A Longitudinal Multilevel Study of Individual Characteristics and Classroom Norms in Explaining Bullying Behaviors

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Abstract This three-wave longitudinal study was set out to examine the interplay between individual characteristics (social standing in the classroom) and descriptive and injunctive classroom norms (behavior and attitudes, respectively) in explaining subsequent bullying behavior, defined as initiating, assisting, or reinforcing bullying. The target sample contained fourth- to sixth-grade students ($n=2,051$) who attended the control schools in the Finnish evaluation of the KiVa antibullying program. Random slope multilevel analyses revealed that, over time, higher popularity or rejection, or lower acceptance were associated with increases in bullying behaviors, especially in classrooms with a high descriptive bullying norm. In contrast, the injunctive norm did not moderate the associations between social standing and engagement in bullying, except for children high on popularity. Theoretical and practical implications of the results are discussed.

Keywords Bullying · Bystander behavior · Multilevel analyses · Longitudinal · Classroom norms

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Bullying is a common, worldwide problem and although the national estimates vary considerably, large-scale studies have reported that up to 25 % of all children are being bullied at school (Eslea et al. 2004). The fact that bullying typically takes place in social groups is acknowledged in the participant role approach, which describes the different roles that children can take on in the bullying process (Salmivalli et al. 1996). Apart from the bullies and victims, classmates are involved in the bullying process by assisting (helping, participating in the bullying) or reinforcing (laughing, cheering) the bully. Others, in turn, may help or defend the victim or are merely (non-active) witnesses of the bullying (Salmivalli 1999). Previous studies have found that these participant role behaviors contribute to the levels and frequency of bullying (Salmivalli et al. 2011). More specifically, on the classroom level it was found that reinforcing behavior was positively associated with bullying, whereas defending was negatively associated with bullying. Hence, this information on participant role behaviors is highly relevant for establishing successful bullying intervention- and prevention programs (e.g., the KiVa program, see Kärnä et al. 2011).

Knowing that bystanders matter, it is important to increase our knowledge on what makes certain children behave in a way that either encourages (initiating, assisting, or reinforcing the bully) or discourages (defending the victim) bullying. Although a substantial amount of research exists regarding the precursors and consequences of bullying and victimization, far less is known about the antecedents of the broader defined encouraging versus discouraging bullying behaviors. Informed by both the definition and previous research on bullying, individual as well as contextual factors are likely to be at play. For instance, recent studies on defending behavior (Pöyhönen et al. 2010, 2013; Pozzoli et al. 2012) show that supporting and defending victimized peers is associated with being a girl, being generally well-liked by peers, and being in classrooms characterized by low levels of bullying and high

levels of defending behavior. In contrast to these studies and studies on initiating bullying, no prior studies have examined under which conditions children are more or less likely to participate in bullying behavior more generally (initiating, assisting, and reinforcing bullying). To bridge this gap in the literature, the current study will focus on individual- and classroom-level predictors of these behaviors, and more specifically on the cross-level interactions between the predictors. The longitudinal approach in the current study also adds to the extant literature on bullying which often is cross-sectional in design.

Individual Characteristics and Bullying Behavior

Bullying takes place on a large scale despite the fact that children generally hold a negative attitude toward bullying (Andreou et al. 2005; Boulton et al. 1999; Menesini et al. 1997; Rigby and Slee 1991). Indeed, individual bullying-related attitudes are only weak or at best moderate predictors of bullying behavior (e.g., Boulton et al. 2002; Rigby 2004; Salmivalli and Voeten 2004). Why then do children engage in bullying? It has been suggested that bullies have the primary aim to obtain or maintain a dominant position in the peer group (Adler and Adler 1998; Pellegrini and Long 2002). In line with this it has been found that bullies strive for respect and dominance (Ojanen et al. 2005; Sijtsema et al. 2009). In addition, Olthof et al. (2011) showed that bullying behaviors are associated with both social dominance and the desire to be dominant, with the ringleader bullies (initiators) scoring the highest on these measures. It seems that bullies get what they aim for, as research has shown that both dominance (power) and status (popularity) are key to bullying (Prinstein and Cillessen 2003; Vaillancourt et al. 2003).

Importantly, researchers have studied the construct of popularity as distinct from likeability, because children who are perceived as *popular* by their peers are not by definition *liked* (Adler and Adler 1998; Cillessen and Rose 2005). While bullying is related to dominance and status ("perceived popularity"), most studies report that bullies are at the same time more rejected by their peers than non-involved children (Boulton and Smith 1994). Salmivalli and colleagues (1996) have also found that among girls, bullying is related to both peer rejection and peer acceptance, which might indicate a controversial status in the peer group. Moreover, the study of Olthof and Goossens (2008) showed that boys who engage in bullying behaviors desired particularly the acceptance of other boys who engage in similar behaviors, although they did not actually receive this desired acceptance. To summarize, although bullies are often perceived by their peers as popular or respected, they are rarely well-liked. Moreover, although

popularity and likeability refer to an individual's relative social standing in the peer group, it is the group that assigns status or acceptance to its members. Thus, children depend on their peer group (e.g., classroom) in the realization of their goals related to affection or status (Caravita and Cillessen 2012; Salmivalli 2010). This opens the door for group-related influences with regard to social standing (popularity and likeability) among peers and involvement in bullying behaviors.

Group Characteristics and Bullying Behavior

Next to individual attributes, classroom characteristics are also likely to contribute to bullying behavior. Classrooms are social settings of which children are involuntary members and where they spend most of their time at school. Classroom differences in bullying frequencies can be regarded as classroom norms; they refer to codes of conduct that prescribe behaviors that members of a group can enact (Bendor and Swistak 2001). *Descriptive* norms refer to how widespread certain behavior is within a group. The greater the prevalence of behavior, the more likely individuals believe that engaging in that behavior is normative and legitimate (Ang et al. 2010; Rimal and Real 2003).

One way to assess descriptive classroom norms is to aggregate bullying behaviors to the classroom level, that is, the extent to which bullying behaviors are on average displayed by children in a classroom (cf. Chang 2004). Several studies have shown that such descriptive norms indeed influence individual behaviors, over and above individual-level correlates. This was shown, for example, for aggression, (Mercer et al. 2009; Thomas et al. 2011), defending (Pozzoli et al. 2012), prosocial behavior (Chang 2004), and also for bullying (Sentse et al. 2007). Hence, descriptive norms on bullying might explain why a child is more likely to bully in some classrooms than in others.

At the same time, we have to account for the *injunctive* norm of the group, that is, the attitudes toward bullying that are on average held by children in the classroom. That is, next to prevalence of behavior, collective attitudes towards such behavior are another source of how normative and legitimate behavior is for individuals in the group and it can be assumed that children are more inclined to bully when their context (classroom climate) is permissive with regards to such behavior as compared to when their context is less permissive. Some researchers have argued that the injunctive norm is more important than (i.e., overruling effects of) the descriptive norm (e.g., Henry et al. 2000, for aggression, and Pozzoli et al. 2012, for defending) whereas others have shown the opposite, with descriptive norms being more influential than injunctive norms (Scholte et al. 2010, for bullying). The latter study showed that the injunctive norm with regards to bullying is known to be quite disapproving of bullying but, just like

individual attitudes, only weakly to moderately related to actual (individual) involvement in bullying (Scholte et al. 2010).

The reason for why classroom norms cause children to engage in bullying behavior may be because it is rewarding to do so. In a cross-sectional study it has been found that in classrooms where bullying occurred at high levels (i.e., was normative), bullying was less likely to be associated with peer rejection and more likely to be associated with peer acceptance (Sentse et al. 2007). Hence, one reason to act in correspondence with the classroom norm is the fear to be rejected by classmates if one's behavior deviates from what is observed to be the norm. More specifically, it can be hypothesized that (1) over time, rejected or low accepted children will engage in bullying behavior *especially* in classrooms with a "pro-bullying" norm, i.e., the motivation to act in line with the classroom norm out of fear to be (increasingly) rejected by their classmates if their behavior deviates the classroom norm. This "pro-bullying" norm means that either the descriptive norm is high (i.e., high levels of bullying behavior in the classroom) or the injunctive norm is low (i.e., low levels of anti-bullying attitudes in the classroom).

Secondly, as bullying is related to dominance and status (popularity), children may engage in bullying behavior to obtain, maintain, or even increase their dominant position in the group (Cillessen and Borch 2006; Prinstein and Cillessen 2003). This reasoning, however, results in two contrasting hypotheses with respect to norms. First, as reviewed above, popular children are not necessarily liked. Thus, if popular children want to obtain or maintain their status in the group without losing affection (likeability), it can be expected that their engagement in bullying behavior dependents on the classroom norm. Over time (2a), popular children can be hypothesized to engage in bullying behavior, *especially* in classrooms with a "pro-bullying" norm, i.e., the motivation to act in line with the classroom norm to obtain or maintain a dominant position in the classroom without the risk of losing affection. However, as popularity is often associated with (negative) behaviors that distinguish these children from the rest of the group (e.g., Dijkstra et al. 2009), it could also mean that (2b) the motivation of popular children to obtain or maintain their status in the group leads them to engage in bullying behavior *especially* in classrooms with an "anti-bullying" norm. The latter means that either the descriptive norm is low (i.e., low levels of bullying behavior in the classroom) or the injunctive norm is high (i.e., high levels of anti-bullying attitudes in the classroom).

The Present Study

The present longitudinal study will investigate the extent to which individual characteristics and classroom norms are predictive of bullying behavior during 1 year in grades 4 to 6. Individual level factors include anti-bullying attitudes and indices of social standing in the classroom (acceptance, rejection, and popularity). Based on the arguments and previous studies described above, rejection and popularity are expected to be positively associated with bullying behavior, whereas anti-bullying attitudes and acceptance are expected to be negatively associated with bullying behavior. Gender will be controlled as boys are more likely than girls to engage in bullying behaviors (Nansel et al. 2001; Salmivalli et al. 1996), but we had no reasons to assume that associations between the study variables would be different for boys and girls. At the classroom level the focus is on the predictive role of classroom norms, that is, the descriptive norm (bullying behavior of the classroom) and the injunctive norm (anti-bullying attitudes of the classroom). The central aim of this study is to examine the moderating role of these classroom norms in the associations between individual social status (likeability, rejection, and popularity) and individual pro-bullying behavior over time.

Method

Participants

We used the three waves of data collected for the KiVa anti-bullying program evaluation (see Kärnä et al. 2011 for recruitment and intervention program details). The data were collected in May 2007 (pretest; grades 3 to 5), December 2007 and May 2008 in grades 4 to 6 in 78 schools, representing all five provinces in mainland Finland. Most students were native Finns (i.e., Caucasian), the proportion of immigrants being 2.5 %. Not all classrooms/schools participated at all three waves; some schools only participated at first wave (pretest) or at wave 3 (posttest) (total of 2,493 students, 32 %), leaving the number of students participating in all three waves at 5,270 (64 %), of which 2,151 students attended control schools and 3,119 attended intervention schools. To increase the reliability of peer-reports, we excluded data from students who were in classrooms where fewer than 10 students had filled out the questionnaires ($n=100$ students). Because the KiVa intervention would (theoretically) fundamentally change the associations between our study variables, we focused on students from the control schools only. Thus, our final sample included 2,051 fourth- to sixth-grade students (49 % boys; M age =11.16 years;) from 130 stable classrooms (M class size was 21.86 students). Important to note here is that students remain in the same classroom all day, irrespective of the subject to be taught.

Procedure

The data were collected through internet-based questionnaires, after parents had given their active consent (91.7 % of the target sample). Testing sessions were held during regular school hours in computer labs under the supervision of teachers. Each school had access to computers. Teachers were given detailed instructions concerning the procedure two weeks prior to the data collection. If teachers had any questions or concerns, they could obtain support via phone or e-mail. The order of the questionnaires as well as the order of the items within questionnaires were randomized. At the beginning of the testing session, the term bullying was defined for the students. The definition included the three main components of bullying: intent to harm, repeated nature, and imbalance of power (see e.g., Olweus 1999). Teachers read the definition out loud and students were then asked to read the same definition from their computer screens. Additionally, a shortened version of the definition (i.e., "It is bullying, when a person is repeatedly hurt on purpose") always appeared on the upper part of the computer screen when students responded to bullying related questions (i.e., Participant Role Questionnaire). The students were assured that their answers remain strictly confidential and will not be revealed to teachers or to parents.

Measures

Bullying Behavior (Waves 1, 2, and 3) Bullying behaviors were measured with the Participant Role Questionnaire (PRQ) (Salmivalli and Voeten 2004). The *Bullying* subscale included three items describing the initiation of bullying (i.e., "Starts bullying"; "Makes the others join in the bullying"; "Always finds new ways of harassing the victim"). The *Assisting* subscale consisted of three items describing active participation in the bullying that is not initiated by that person (i.e., "Assists the bully"; "Joins in the bullying, when someone else has started it"; "Helps the bully, maybe by catching the victim"). The *Reinforcing* subscale consisted of three items describing behaviors that reflect reinforcement of the bullying (i.e., "Comes around to see the situation"; "Laughs"; "Incites the bully by shouting or saying: show him/her!"). Participants were given a class roster and asked to nominate an unlimited number of classmates who fit the description in an item. For each participant, received nominations were summed per item and divided by the number of possible nominators. The final proportion scores, ranging from 0 to 1, were created by averaging across the 9 items. Internal consistency of these bullying behaviors was good at all three time points (Cronbach's alpha's were 0.94). Moreover, we checked the validity of this combined scale by looking at associations with self-reported bullying. These associations with self-reported bullying were similar for the separate participant role scales

and the combined bullying scale at wave 1 (bullying/initiating: $r=0.28$; assisting: $r=0.27$; reinforcing: $r=0.25$; combined bullying scale ($r=0.28$) and wave 3 (bullying/initiating: $r=0.23$; assisting: $r=0.25$; reinforcing: $r=0.24$; combined bullying scale $r=0.25$).

Anti-Bullying Attitudes (Wave 2) Children responded to items from the Provictim Scale (Rigby and Slee 1991), which measures their attitudes toward bullying, victimization, and defending. The original 20-item Provictim scale, which has been found to distinguish between students who indicate that they support the intervention of teachers and peers to stop bullying and those who believe that bullying should be ignored (thus showing discriminant validity; see Rigby and Slee 1991), was modified into a 10-item version to fit the present context better. In other words, we chose the items reflecting attitudes to bullying behavior rather than perceptions of the victim or perceived responsibility to intervene in bullying. Answers on items like "I feel bad seeing a child bullied" could range from 0 (completely disagree) to 4 (completely agree). Answers were averaged across the items to create an *Anti-bullying attitudes* scale (Cronbach's alpha=0.82). Higher scores are indicative of higher anti-bullying attitudes, that is, disapproval of bullying.

Social Standing (Wave 2) Acceptance and rejection were assessed by asking students to nominate an unlimited number of classmates they liked most (acceptance) and liked least (rejection). The average number of nominations given was 5.61 for acceptance and 5.00 for rejection. To assess popularity, participants nominated up to three classmates they perceived as most popular (i.e., "Who are the most popular [students] in your class?"). For each student, the received nominations per item were summed and divided by the number of nominators (i.e., participating classmates) to account for differences in class size. Scores could vary from 0 to 1 (proportions).

Classroom Norms (Wave 2) A classroom-level indicator of bullying (*descriptive group norm*) was created by averaging the individual *Bullying* subscale proportion scores (incoming peer nominations from wave 2) for each classroom. Similarly, a classroom-level indicator of anti-bullying attitudes (*injunctive group norm*) was created by averaging the individual *Anti-bullying attitude* scores for each classroom. This approach of calculating classroom norms is similar to other studies using classroom norms (see e.g., Pozzoli et al. 2012; Pöyhönen et al. 2013; Sentse et al. 2007) .

Strategy of Analysis

To account for the nested structure of our data we constructed a multilevel random intercept and -slope model in Mplus 7

(Muthén and Muthén 1998–2012) for bullying behavior (measured at wave 3). We defined two levels in our data, that is, an individual (student) level and a classroom level. School was not used as a second or third level, because we defined no variables on the school level and because students were restricted in their peer nominations to their own classroom.

The independent variables (all measured at wave 2) at the individual level were rejection, acceptance, popularity, and anti-bullying attitudes. Gender (0=girl, 1=boy) and grade (4, 5, 6) were added as covariates in the analyses. Moreover, we controlled baseline (wave 1) bullying behavior and controlled for the effects of bullying behavior (wave 1) on subsequent social standing (wave 2). The independent variables at the classroom level were classroom levels of bullying (descriptive group norm) and classroom levels of anti-bullying attitudes (injunctive group norm). Because the descriptive classroom norm is based on the classroom averages of wave 2 bullying behavior, we chose wave 1 bullying as baseline behavior when predicting wave 3 bullying, in so that there was no overlap between predictors, and between predictors and dependent variable. We also controlled for the effects of individual bullying on classroom bullying, and individual anti-bullying attitudes in classroom anti-bullying attitudes. To facilitate interpretation of the effects we centered all our independent variables around their grand mean before they entered the multilevel prediction, i.e., for every participant the grand mean was subtracted from the raw scores.

Cross-level interactions were modeled by examining between-classroom variability in the associations between individual social standing and individual bullying behavior (i.e., random slopes) and predicting this variability (random slopes) by descriptive and injunctive classroom norms. This approach and its interpretation is similar to creating cross-level interaction terms in other statistical packages and will be reported as such in the tables. See Fig. 1 for a schematic overview of the multilevel random intercept and -slope model. As some variables were skewed, the maximum likelihood robust (MLR) estimation of Mplus 7 was used to generate robust standard errors and full information maximum likelihood parameter estimates (Muthén and Muthén 1998–2012). The latter means that all available pieces of information were used and hence all participants were included in the analyses, irrespective of whether they had some missing values.

Results

Descriptive Statistics

Means and standard deviations of the study variables are reported in Table 1, as well as the mean differences between boys and girls. On average, boys scored higher than girls on measures of bullying behavior and rejection. In contrast, girls

Fig. 1 Overview of analytical model. *Note.* In this model the effects of the covariates gender and grade are controlled. The pattern of results was similar when analyses were carried out separately for different (closely related) bullying behaviors (initiation, reinforcing, assisting)
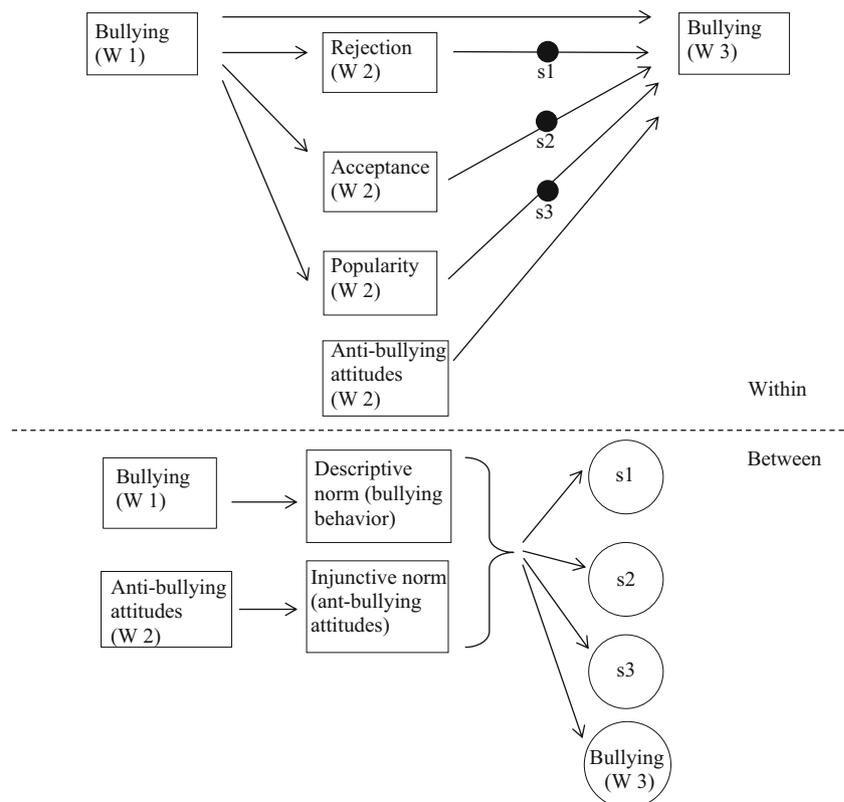
scored higher than boys on anti-bullying attitudes (i.e., disapproval of bullying) and acceptance. There were no significant gender differences in popularity. In addition, we have ran ANOVA's to test for mean differences between the three grades. There were significant grade differences in mean baseline pro-bullying behavior ($F=5.02$, $p<0.01$), anti-bullying attitudes ($F=6.80$, $p<0.01$), and rejection ($F=13.55$, $p<0.01$). We followed up by post-hoc (Turkey HSD) comparisons which revealed that the mean of pro-bullying behavior was significantly higher in grade 6 ($M=0.10$) as compared to grade 4 ($M=0.08$) but not grade 5 ($M=0.09$), and that with higher grades, the means were significantly lower of anti-bullying attitudes (Ms=3.20, 3.11, 3.06 respectively) and rejection (Ms=0.18, 0.16, 0.14 respectively).

Within- and between level correlations between the study variables are reported in Table 2. Correlations were computed separately for boys and girls but since they were all in the same direction we discuss them together. Wave 1 and wave 3 bullying behavior were highly correlated, indicating quite high levels of stability in this behavior over time. Comparably small to modest correlations were found between bullying behavior and the other study variables; bullying behavior was negatively associated with anti-bullying attitudes and acceptance, and positively associated with rejection and popularity. Notably, grade (which also serves as an indication of age) was only weakly or not significantly related to any of the study variables. Classroom bullying behavior (descriptive norm) was positively correlated with individual bullying behavior and negatively with classroom anti-bullying attitudes (injunctive norm). The latter was only weakly correlated with individual wave 3 bullying behavior.

In order to be sure that gender does not moderate the results (although we had no theoretical reasons to assume different associations for boys and girls), we additionally tested the difference in correlations for boys and girls using the Fisher r to z test. The correlations did not differ significantly with the exception of the correlation between popularity and bullying behavior,

which was slightly stronger for boys. Hence, gender entered the multilevel analysis as covariate and not as moderator.

Multilevel Analyses

Unconditional Model We first estimated an empty random intercept multilevel model (i.e., unconditional model) for bullying behavior (wave 3) to see how much variance existed at the individual and at the classroom level. The Intraclass Correlation Coefficient (ICC) indicated that there was a significant amount of 11 % of the total variance to be explained at the classroom level ($p<0.01$), which justified the use of multilevel modeling with predictors at both the individual and classroom level.

Individual Level Model Our first predictive model only included level 1 predictors with fixed (across classrooms) slopes; see first column of Table 3. This one-level model was built as follows: first, the covariates gender and grade were entered; second, baseline bullying was entered; third, the predictors anti-bullying attitudes and social standing indices were entered. As none of the effects changed in direction or significance during the three steps, we will only discuss the final step of this one-level model. While controlling for the effect of baseline bullying behavior on later bullying behavior and its effect on subsequent rejection, acceptance, and popularity, being a boy and higher levels of popularity or rejection were associated with more bullying behavior, whereas higher anti-bullying attitudes were associated with less involvement in bullying behavior. Grade and acceptance did not significantly add to the prediction of bullying behavior.

Random Slopes Model Before turning to our two level model including classroom level predictors, we examined whether there was significant classroom (level 2) variability in the

Table 1 Means and standard deviations of study variables and differences between girls and boys

Variable	M (SD) (n=2,051)	Range	M girls (n=1,044)	M boys (n=1,007)	t-test	df	Cohen's d
Individual level							
Bullying behavior W1	0.08 (0.10)	0–1	0.04	0.13	−22.68*	1244	1.01
Anti-bullying attitudes W2	3.13 (0.70)	0–4	3.32	2.93	13.41*	1900	0.60
Rejection W2	0.16 (0.14)	0–1	0.14	0.19	−7.90*	1898	0.35
Acceptance W2	0.19 (0.13)	0–1	0.20	0.18	2.70*	2049	0.12
Popularity W2	0.10 (0.14)	0–1	0.10	0.10	−0.50	2049	0.02
Bullying behavior W3	0.09 (0.11)	0–1	0.04	0.14	−23.20*	1331	1.03
Classroom level							
Bullying W2	0.07 (0.04)	0–1					
Anti-bullying attitudes W2	3.11 (0.22)	0–4					

Note. *=$p<0.01$. Heteroscedastic *T*-test when df≠2,049. Cohen's $d >0.2$ is considered a small effect size, >0.5 represents a medium effect size, and >0.8 a large effect size

Table 2 Within- and between-level correlations between the study variables separately for boys and girls

Variable	1	2	3	4	5	6	7	8
Within-level								
1. Grade	–	0.02	−0.04	−0.11*	−0.05	−0.05	−0.01	
2. Bullying behavior W1	0.13*	–	−0.12*	0.29*	−0.13*	0.09*	0.63*	
3. Anti-bullying attitudes W2	−0.13*	−0.24*	–	−0.04	0.07*	0.02	−0.14*	
4. Rejection W2	−0.12*	0.38*	−0.07*	–	−0.14*	−0.11*	0.21*	
5. Acceptance W2	−0.05	−0.06*	0.05	−0.10*	–	0.50*	−0.09*	
6. Popularity W2	−0.01	0.20*	−0.02	−0.05	0.56*	–	0.07*	
7. Bullying behavior W3	0.00	0.77*	−0.20*	0.45*	−0.03	0.21*	–	
Between-level at W2								
8. Descriptive classroom norm							0.24*	–
9. Injunctive classroom norm							−0.05*	−0.42*

Note. Within-level correlations for boys below the diagonal and for girls above the diagonal

*: $p<0.05$

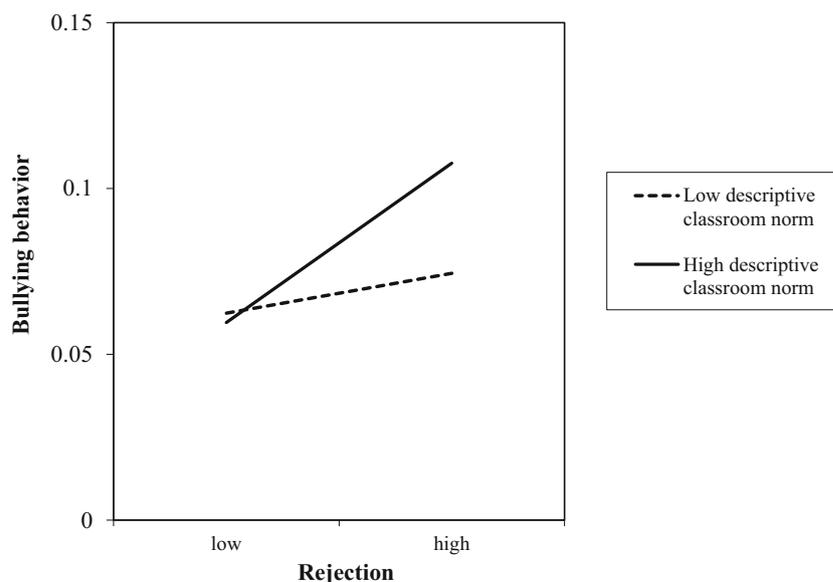**Table 3** Multilevel models for wave 3 bullying behavior

	Bullying behavior wave 3								
Predictor	One-level model			Descriptive norms model			Injunctive norms (full) model		
Individual level	Estimate	(SE)	z	Estimate	(SE)	z	Estimate	(SE)	z
Baseline bullying behavior	0.699**	(0.048)	14.43	0.659**	(0.050)	13.08	0.663**	(0.049)	13.48
Gender (1=boy)	0.023**	(0.004)	5.51	0.025**	(0.004)	5.93	0.024**	(0.004)	5.86
Grade	0.004	(0.005)	0.81	0.006	(0.004)	1.30	0.003	(0.004)	0.62
Anti-bullying attitudes wave 2	−0.006**	(0.002)	−2.72	−0.007**	(0.002)	−3.40	−0.007**	(0.002)	−3.36
Rejection wave 2	0.105**	(0.021)	4.89	0.092**	(0.020)	4.71	0.092**	(0.020)	4.61
Acceptance wave 2	−0.009	(0.017)	−0.54	−0.006	(0.018)	−0.36	−0.002	(0.018)	−0.10
Popularity wave 2	0.050**	(0.011)	4.62	0.050**	(0.010)	5.03	0.047**	(0.010)	4.49
Classroom level									
Descriptive norm wave 2				0.557**	(0.118)	4.73	0.524**	(0.124)	4.21
Injunctive norm wave 2							−0.014	(0.018)	−0.74
Cross-level interactions									
Descriptive norm*rejection				1.488*	(0.584)	2.55	1.778**	(0.675)	2.63
Descriptive norm*acceptance				−1.033**	(0.396)	−2.61	−1.316**	(0.457)	−2.88
Descriptive norm*popularity				0.961*	(0.409)	2.35	1.287**	(0.427)	3.01
Injunctive norm*rejection							0.122	(0.115)	1.05
Injunctive norm*acceptance							−0.155	(0.096)	−1.60
Injunctive norm*popularity							0.168*	(0.082)	2.05
Controlled effects									
Bullying w1→ Rejection w2	0.620**	(0.047)	13.26	0.581**	(0.050)	11.58	0.581**	(0.051)	11.48
Bullying w1→ Acceptance w2	−0.062	(0.052)	−1.19	−0.118*	(0.051)	−2.29	−0.118*	(0.052)	−2.28
Bullying w1→ Popularity w2	0.233**	(0.043)	5.43	0.208**	(0.046)	4.55	0.208**	(0.046)	4.54
Bullying w1→ Descriptive norm				0.801**	(0.202)	3.97	0.803**	(0.206)	3.89
Anti-bullying attitudes w2 → Injunctive norm							1.034**	(0.037)	27.94
Deviance (AIC)	−4533.32			−5262.40			−5448.18		
TRd	343.21**	$\Delta df=26$		818.78**	$\Delta df=10$		232.95**	$\Delta df=7$	

Note. All predictors were grand-mean centered. TRd is similar to a χ^2 difference test but accounts for MLR estimation (first column compares to empty model, second column compares to level 1 model, third column compares to descriptive norms model). * $p<0.05$; ** $p<0.01$

associations between social standing and bullying behavior by allowing the slopes of bullying behavior on the three social standing indices to be random. The between (classroom) level variances of these slopes were all significant except for the slope of acceptance which was only marginally significant (popularity: *Est.* = 0.006, $p<0.05$; acceptance: *Est.* = 0.009, $p<0.10$; rejection: *Est.* = 0.033, $p<0.001$). Now we will turn to the two-level model that includes predictors at the classroom level to see whether these moderated the effects of social standing on bullying (i.e., explain the classroom-level variability of these slopes).

Descriptive Norms Model In the second predictive model (see second column of Table 3), the classroom level of bullying behavior (descriptive norm) was added to the previous model. We saw a strong, positive effect of the descriptive norm on bullying behavior. Additionally, we regressed the random slopes on the descriptive classroom norm which showed that the descriptive norm moderated effects of social standing indices on bullying. Simple slope analysis for low (−1 SD) and high (+1 SD) levels of the descriptive classroom norm revealed that: (1) in classrooms with high descriptive norms, higher levels of rejection were associated with increases in bullying behavior over the course of the school year, whereas the bullying behavior in classrooms with low descriptive norms did not vary as a function of rejection, see Fig. 2; (2) low acceptance was associated with increases in bullying to a greater extent in classrooms with high descriptive norms as compared to classrooms with low descriptive norms, see Fig. 3; and (3) higher levels of popularity were associated with increases in bullying behavior in classrooms with high descriptive norms, but the bullying behavior in classrooms with low descriptive norms did not vary as a function of popularity, see Fig. 4.

Injunctive Norms (Full) Model The third and final column of Table 3 shows that the injunctive norm did not significantly add to the prediction of bullying, and it only moderated the association between popularity and bullying behavior, showing that (4) higher levels of popularity were associated with increases in bullying behavior in classrooms with high injunctive (anti-bullying attitude) norms, but in classrooms with low injunctive norms the bullying behavior did not vary as a function of popularity, see Fig. 5.

We evaluated the model fit of these multilevel models using the Satorra-Bentler difference test, which is used in a similar fashion as a standard χ^2 difference test but accounts for MLR estimation (see last row of Table 3). With every step, the model significantly improved fit as is shown by the significant TRd values. In addition, Pseudo R squared was calculated as indicator of the proportional reduction in residual variance as compared to the unconditional model. For the one-level model, Pseudo $R^2=0.64$ and for the (full) two-level model, Pseudo $R^2=0.73$.

Discussion

This study was set out to investigate under which conditions, with regard to individual characteristics and classroom norms, children are more or less likely to participate in bullying behavior (initiating, assisting, and reinforcing) over the course of one year. By doing so our study extended the existent literature on bullying, which is mainly based on cross-sectional studies and focused on (precursors and consequences of) bullying and victimization rather than broader defined participant

Fig. 2 Cross-level interaction between rejection and the descriptive classroom norm predicting bullying behavior. *Note*: Low and high correspond to −1 SD and +1 SD, respectively. Descriptive classroom norm refers to level of bullying behavior in the classroom. Simple slopes for low descriptive norm $b=0.04$, $p=0.12$ and high descriptive norm $b=0.17$, $p<0.01$

Fig. 3 Cross-level interaction between acceptance and the descriptive classroom norm predicting bullying behavior. *Note*: Low and high correspond to −1 SD and +1 SD, respectively. Simple slopes for low descriptive norm $b=0.06$, $p<0.01$ and high descriptive norm $b=−0.04$, $p=0.09$
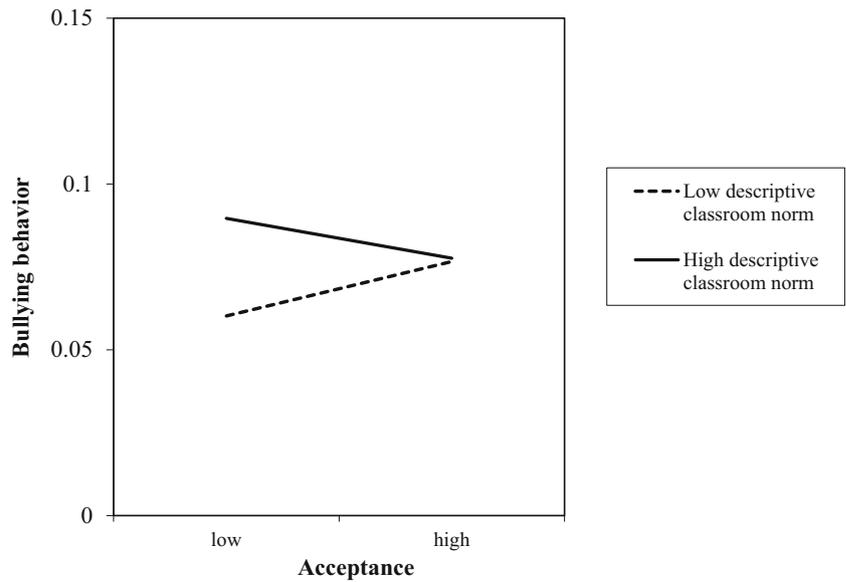
role behaviors. Overall, while controlling for baseline behavior and its effect on subsequent social standing, our multilevel analyses revealed that both individual and classroom level factors are important for explaining bullying behavior within one year. Moreover, cross-level interactions revealed that the relations between social standing and bullying behavior were dependent on the descriptive classroom norm, but not on the injunctive norm (with the exception of popularity).

Individual Characteristics and Bullying Behavior

In line with previous studies, we found that boys were more likely than girls to engage in bullying behavior (Nansel et al.

2001; Salmivalli et al. 1996). In addition, our study showed that social standing in the classroom at time 2 is related to subsequent bullying behavior at time 3 even while controlling for the reverse pattern; over time, children high on rejection were more likely to engage in bullying behavior while accounting for the prior level of bullying behavior and the prior effect of bullying behavior on rejection. Previous studies on associations between engagement in bullying and likeability (Boulton and Smith 1994; Salmivalli et al. 1996) were all cross-sectional in nature. Our study shows that not only bullying behavior is linked with subsequent higher rejection, higher popularity, and lower likeability, but also that social standing is related to subsequent bullying behavior. This might indicate a vicious cycle of children with a low status

Fig. 4 Cross-level interaction between popularity and the descriptive classroom norm predicting bullying behavior. *Note*: Low and high correspond to −1 SD and +1 SD, respectively. Simple slopes for low descriptive norm $b=0.00$, $p=0.98$ and high descriptive norm $b=0.09$, $p<0.01$
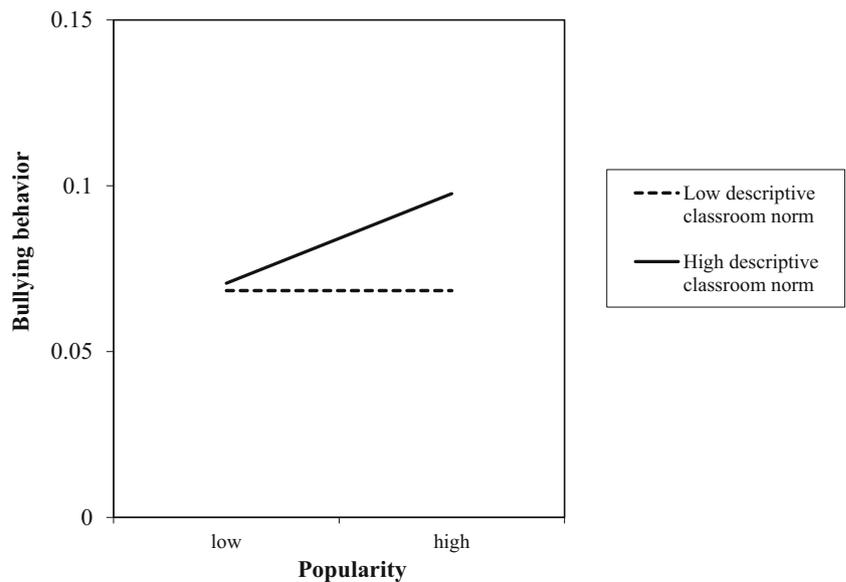
(high on rejection or low on acceptance) being more likely to engage in negatively evaluated behaviors such as bullying, which might, in turn, explain and maintain their lower likeability among peers. However, there is also evidence that bullies (and their assistants and reinforcers), just like other children, have friends and are usually part of friendship cliques of which the members show similarity in bullying behavior (Espelage et al. 2003; Huitsing and Veenstra 2012; Salmivalli et al. 1997; Witvliet et al. 2010). This indicates that, although in general these children score low on likeability, they may receive acceptance from specific children when differentiating between genders or behavioral similarity (see Olthof and Goossens 2008; Veenstra et al. 2010). Future research examining acceptance and rejection by boys versus girls, or by bullies versus non-bullies (in contrast to classmates in general) and bullying behavior is needed to get more insight in these processes.

In a similar vein we found that popularity at time 2 was positively associated with later bullying behavior at time 3, again after controlling for the effect of bullying behavior on popularity. This finding supports the view that bullying behavior is not only a way to obtain, but also to *maintain* dominance and status among peers. Consistent with this, studies have found that popularity is more strongly linked to perceptions of power than to social preference (Vaillancourt and Hymel 2006) and that adolescents in peer groups that are perceived as popular use bullying as a means to maintain their position in the hierarchy (Adler and Adler 1998).

Finally, as expected, we found that children's generally negative attitudes toward bullying had a small, negative effect on bullying behavior at the individual level, whereas at the classroom level, there was no effect of the injunctive norm

(i.e., anti-bullying attitude typical of the classroom) on engagement in bullying behavior (cf. Boulton et al. 2002; Rigby 2004; Salmivalli and Voeten 2004; Scholte et al. 2010). One likely explanation for this discrepancy is "pluralistic ignorance" (Juvonen and Galván 2008), which refers to group members (classmates) who individually have anti-bullying attitudes but still think that others accept bullying behavior because they witness this behavior in their group. Especially if children do not vocalize their negative attitudes toward bullying, this might lead to a false belief that the majority of the group (classroom) approves of bullying behavior. If this is the case, the discrepancy between high anti-bullying attitudes and involvement in bullying is not that paradoxical anymore. This again highlights the necessity to look at (other) group-related factors and their interactions with individual characteristics when studying bullying behavior.

Classroom Norms and Bullying Behavior

The reason for choosing the classroom as the context in the present study is because previous research revealed that bullying takes place mainly within classrooms (Smith and Brain 2000) and because children are typically restricted to their classmates in their peer nominations for social standing. In line with our expectations and the results of previous research (Espelage et al. 2003; Scholte et al. 2010), we found that the descriptive classroom norm of bullying at time 2 is positively associated with individual bullying behavior at time 3, above and beyond the effect of the injunctive norm. This finding implies that children, when it comes to bullying, are strongly affected by their classmates and the bullying climate in the class. In contrast, there was no effect of the injunctive norm on individual bullying, which is in line with a previous study that

Fig. 5 Cross-level interaction between popularity and the injunctive classroom norm predicting bullying behavior. *Note*: Low and high correspond to −1 SD and +1 SD, respectively. Injunctive classroom norm refers to level of anti-bullying attitudes in the classroom Simple slopes for low injunctive norm $b=0.01$, $p=0.64$ and high injunctive norm $b=0.08$, $p<0.01$
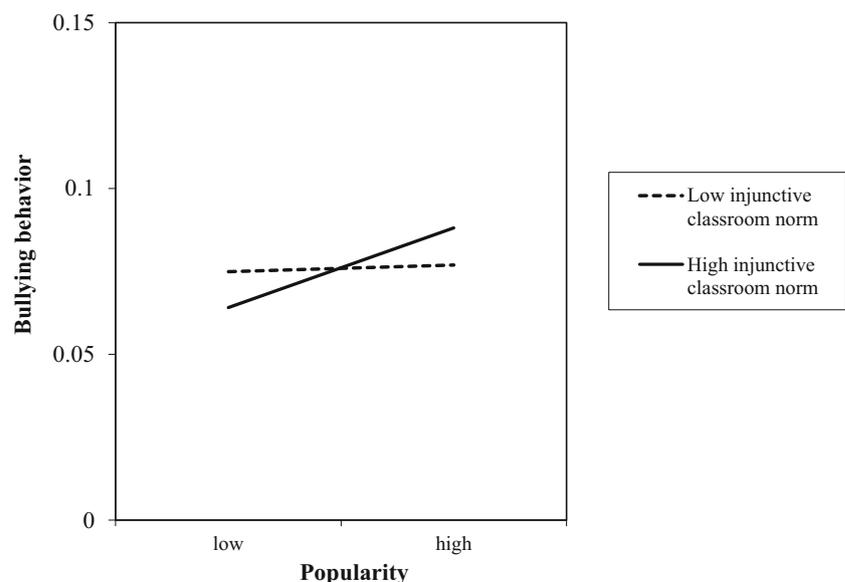
showed that the injunctive norm effect disappeared as soon as the descriptive norm was included in the prediction (Scholte et al. 2010). This might be because behavior is more salient, and hence more influential, than (non-vocalized) attitudes.

The results also revealed that the descriptive norm moderated the effects of individual social standing on individual bullying behavior. In classrooms characterized by a high descriptive bullying norm, higher rejection, lower acceptance, or higher popularity was associated to increases in bullying behavior whereas these associations were less pronounced or absent in classrooms characterized by a low descriptive bullying norm. The pro-bullying classroom norm seems to make it more likely that children who score relatively high on popularity or rejection (or low on acceptance) will perceive bullying as legitimate behavior to receive positive feedback or attain social prestige and a respected reputation as compared to others. This is in line with the social misfit hypothesis, which postulates that children will be rejected by their peers when they display behaviors that deviate from the group norm (see Wright et al. 1986; Sentse et al. 2007). Looked at it this way, over time, highly rejected or low accepted children might hope to improve their social standing in the classroom by 'fitting in', that is, by engaging in bullying behaviors especially when they are in a classroom where bullying appears to be the norm (Garandeau and Cillessen 2006; Sentse et al. 2007).

In the case of popular children, their increased engagement in bullying behavior in classrooms characterized by a high descriptive norm might result from an effort to maintain their dominance status in the classroom without the risk of losing affection from classmates. However, a contrasting finding resulted from the interaction with the injunctive classroom norm. It showed that in classrooms with a high *anti*-bullying attitude, higher popularity was associated with increases in bullying. This finding would be more in line with the assumption that popular children want to set themselves apart from the rest, act as leaders and not as followers, in order to gain and maintain visibility and social dominance which are part of the definition of (perceived) popularity (Cillessen and Rose 2005). Both, seemingly contrasting, findings might point to a bidirectional relation between popularity, classroom norms, and engagement in bullying behaviors. Dijkstra et al. (2008) showed that among adolescents, bullying behavior displayed by especially the popular children in the classroom (i.e., the popularity norm) determines whether bullying is socially accepted. That study, however, was cross-sectional in nature and thus it is difficult to conclude whether it is a 'popularity norm' that explains acceptance over time of the children who engage in bullying, or whether being accepted or perceived as popular while engaging in bullying leads to a 'popularity norm' over time. Future studies may want to look into this specific bi-directional relationship in more detail.

Strengths and Limitations

The longitudinal design, utilizing three waves of data collected in a large population-based sample, the multilevel perspective including predictors from both the individual and the classroom level, and the focus on a broader definition of bullying behavior set our study apart from previous research into bullying. Aside these strengths, also some limitations must be acknowledged. Firstly, the current study did not tap into the network nature of the processes under study. That is, the study of bullying behavior and social standing in the classroom could have been more informative if we had dyadic measures available, indicating by whom children are accepted or rejected, and by whom they are perceived as popular for the network (e.g., classroom) as a whole. Related to this point, the peer nominations in the current sample were restricted to classrooms only and hence we had no information on possible relationships with children from other classrooms or even outside the school while this could have been informative. Secondly, we should be aware of possible false inferences when assumptions about aggregated scores are made based on the aggregation of individual level data. However, next to the aggregated group level we also accounted for the associations at the individual level in so that false inferences on associations are unlikely. Thirdly, although the current study was specifically focused on bullying related behavior, other participant role behaviors including outsiders are worthwhile investigating in order to fully grasp the dynamics of the bullying process. Lastly, our sample was representative for mainland Finland, but it is not clear whether the findings can be generalized to other countries. Replication of the results in other countries is warranted, as well as studying the associations among varying age groups.

Despite these limitations, our study extended previous research in showing that social status in the group is not only a consequence but also a motivation to engage in bullying. Moreover, it showed that relations between social standing in the group and engagement in bullying behavior depend on the descriptive classroom norm, but not on the injunctive norm (except for popularity). These findings support the view of bullying as a group processes which must be approached as such in tackling bullying in intervention and prevention programs.

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