 2003), affiliation with deviant peers (Simons, Simons, Burt, Brody, & Cutrona, 2005), and partner violence (Browning, 2002).

In the school context, high levels of interpersonal trust among teachers and pupils were found to be negatively associated with student bullying (Smith & Birney, 2005). High relational trust promoted school safety in that teachers were more likely to be aware of bullying incidents, communicate more openly about pressing student issues, and work together with pupils to protect them from possible victimization.

The importance of informal social control in regulating students' bullying behavior has been also outlined in many studies. Olweus (1993) found that in schools where the number of teachers supervising during recess is greater, the amount of bullying incidents is lower. Moreover, when peers exert control over other students' behavior by participating in peer-led intervention programs, bully/victim problems are reduced (Menesini, Codecasa, Benelli, & Cowie, 2003).

The Present Study

In the present study, we explore further the role of relational trust and collective responsibility as possible determinants of classroom agency in controlling individual-level bullying perpetration and victimization by combining them into a single index of classroom collective efficacy. The effects of collective efficacy were modeled after adjusting for a set of individual-level variables for which information was available, namely gender, age, ethnicity, attitudes toward bullying, and prosocial behavior. At the individual level, it was hypothesized that bullying would be higher among boys and students who held positive attitudes toward bullying, whereas victimization would be higher among younger and less prosocial children. At the class level, it was hypothesized that bullying problems would be more prevalent in classes with lower levels of collective efficacy.

Method

Participants

The total sample of children consisted of 654 fifth- and sixth-grade students from 10 primary schools and 1,104 seventh- and eighth-grade students from 10 secondary schools in Thessaloniki, Greece. The students ranged in age from 11 to 14 years (mean age = 12.74, $SD = 1.06$). The ethnic composition of the sample was as follows: 88.7% Greeks, 4.2% Albanians, 2.2% Georgians, and 2% Russians. In addition, 2.2% of the children were of another ethnic background, and 0.7% did not answer the question. Schools

were randomly selected from the list of all Thessaloniki public schools provided by the Ministry of Education.

Procedure

Ethical permission for the study was granted by the Greek Ministry of Education. All parents of primary school students were informed about the aims and procedures of the study via a letter and asked to return a nonconsent form if they did not want their child to participate in the survey. Students were approached in their classrooms by the author, who read aloud the instructions and the definition of bullying included in the questionnaire. Questionnaires were filled out anonymously by students in 50-min sessions.

Measures

Dependent variables. Victimization and bullying scores were computed by calculating the mean of student's responses to eight questions that measured whether participants had received or employed the following forms of bullying: calling names, hitting/kicking, stealing money/belongings or damaging things, threatening, calling names of racial or sexual nature, social exclusion, and spreading of nasty rumors against their classmates (Cronbach's $\alpha = .74$ and $.69$, respectively). The response categories for victimization and bullying scales ranged from 0 (*never*) to 4 (*several times a week*). The above continuous measure of bullying and victimization was preferred because it accounts for the variance in individual bullying behavior (Olthof & Goossens, 2008).

Control variables. Gender of participants was a dichotomous variable, coded 1 (*male*) and 0 (*female*). Age was the continuous age of each participant. Ethnic background was represented by a dichotomous variable (1 = *Greek*, 0 = *non-Greek*) due to the small and uneven number of children in ethnic minority groups.

To measure prosocial behavior, a translated version of the scale originally developed by Caprara and Pastorelli (1993) was used, consisting of nine items which were aggregated (e.g., "Do you try to help others?"). The reliability of the scale was $.77$. Respondents were asked to indicate whether they agreed or disagreed with the listed statements on a 5-point scale from 1 (*never*) to 5 (*very often*).

To assess the degree to which students held positive attitudes toward bullying, we used the sum of eight items derived by the scale originally developed by Boulton et al. (2002; e.g., "Children should be punished for teasing others"). Internal consistency of this scale was $.63$. Responses were on a 5-point scale

from 1 (*strongly disagree*) to 5 (*strongly agree*). Negatively worded items were recoded so that high scores on all items indicated antibullying attitudes.

Collective efficacy measure. To compute a mean collective efficacy score for each class, we aggregated students' responses to items that measured two indicators of collective efficacy, social cohesion, and informal social control. Questions were largely based on the scale originally developed by Sampson et al. (1997). The social cohesion scale consisted of eight items, measuring levels of trust and social cohesion among students and between students and teachers (e.g., "Teachers and pupils generally don't get along with each other"). Responses were on a 5-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). The informal social control scale comprised eight items, measuring students' and teachers' willingness to intervene in the case of aggressive or bullying episodes (e.g., "How likely is it that other students could be counted to intervene if a stronger child was hitting a weaker one?"). Responses were on a 5-point scale from 1 (*very unlikely*) to 5 (*very likely*).

Statistical analyses. In this study, data were analyzed within a two-level design as students were clustered within classrooms. Three hierarchical linear models (HLM) were conducted on each of the two continuous outcomes (victimization and bullying) with HLM Version 6.03 statistical software (Raudenbush, Bryk, Cheong, Congdon, & du Toit, 2004). Initially, an unconditional (null) model (i.e., with no predictors) was estimated to assess how much variance in bullying victimization and perpetration lies within and between classes.

Next, Model 1 was developed to examine the relationship between student characteristics and bullying victimization and perpetration. This model was adjusted for gender, age, ethnicity, prosocial behavior (only for victimization outcome) and attitudes toward bullying (only for bullying outcome).

The effects of classroom collective efficacy on bullying victimization and perpetration were tested in Model 2 while controlling for the significant individual-level variables derived from the previous model (i.e., does collective efficacy influence victimization and bullying above and beyond student characteristics?). Cross-level interactions between collective efficacy and individual-level variables were also entered in this final model.

Only students for which complete data on all variables were available were included in the multilevel analysis ($N = 1,729$).

Results

Descriptive statistics for the variables used in the analysis are presented in Table 1.

Table 1. Descriptive Statistics for Variables in the Analyses ($N = 1,729$)

	<i>M</i>	<i>SD</i>
Independent variables		
Male (%)	46.4	
Age	12.73	1.06
Greek (%)	89.4	
Prosocial behavior	35.34	5.88
Attitudes toward bullying	33.38	4.25
Collective efficacy	60.12	3.06
Dependent variables		
Victimization	1.22	0.37
Bullying	1.12	0.25

Table 2. Effects of Individual-Level and Class-Level Variables on Victimization

Variables	Null Model	Model 1	Model 2
Intercept	1.22***	1.22***	1.22***
Student level			
Prosocial		-0.005*	-0.004*
Male		-0.002	
Age		-0.04***	-0.06***
Greek		-0.14***	-0.14**
Class level			
Collective efficacy			-0.01**
Variance components			
Between-class variability (τ)	0.006***	0.003**	0.002*
Within-class variability (σ square)	0.129	0.119	0.12
Proportion of variance between classes, intraclass correlation coefficient	0.04	0.02	0.02

Note: A unit-specific model is used. Predictors are centered around the grand mean. Only significant interaction terms are presented.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed tests).

Table 2 presents the results of the hierarchical regression analysis for victimization. The null model (equivalent to a one-way ANOVA with classes as a random effect) revealed significant between-class random variation at the $p < .001$ level, suggesting that classes varied significantly among each other in terms of victimization problems. However, the intraclass correlation coefficient (ICC; $r = .04$) implies that classes accounted for only 4% of the total

variation in victimization. The results of Model 1 showed that ethnic minority status, low levels of prosocial behavior, and younger age significantly predicted victimization. Specifically, Table 2 indicates that the average coefficient of ethnicity in predicting victimization is estimated at $-.14$ (i.e., the average difference between Greeks and ethnic minority students is $.14$). Furthermore, a one-unit increase in age and prosocial behavior lowered the average levels of victimization by $.04$ and $.005$, respectively. Individual-level variables entered in this model explained $\sim 8\%$ of the within-class variance in victimization. Model 2 showed that classroom collective efficacy was significantly related to victimization while adjusting for significant predictors at the individual level. Classes with lower levels of collective efficacy showed higher victimization rates. Inclusion of the collective efficacy predictor in the final model reduced the intercept variance at class level by 33% .

Table 3 shows the results of the analysis for individual-level and class-level effects on bullying. The intercept-only model indicated a significant between-class variance for bullying, suggesting that classes varied significantly in bullying rates. The ICC value revealed that only a very small percentage of the variance in bullying is accounted for by variance between classes (6%). At the student level, attitudes toward bullying and gender were the only significant predictors of the individual-level variation in bullying such that males and children who expressed probullying opinions were more likely to report that they had bullied others. Specifically, the average difference in bullying between male and female students was $.04$ points and a one-unit increase in antibullying attitudes resulted in bullying scores $.02$ points lower on average. Individual-level variables entered in this model explained 25.4% of the within-class variance in bullying. Collective efficacy had no effect on bullying perpetration. However, a significant cross-level interaction was found between gender and collective efficacy in predicting bullying behavior such that boys were less likely to report bullying in classes with higher levels of collective efficacy. Inclusion of the collective efficacy predictor in the final model reduced the intercept variance at class level by 33% .

Discussion

This study employed a two-level multiple regression model to explore the effects of classroom collective efficacy, defined as mutual trust among class members combined with their willingness to intervene to achieve common goals, on bullying perpetration and victimization. Collective efficacy proved to be negatively associated with victimization but showed no significant effect on bullying perpetration. Our findings indicate that individual-level

Table 3. Effects of Individual-Level and Class-Level Variables on Bullying

Variables	Null Model	Model 1	Model 2
Intercept	1.12***	1.11***	1.11***
Student level			
Attitudes		-0.02***	-0.02***
Male		0.04**	0.04**
Age		-0.006	
Greek		0.01	
Class level			
Collective efficacy			-0.003
Cross-level interactions			
Collective efficacy × Male			-0.01*
Variance components			
Between-class variability (tau)	0.004***	0.003*	0.002**
Within-class variability (sigma square)	0.059	0.044	0.045
Proportion of variance between classes, intraclass correlation coefficient	0.06	0.06	0.04

Note: A unit-specific model is used. Predictors are centered around the grand mean. Only significant interaction terms are presented.

* $p < .05$. ** $p < .01$. *** $p < .001$ (two-tailed tests).

bullying victimization is more frequent in classes with lower levels of collective efficacy.

Our results corroborate recent findings that elements of school social capital, such as teacher support and student respect for one another, are associated with lower levels of victimization among adolescents (Marachi, Astor, & Benbenishty, 2007; Nansel, Haynie, & Simons-Morton, 2003) and provide some first evidence that the concept of collective efficacy has explanatory power for victimization in the school context. We suggest that high levels of perceived trust and solidarity in the classroom might help reduce victimization by encouraging students and teachers to intervene in instances of bullying and bullied children to disclose victimization and seek protection.

The effect of classroom collective efficacy failed to reach statistical significance for bullying perpetration that may be more explained by individual-level factors that absorb the effect of class-level variables. However, collective efficacy moderated the effect of gender on bullying perpetration indicating that boys were less likely to engage in bullying in classes with higher levels of collective efficacy. This shows that class-level variables such as classroom collective efficacy may be important in regulating the relationship between individual characteristics and bullying perpetration. It appears plausible that

in high collective efficacy classes, victimization is reduced but bullies continue to target a smaller minority of children. Furthermore, most previous studies (Browning, 2002; Sampson et al., 1997) have examined the association between collective efficacy and aggregate levels of violence and aggression, and therefore there is not much evidence to suggest that individual rates of aggression are also affected. This study extends previous findings in the collective efficacy literature in that it shows within-group interpersonal trust and informal control may predict not only aggregate levels of aggression but also the individual's rate of victimization, an outcome that is rarely investigated in similar studies.

Taken as a whole, our results suggest that individual characteristics yield more explained variance than class-level variables. Recent studies confirm that bullying behavior is more influenced by individual characteristics, and even genetic predispositions, rather than environmental factors (Ball et al., 2008; Ma, 2002). However, consistent with the previous few multilevel studies of bullying behavior (Salmivalli & Voeten, 2004; Sentse, Scholte, Salmivalli, & Voeten, 2007), our findings indicate that class-level factors remain significant even in the presence of individual characteristics that account for most of the variance in bullying behavior and can, therefore, contribute to the explanation of individual differences in bullying and victimization.

Individual-level results supported our main research hypotheses. We found that bullying perpetration was more common in boys than in girls, but no significant gender differences were reported for victimization. This study supports previous findings (Boulton & Underwood, 1992) that younger students are more likely to get bullied at school. Consistent with previous research (Boulton et al., 2002; Salmivalli & Voeten, 2004), we found that students who held positive attitudes toward bullying were more likely to bully others than those with negative attitudes toward bullying. Significant differences were also found in victim's levels of prosocial behavior. As reported previously in the literature (Baldry & Farrington, 2000; Rigby & Slee, 1993), victims are children who lack prosocial skills and, therefore, engage less often in acts of sharing, helping, and comforting together with their peers which may lead to their rejection by peers.

Findings exploring the link between ethnicity and bullying were unexpected and may reflect the specific situation of minority students in Greek schools. Recent data show that although the total school population in Greece increases annually by 3% to 4%, the rate of increase for ethnic minority students reaches 50% (Houndoumadi, Pateraki, & Doanidou, 2003). These children enter the Greek monocultural and monolingual school often without any proper academic instruction or cross-cultural psychological support

(Dimakos & Tasiopoulou, 2003). Specifically, we found that ethnic minority students were more likely than Greek students to self-report being victimized at school. We suggest that ethnicity might operate as a risk factor for victimization in specific multicultural contexts characterized by conflict and intolerance toward students from other ethnic groups and lack of integration policies (Junger-Tas, 2001). A recent study by Dimakos and Tasiopoulou (2003) revealed that Greek students held twice as more negative than positive beliefs about their immigrant classmates who were considered “unhealthy” and crime-prone.

This study has several limitations. The cross-sectional design precludes any causality inferences. Another limitation is the absence of multiple independent sources of data. Furthermore, this study relied purely on self-reports of bullying, which are often subjective and may underestimate prevalence. Also, a small number of covariates were explored in the multilevel analyses.

Despite the above limitations, this exploratory study is the first to investigate the effects of classroom collective efficacy on self-reported bullying and victimization employing an emergent theoretical framework and a multilevel design that has been only limitedly used in bullying research. Researchers and practitioners should be aware of how class characteristics influence the prevalence of bullying and victimization since the most successful interventions are those that operate at multiple levels (Vreeman & Carroll, 2007). Our results suggest that enhancing trust and informal social control mechanisms in the classroom could help reduce bullying victimization. The theoretical framework used in this study merits further pursuit in unraveling the effects of classroom social climate on bullying and victimization. Future studies should consider employing longitudinal designs to examine how students’ bullying behavior changes as they enter new social environments and multi-informant measures of collective efficacy by teachers and students.

Author’s Note

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Bio

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