DOROTTYA KISFALUSI [*]

Bullies and Victims in Primary Schools: The Associations between Bullying, Victimization, and Students' Ethnicity and Academic Achievement

[*] [kisfalusi.dorottya@tk.mta.hu] (Institute for Sociology Centre for Social Sciences, HAS; MTA TK 'Lendület' Research Center for Educational and Network Studies (RECENS); Institute of Sociology and Social Policy, Corvinus University of Budapest)

Abstract [1]

This study examines the associations between four types of peer-reported bullying and peer-reported victimization (mocking, physical bullying, negative gossip, cyberbullying), and students' ethnicity and academic achievement among sixth-grade Hungarian primary school students. For data analysis, multilevel regression models are used. Based on the analysis of 27 classes, it was found that students' self-declared ethnicity is not significantly related to bullying and victimization among students with higher socio-economic status. In some models, however, a significant interaction term between ethnicity and low socio-economic status has been found, showing that among low status students, Roma ethnicity is more strongly associated with bullying and victimization than among high status students. Furthermore, there is no sign of the acting white phenomenon among the students in the study in general and among the Roma students in particular. In contrast, students having higher grades are less likely to be nominated as victims of any form of bullying except for mocking.

Keywords: Academic achievement, Bullying, Early adolescence, Ethnicity, Victimization.

1. Introduction

School bullying causes increasing concerns among teachers and parents in Hungary as well as in other countries. In the past few decades, more and more anti-bullying programs have been developed to handle the problem of harassment among children and adolescents and to help students who are victimized by their peers. Bullying is a serious form of aggression since it has several adverse effects on the victimized students. Victims are likely to experience anxiety, depression, low self-esteem, mental and physical health problems, and isolation from peers (Faris and Ennett, 2012; McKenney et al., 2006). Furthermore, victimization might have negative consequences on students' school performance (Eisenberg et al., 2003).

Various definitions of bullying have been proposed in the literature, and most of them agree that it is characterized by some form of aggressive behavior (Espelage and Swearer, 2003). According to the most widely referred definition, bullying is a repeatedly occurring negative act between one or more bullies and their victim, where a power imbalance exists between the students (Olweus, 1993).

Students display different types of aggressive behaviour towards peers. Direct or overt forms of aggression, on the one hand, involve verbal of physical acts that happen face-to-face among students and are visible to the peer group. Indirect or covert aggression, on the other hand, is not characterized by direct confrontation with the victimized student (Björkqvist et al., 1992; Card et al., 2008; Espelage and Swearer, 2003; Sijtsema et al., 2010). Negative gossip, exclusion, and harmful manipulations of one's social relationships are examples of indirect aggression (Crick, 1995; Little et al., 2003). Furthermore, cyberbullying is the newest form of harassment: children can use a wide range of electronic devices and platforms to bully their peers. Sending mean messages via phone or email and writing embarrassing posts or comments on social networking sites are typical forms of cyberbullying (Smith et al., 2008; Wegge et al., 2015).

Students with certain characteristics are more likely to be victimized than others. Socially and personally vulnerable students, for instance – e.g. disliked and rejected students (Knack et al., 2012; Veenstra et al., 2010), students having few or no friends (Faris and Felmlee, 2014; Hodges and Perry, 1996), students with behavioral problems (van Lier et al., 2012), low self-esteem (Sainio et al., 2012), or other characteristics disdained by their peers (Batsche and Knoff, 1994; Olweus, 1993; Wang et al., 2010) –, are at greater risk of being victimized. Students having high status in the class can also be targets of victimization if aggression is used instrumentally to reach high social status in the class (Faris and Felmlee, 2014). Some students, however, are more likely to be perpetrators than others. Popular students (Cillessen and Mayeux, 2004; Faris and Felmlee, 2011; Juvonen et al., 2003; Rodkin and Berger, 2008; Sijtsema et al., 2009), for example, are more likely to bully their peers than students who are less popular.

Researchers in the past decades also concentrated on the role of ethnicity in bullying and victimization (e.g., Fandrem et al., 2009; McKenney et al., 2006; Vitoroulis and Vaillancourt, 2014), but this association has received little attention in the Hungarian context. Majority and minority students might have different likelihoods to be bullies or victims, and this association might be moderated by the

ethnic composition of the class (Tolsma et al., 2013; Vervoort et al., 2010). Moreover, different ethnic groups might value high academic achievement differently; therefore, association between school performance and victimization might differ among majority and minority students.

The present study focuses on bullying and victimization among sixth-grade Hungarian primary school students. Various types of negative behavior among students are differentiated, such as physical aggression, mocking, negative gossip, and cyberbullying. Analyzing peer-reports of bullying and victimization, it is examined how students' ethnicity and academic achievement are associated with being a perpetrator or a victim in the different bullying relations. In the analysis, several characteristics of the students are controlled for, which have previously been found to be correlated with bullying and victimization.

In the next section I review the relevant theories and previous empirical findings on the associations between bullying, victimization, and students' ethnicity and academic achievement. I also summarize previous findings on the relation between bullying, victimization, and the control variables used in this study. Then I introduce the data and the procedure of the study and present the results of a descriptive analysis and a cross-sectional regression analysis. In the last section, I summarize the main findings of this paper, discuss the implications of the results, and formulate suggestions for directions for future research.

2. The associations between bullying, victimization, and students' characteristics

2.1. The role of ethnicity in bullying and victimization

As was emphasized earlier, there is usually a power imbalance between the bullies and their victims (Olweus, 1993). Minority groups in a society often also possess less power than the majority (McKenney et al., 2006; Vervoort et al., 2010) because of their marginalized economic and social position. Furthermore, minority students often experience prejudicial attitudes and discrimination. Prejudice might be expressed in the form of aggressive behavior towards minority students. Ethnic bullying is a special form of harassment and describes cases when students are bullied based on their ethnicity (Fandrem et al., 2009; Monks, Ortega-Ruiz and Rodríguez-Hidalgo, 2008; Verkuyten and Thijs, 2002).

Social misfit theory (Wright et al., 1986) suggests that minority students might be the targets of bullying particularly if there are large differences between the majority and minority culture (Tolsma et al., 2013; Vervoort et al., 2010). Students who do not accept the dominant group norms might be rejected in the class, and rejected students are frequently victimized (Knack et al., 2012; Veenstra et al., 2010). Students' ethnicity might be perceived as a salient dimension along which cultural norms differ (Tolsma et al., 2013; Vervoort et al., 2010), therefore, minority students might be more likely to be victimized than majority students. Hence, it is expected that Roma students are more likely to be victimized than majority students. This association is, however, anticipated to be moderated by the proportion of Roma students in the given class, as

majority students' cultural norms are expected to be more dominant in classrooms where Roma students are in a numerical minority.

Previous empirical studies presented mixed findings with regard to the associations between ethnicity, bullying, and victimization. While several researchers found no significant differences between ethnic majority and minority youth (e.g. Eslea and Mukhtar, 2000; McKenney et al., 2006; Monks et al., 2008; Wolke et al., 2001); in other studies, certain ethnic groups proved to be more likely to bully or be victimized than others (e.g. Fandrem et al., 2009; Hanish and Guerra, 2000; Strohmeier et al., 2011; Verkuyten and Thijs, 2002; Vervoort et al., 2010). In an analysis of bullying among Roma and non-Roma Hungarian secondary school students, Kisfalusi (2016) found no significant differences between the victimization of self-declared Roma and non-Roma students. Students perceived as Roma by their peers, however, were more likely to be nominated as both bullies and victims than students perceived as non-Roma.

2.2. Students' academic achievement and victimization

High academic achievement can lead to victimization if an oppositional culture emerges within classrooms. The phenomenon of oppositional culture was described by Ogbu and his colleagues (Fordham and Ogbu, 1986; Ogbu, 1978), who stated that members of involuntary minorities (such as blacks in the United States) experience limited social and economic opportunities compared to whites and voluntary minorities. Realizing that their academic efforts are less rewarding, blacks develop oppositional attitudes towards schooling. Moreover, academically successful black students are considered to be 'acting white' by black peers and accused of wanting to meet the expectations of the white society (Fordham and Ogbu, 1986). Although several empirical studies have challenged the key assumptions and predictions of the oppositional culture explanation and the acting white hypothesis (e.g., Ainsworth-Darnell and Downey, 1998; Harris, 2011; Horvat and Lewis, 2003; Tyson et al., 2005), similar mechanisms have been described in other countries (De Vos and Wagatsuma, 1966; Willis, 1977), and among other communities in the US (Fryer Jr. and Torelli, 2010; Gans, 1962) as well.

Roma people in Hungary also represent a group defined as involuntary minorities by Ogbu and colleagues (Fordham and Ogbu, 1986; Ogbu, 1978). Furthermore, the situation of the Roma minority is in many aspects similar to the situation of black people in the United States. Based on the Hungarian National Assessment of Basic Competences, for instance, Roma eighth-grade students have one standard deviation lower test scores on average than their non-Roma peers (Kertesi and Kézdi, 2011). Roma students also receive lower grades from teachers than non-Roma students (Hajdu et al., 2015; Messing et al., 2010). Moreover, the dropout rate is considerable higher among Roma secondary school students than among the non-Roma. Due to these differences in educational opportunities and the wide-spread prejudice and discrimination against the Roma (Váradi, 2014), there is a significant gap between the Roma and non-Roma population regarding their employment rate as well (Kemény and Janky, 2006). Roma people therefore face limited economic opportunities compared to the non-Roma population. Based on the arguments of the

oppositional culture explanation, it would be thus reasonable to expect that the acting white phenomenon is present among the Roma students.

As high academic performance is not the most valued characteristic among adolescents (Coleman, 1961), and an oppositional culture towards schooling can develop not only among minority students but among other low-status students as well (Farkas et al., 2002; Willis, 1977), I investigate whether high academic achievement leads to being victimized in general, and among Roma students in particular. Hajdu et al. (2015) found no sign of an acting white phenomenon among Hungarian Roma students examining friendship and hostility relations. This study extends their research by focusing on the behavioral aspects of negative relations among students.

2.3. Further characteristics of bullies and victims

Previous studies showed significant gender differences in bullying. Boys are usually more likely than girls to bully others (e.g., Rodkin and Berger, 2008; Veenstra et al., 2007), especially to use direct forms of aggression (Card et al., 2008). Girls have been found to be more likely than boys to use indirect, relational forms of bullying such as gossip and exclusion (Olweus, 1993), although the difference is small in magnitude (Card et al., 2008), and limited to specific age groups such as later childhood and adolescence (Archer, 2004).

Students' status has also been related to bullying and victimization. Two different types of peer group status are distinguished in the literature (Cillessen and Mayeux, 2004; Lafontana and Cillessen, 1999). Sociometric popularity, on the one hand, can be measured by asking students about their positive and negative affective relations towards their peers (e.g., Dijkstra et al., 2007; 2008). Whether students are accepted or rejected by their peers can be identified by calculating how many classmates actually like or dislike them. The concept of perceived popularity, on the other hand, measures students' perceptions about the popularity of their classmates by asking them to nominate peers who are popular in the class (e.g., Cillessen and Mayeux, 2004; de Bruyn et al., 2010; Lafontana and Cillessen, 1999).

Peer acceptance and perceived popularity are differently related to bullying and victimization. Rejected students (Knack et al., 2012; Veenstra et al., 2010), and students who have few friends (Faris and Felmlee, 2014; Hodges and Perry, 1996) were generally found to be more likely to be victimized than students having more supportive peer relationships. Research on the association between acceptance and being a bully, however, presented mixed findings (Newcomb et al., 1993; Price and Dodge, 1989; Salmivalli et al., 2000).

In several studies, perceivedly popular students were found to be more likely to bully others than less popular peers (de Bruyn et al., 2010; Juvonen et al., 2003; Prinstein and Cillessen, 2003; Rodkin and Berger, 2008; Sijtsema et al., 2009). This association was described in the cases of physical and relational forms of aggression (Cillessen and Mayeux, 2004) as well as in the case of gossip (Wargo Aikins et al., 2015). Findings about the relationship between students' peer status and victimization are again controversial. Whereas de Bruyn et al. (2010) found a negative relationship between popularity and victimization, Faris and Felmlee (2014) described a curvilinear, inverted U shape relation between network centrality and victimization.

Several other characteristics of students are associated with the involvement in bullying. Based on the results of a meta-analysis, lower socio-economic status seems to be associated with being a bully or a victim (Tippett and Wolke, 2014). Physical appearance (Janssen et al., 2004; Knack et al., 2012), physical strength, and athletic ability (Knack et al., 2012; Tolsma et al., 2013) also affects which students are more likely to be bullies or victims.

3. Method

3.1. Procedure and participants

The data stem from the fourth wave of a six-wave-long Hungarian panel study conducted between 2013 and 2017 among primary school students.[2] Fourth-wave data were collected in the spring of 2015, when students were enrolled in the sixth grade and were 13 years old on average (N=1054 students, 53 classes in 34 schools in 28 settlements). The main aim of the research was to investigate students' social networks, including negative relations such as disliking and bullying, with a special focus on interethnic relations. Schools with a high proportion of Roma students were therefore overrepresented in the sample. The schools were located in the central part of Hungary: in the capital city (N=5), towns (N=9), and villages (N=20).[3]

The fourth wave of the research was selected because in May 2015, one month after the data collection, students' basic competences in reading and mathematics were measured with a standardized national test: the National Assessment of Basic Competences (NABC). The dataset I use is linked to the database of NABC.[4] Thus, for this wave of the study, not only students' grades are available to measure academic achievement, but standardized blind test scores can also be used. These test scores are unobservable to the classmates. Including both grades and test scores in the analysis, we can thus test whether victimization is associated with students' competences or if it is rather associated with students' efforts (i.e., whether controlling for the level of competence, students' grades are significantly associated with victimization). This distinction is crucial to analyze the acting white phenomenon.[5]

Before the data collection, students and parents were informed in an information letter about the aim and procedure of the research. Active consent from parents was requested: they were asked to indicate whether they would allow their child to participate in the study. Students with parental permission (96.9 per cent) filled out a self-administered tablet-based questionnaire during regular school lessons,

---

[2] The longitudinal research started in the autumn of 2013 among all fifth-grade students enrolled in the selected schools. Then, data were collected in the spring of 2014, the autumn of 2014, and in the spring months of 2015, 2016, and 2017.

[3] A detailed description of the sampling procedure can be found in the Appendix.

[4] Active parental consent was asked to connect the study to the students' competence test results. If parental consent was given, the students' identification codes used in this study were linked to their NABC codes with the help of the schools.

[5] Moreover, using both grades and test scores, it is possible to examine whether reversed causality occurs: if victimization affects academic achievement, it can be expected that it has a significant effect on test scores as well. If only the association between victimization and grades is significant, than causality might run from grades to victimization (Hajdu et al., 2015).

under the supervision of trained research assistants. Students were assured that their answers were kept confidential and were used for research purposes exclusively. They were also allowed to decline the participation in the study.

For the purpose of the present analysis, I selected those classes from the sample where the response rate reached 70 per cent, a questionnaire was completed with the head-master of the class, and students' standardized test scores and school grades were available for the researchers. The subsample therefore consisted of 544 students from 27 classes (21 schools) with a mean class size of 20 students (SD=5.4). The overall response rate reached 92.5 per cent in these classes.

3.2. Measures

Bullying and victimization. Similarly to some other studies (Faris and Felmlee, 2014; Tolsma et al., 2013; Veenstra et al., 2007), bullying and victimization were asked from the perspectives of both the bullies and the victims. From the perspective of the bullies, the various forms of bullying were measured with the questions: 1) *'Whom do you usually mock or insult?'* (mocking); 2) *'Whom do you usually jolt, punch or beat up?'* (physical bullying); 3) *'About whom do you usually talk with your classmates behind his/her back?'* (negative gossip); 4) *'Whom do you usually pick on with SMSs, emails or on Facebook?'* (cyberbullying). From the perspective of the victims, the following questions were asked: 1) *'Who mocks or insults you usually?'* (mocking); 2) *'Who jolts, punches or beats you up usually?'* (physical bullying); 3) *'Who usually talks with your classmates about you behind your back?'* (negative gossip); 4) *'Who usually picks on you with SMSs, emails or on Facebook?'* (cyberbullying).[6] Students were provided with an alphabetic list of all classmates and were asked to nominate those to whom the statement applied. In the case of each question, students' incoming nominations (the so-called 'indegrees') were summed, and divided by the number of classmates to take into account the differences in the size of the classes. These measures of peer-reported bullying and victimization were included as the dependent variables in the regression models.

Self-declared ethnicity. In every wave, students could choose from the following categories: 'Hungarian', 'Roma', 'both Hungarian and Roma', or members of 'another ethnicity'. Students who identified themselves as Roma or both Roma and Hungarian at least once[7] in the first four waves of the study[8] were considered as Roma, students

---

[6] The items for bullying and victimization were selected and translated into Hungarian from the Dutch implementation of the KiVa anti-bullying programme (see e.g., Huitsing et al., 2014; the wording of the items was modified a little). In a pilot study, fifth- and sixth-grade students were asked to fill in self-administered questionnaires and to take part in group interviews to assess the frequency at which the different types of bullying occurred. The four most frequently mentioned forms of bullying were included in the final questionnaire.

[7] Only 7.9 per cent of the students consistently declared to be Roma only. 12.8 per cent declared to be Roma in some waves and both Roma and Hungarian in other waves, 5.4 per cent declared to be both Roma and Hungarian in every wave, and 23.2 per cent declared to be Roma and/or both Roma and Hungarian in some waves and Hungarian in other waves. These data are consistent with the phenomenon that many Hungarian Roma tend to declare both Roma and Hungarian identities if multiple choices are allowed (Kertesi and Kézdi, 2011; Simonovits and Kézdi, 2014).

[8] At the time of conducting the analysis, data from the fifth and sixth waves were not available.

who never declared to be Roma or both Roma and Hungarian were considered as non-Roma.[9] 37.1 per cent of the students declared to be Roma. The mean of the proportion of self-declared Roma students in the classes was 41.5 per cent (SD=30.1, min=0 per cent, max=94 per cent).

Grade point average. At the end of each semester, students receive summary grades ranging from 1 (fail) to 5 (excellent) from every subject. For every student, grade point average was calculated based on the summary grades obtained at the end of the previous semester from five subjects: mathematics, literature, Hungarian grammar, history, and foreign language.

Test scores. Reading and mathematics test scores were obtained from the database of the National Assessment of Basic Competences. NABC tests measure every sixth-, eighth-, and tenth-grade students' reading and mathematical skills in Hungary. In contrast to grades, students do not know each other's competence scores. Both mathematics and reading scores are nationally standardized (mean = 1500, SD = 200). For every student, the mean of the two test scores were calculated.

Gender. Students were asked to declare their gender. 51.3 per cent of the students were male.

Acceptance. Students were provided with a list of all classmates and were asked to nominate their friends. For each student, incoming nominations were summed. Then, incoming nominations were divided by the number of classmates. This measure was used as an independent variable in the regression models.

Perceived popularity. Students were provided with a list of all classmates and were asked to nominate classmates they considered *cool.* For each student, incoming nominations were summed to measure perceived popularity in the classroom. Then, incoming nominations were divided by the number of classmates. This measure was used as an independent variable in the regression models.

Socio-economic status. A dummy variable indicates whether students are entitled to get regular child protection allowance based on their disadvantaged status.

Physical appearance. Students were provided with a list of all classmates and were asked to nominate classmates they considered a pretty girl or a handsome boy. For each student, incoming nominations were summed. Then, incoming nominations were divided by the number of classmates. This measure was used as an independent variable in the regression models.

Athletic abilities. Head-masters were asked to nominate students from the class who are *good at sports.* A dummy variable indicates whether the given student was mentioned by the teacher.

3.3 Analytical strategy

The different types of bullying relations (mocking, physical bullying, negative gossip, cyberbullying), are analyzed in separate regression analysis. Moreover, peer-reported bullying and victimization are differentiated based on students' incoming nominations. The incoming nominations in the case of the *'Whom do you usually*

---

[9] Five students declared to belong to another ethnicity (two Rumanians, one Polish, one Russian and one Indian).

mock or insult?' question, for instance, can be considered as the measurement of peer-reported victimization. Similarly, the incoming nominations in the case of the *'Who mocks or insults you usually?'* question can be considered as the measurement of peer-reported bullying behavior.

For data analysis, multilevel linear regression models are used. Since the dependent variables are bounded between zero and one, fractional regression models (Papke and Wooldridge, 1996; Ramalho et al., 2011) would be more appropriate from a statistical point of view. However, multilevel linear models allows the inclusion of cross-level interactions and squared terms to examine curvilinear relationship between variables. Moreover, the parameter estimates of the linear model are easier to interpret than those of non-linear models (Mood, 2010). Taking into account all of these concerns, I decided to present the results of the multilevel linear model.[10]

4. Results

4.1 Descriptive analysis

Table 1 shows the proportion of students who were reported by at least one classmates as victim, bully, or both victim and bully of a certain type of bullying. Whereas cyberbullying is the least frequently occurring form of bullying with 34 per cent of the students involved as bully, victim, or bully-victim, almost everyone participates in gossiping.

Table 1. The proportion of students who are nominated as a bully,
a victim, or both a bully and a victim in the different types of bullying

	bully	victim	bully-victim
cyberbullying	9.9	11.6	12.5
gossip	5.9	19.1	63.2
physical bullying	15.4	17.1	24.6
mocking	16.4	21.7	40.1

Table 2 presents descriptive statistics about incoming nominations in the different types of relations. Self-declared Roma students are more often reported by others as both perpetrators and victims of mocking, physical bullying, and cyberbullying than self-declared non-Roma students. Roma students, moreover, are more frequently reported as gossiping about their classmates than non-Roma students.

---

[10] As a robustness check, I compared the results of the fractional regression models and the OLS regression models (with cluster-robust standard errors, but without the cross-level interactions and squared terms). Parameter estimates pointed in the same direction, although p values differed in the case of some independent variables, leading to different conclusions concerning statistical significance.

Girls are more frequently nominated than boys as gossiping about their classmates. In contrast, boys are more frequently reported than girls as both perpetrators and victims in direct physical and verbal incidents of bullying.

Students with disadvantaged socio-economic background are more frequently reported by others as perpetrators of mocking, physical bullying, and cyberbullying than students with higher status. Low status students, furthermore, are more often reported to be victims of physical aggression than high status students.

Table 2. The associations between the number of bully/victim nominations and the categorical independent variables

	female		male			Non Roma		Roma			good at sports		not good at sports			low SES		not low SES		
	mean	sd	mean	sd		mean	sd	mean	sd		mean	sd	mean	sd		mean	sd	mean	sd	
cyberbullying: bully	0.25	0.47	0.34	0.66		0.20	0.51	0.44	0.64	***	0.30	0.55	0.29	0.66		0.24	0.53	0.45	0.67	***
cyberbullying: victim	0.25	0.50	0.27	0.27		0.19	0.45	0.39	0.60	***	0.28	0.52	0.20	0.49		0.24	0.49	0.31	0.58	
gossip: bully	2.87	2.32	2.21	1.78	**	2.36	2.10	2.78	2.00	**	2.47	2.08	2.73	2.08		2.50	2.11	2.60	2.01	
gossip: victim	1.69	1.94	1.62	1.71		1.70	1.94	1.60	1.66		1.68	1.88	1.58	1.61		1.74	1.89	1.41	1.58	
physical bullying: bully	0.41	0.73	1.19	1.63	***	0.63	1.19	1.09	1.47	***	0.78	1.33	0.92	1.35		0.74	1.29	0.99	1.43	*
physical bullying: victim	0.36	0.67	0.99	1.20	***	0.54	0.91	0.96	1.18	***	0.70	1.04	0.62	0.98		0.62	1.00	0.88	1.09	**
mocking: bully	0.88	1.19	2.34	2.45	***	1.37	2.08	2.04	2.03	***	1.49	1.95	2.08	2.39	*	1.51	2.12	1.94	1.92	**
mocking: victim	0.89	1.34	1.34	1.50	***	1.08	1.51	1.23	1.36	*	1.18	1.52	0.92	1.08		1.12	1.51	1.12	1.21	

Notes: †p < 0.1, *p<0.05, **p<0.01, ***p<0.001 for a Mann-Whitney-test of differences in mean ranks. N=544 students, 27 classes

Table 3 presents bivariate correlations between acceptance, students' popularity, perceived attractiveness, academic achievement, and the different types of victimization and bullying. Cyberbullying is significantly associated with students' academic achievement only: lower grades and test scores are associated with higher involvement as both bullies and victims in cyberbullying. Grades and test scores are in most cases negatively associated with bullying and victimization. Students having more friends are less involved as both bullies and victims in any form of bullying except for cyberbullying than students having fewer friends. In the case of mocking and gossiping, popularity is negatively associated with being a victim, but it is positively associated with being a perceived perpetrator in verbal bullying. Perceived attractiveness, in general, is negatively associated with being reported as a bully or victim. However, the more students are nominated as attractive, the more they are reported to gossip.

Table 3. Correlations between the dependent and the continuous independent variables

	cyberbullying: bully	cyberbullying: victim	gossip: bully	gossip: victim	physical bullying: bully	physical bullying: victim	mocking: bully	mocking: victim
acceptance	-0.071	-0.054	-0.183***	-0.329***	-0.206***	-0.117**	-0.142***	-0.332***
popularity	-0.033	-0.045	0.053	-0.181***	0.072	-0.074	0.190***	-0.212***
attractiveness	0.003	0.002	0.124**	-0.184***	-0.173***	-0.217***	-0.132**	-0.302***
GPA	-0.303***	-0.265***	-0.128**	-0.063	-0.308***	-0.309***	-0.303***	-0.167***
test score	-0.198***	-0.164***	-0.159***	0.003	-0.235***	-0.169***	-0.183***	-0.088

Notes: $\dagger p < 0.1$, $*p<0.05$, $**p<0.01$, $***p<0.001$. N=544 students, 27 classes

A significantly higher proportion of Roma students is entitled to get regular child protection allowance compared to non-Roma students (57.4 per cent vs. 7.4 per cent, p<0.001). Compared to non-Roma students, Roma students have lower grades (2.7 vs. 3.7, p<0.001) and test scores (mathematics: 1358 vs. 1502, reading: 1299 vs. 1493, p<0.001) on average. There are no significant differences between the Roma and non-Roma students with regard to the number of friends, popularity, physical appearance, and athletic abilities.

4.2 The analysis of peer-reported bullying and victimization

Tables 4 and 5 present the results of the random-intercept multilevel linear models. The dependent variables are the proportion of students who nominated the given students as a bully or a victim in the examined types of bullying. Ethnicity does not have a significant association with any form of peer-reported bullying and victimization among students having higher socio-economic status. Nor does the proportion of Roma students in the class moderate the association between ethnicity and peer-reported bullying or victimization. In some models, however, a significant interaction term between ethnicity and low socio-economic status has been found. Among low status students, Roma ethnicity is more strongly associated with cyberbullying, verbal forms of bullying (mocking and gossip), and victimization in physical and cyberbullying than among high status students.

Students having higher grades are less likely to be nominated as victims of any form of bullying except for mocking (at the 0.1 significance level). Students with higher grades, moreover, are less likely to be nominated as perpetrators of verbal (mocking and negative gossip) and physical bullying. Test scores are not significantly associated with bullying and victimization except for the positive relationship between scores and being nominated as a victim of negative gossip. Additional analysis (not presented in the tables) also shows that neither school grades nor test scores are significantly associated with victimization among Roma students, if only nominations from their Roma peers are taken into account. These associations suggest that there is no sign of an oppositional culture in these classrooms.

Boys are more likely than girls to be nominated as perpetrators of direct verbal (mocking) and physical forms of bullying. Moreover, boys are more likely to be nominated as perpetrators of cyberbullying. Boys are also more likely to be reported as victims of mocking and physical bullying. Girls, on the other hand, are more likely than boys to be nominated as gossiping about their classmates. Although these gender differences are significant, they are not large in magnitude (around 1–5 percentage points).

Students with more friends are less likely to be nominated as victims of mocking and malicious gossip, but this association was not found in the case of physical and cyber victimization. Students with more friends, moreover, are less likely to be nominated as perpetrators of any form of bullying.

An inverted U shape relation has been found between peer-reported gossiping, mocking, and physical bullying activity. Thus, students are more likely to be nominated as perpetrators of physical bullying until they are nominated as popular by 52 per cent of their classmates, they are more likely to be nominated as perpetrators of mocking until they are nominated as popular by 60 per cent of their classmates, and they are more likely to be reported as cyberbullies until they are nominated as popular by 80 per cent of their classmates. In the case of students above this popularity level, bullying declines. In contrast, there is a U shape relationship between popularity and peer-reported victimization in the case of negative gossip and mocking. Thus, students who are the least popular and students who are the most popular are the most likely to be reported as verbally victimized.

Socio-economic status is negatively associated with physical and verbal victimization (mocking) among the non-Roma, whereas attractiveness is positively associated with cyberbullying and with victimization in the gossip network (at the 0.1 level).

Table 4. The results of the regression models predicting peer-reported bullying

	Cyberbullying			Gossip			Mocking			Physical bullying		
	Estimate	SD	p	Estimate	SD	p	Estimate	SD	p	Estimate	SD	p
constant	-0.001	0.015	0.961	0.122	0.049	0.013	0.055	0.046	0.234	0.079	0.034	0.020
boy	0.011	0.003	0.001	-0.039	0.010	0.000	0.042	0.011	0.000	0.028	0.008	0.000
Roma	0.006	0.008	0.410	0.015	0.024	0.527	0.008	0.025	0.762	0.028	0.018	0.123
acceptance	-0.024	0.013	0.066	-0.213	0.040	0.000	-0.240	0.042	0.000	-0.134	0.030	0.000
popularity	0.024	0.022	0.263	0.277	0.065	0.000	0.442	0.069	0.000	0.240	0.049	0.000
popularity²	-0.039	0.028	0.160	-0.173	0.084	0.039	-0.366	0.089	0.000	-0.230	0.063	0.000
GPA	-0.003	0.002	0.146	-0.011	0.006	0.071	-0.026	0.006	0.000	-0.011	0.005	0.022
test score (divided by 100)	0.001	0.001	0.455	0.004	0.004	0.222	0.006	0.004	0.127	-0.001	0.003	0.830
low SES	-0.003	0.005	0.827	-0.003	0.015	0.857	0.002	0.016	0.899	0.016	0.012	0.167
Roma*low SES	0.015	0.009	0.094	0.075	0.027	0.005	0.052	0.028	0.067	0.005	0.020	0.796
attractiveness	0.035	0.011	0.002	0.022	0.035	0.521	-0.017	0.036	0.644	-0.008	0.026	0.749
good at sports	-0.001	0.003	0.699	0.009	0.010	0.332	0.014	0.010	0.148	-0.000	0.007	0.950
proportion of Roma students	0.008	0.013	0.552	-0.028	0.058	0.629	0.017	0.042	0.691	-0.013	0.033	0.698
Roma*proportion of Roma	0.004	0.016	0.823	0.060	0.049	0.224	0.011	0.050	0.832	-0.032	0.036	0.374
intraclass correlation	0.254			0.531			0.266			0.343		
R²	0.111			0.195			0.311			0.228		

N=450

Table 5. The results of the regression models predicting peer-reported victimization

	Cyberbullying			Gossip			Mocking			Physical bullying		
	Estimate	SD	p	Estimate	SD	p	Estimate	SD	p	Estimate	SD	p
constant	-0.003	0.012	0.830	0.105	0.042	0.013	0.083	0.034	0.015	0.006	0.025	0.823
boy	0.003	0.003	0.297	0.003	0.009	0.735	0.033	0.008	0.000	0.036	0.006	0.000
Roma	0.003	0.007	0.688	0.000	0.021	0.995	-0.009	0.018	0.620	-0.007	0.013	0.573
acceptance	-0.010	0.011	0.376	-0.203	0.035	0.000	-0.131	0.030	0.000	-0.019	0.022	0.397
popularity	0.015	0.018	0.403	-0.190	0.058	0.001	-0.129	0.050	0.009	-0.023	0.036	0.534
popularity^2	-0.011	0.023	0.642	0.228	0.074	0.002	0.123	0.064	0.054	0.008	0.047	0.871
GPA	-0.003	0.002	0.054	-0.013	0.005	0.015	-0.007	0.005	0.114	-0.008	0.003	0.020
test score (divided by 100)	0.001	0.001	0.163	0.006	0.003	0.047	0.001	0.003	0.638	0.003	0.002	0.171
low SES	-0.006	0.004	0.164	-0.013	0.014	0.351	-0.027	0.012	0.023	-0.017	0.009	0.050
Roma*low SES	0.017	0.007	0.022	0.033	0.024	0.159	0.014	0.020	0.479	0.057	0.015	0.000
attractiveness	-0.000	0.010	0.987	0.052	0.031	0.090	0.031	0.026	0.233	-0.002	0.019	0.933
good at sports	-0.001	0.003	0.582	0.003	0.008	0.707	-0.012	0.007	0.102	-0.003	0.005	0.569
proportion of Roma students	0.022	0.011	0.052	-0.007	0.047	0.878	0.067	0.033	0.044	0.020	0.024	0.397
Roma*proportion of Roma	-0.001	0.013	0.958	0.045	0.043	0.300	0.009	0.036	0.803	0.041	0.027	0.121
intraclass correlation	0.268			0.461			0.333			0.315		
R^2	0.107			0.094			0.165			0.209		

N=450

5. Discussion

This study examined the associations between peer-reported bullying, victimization, and students' ethnicity and academic achievement among sixths-grade Hungarian primary school students. Although ethnicity did not play a significant role in bullying and victimization among students with higher socio-economic status, Roma ethnicity has been found to be more strongly associated with cyberbullying, verbal forms of bullying (mocking and gossip), physical victimization and cyberbullying among low status students. It thus seems that low status Roma students are more likely to be involved in certain forms of bullying as both bullies and victims than high status Roma students or low status non-Roma students. The intra- and interethnic nature of bullying, however, was not taken into account in the analysis (Tolsma et al., 2013). Future research should focus more on who bullies whom in primary schools, since the analysis of dyadic relations would allow same-ethnic and cross-ethnic victimization to be differentiated.

There was no sign of the acting white phenomenon among the students in the sample in general, and among Roma students in particular. These results are in line with the findings of Hajdu et al. (2015) who analyzed friendship and hostility relations among Roma and non-Roma Hungarian students. They found that Roma students did not reject their high-achieving Roma peers. The present study showed that Roma students do not bully their Roma classmates with high school grades either.

In line with theoretical explanations and previous literature (Card et al., 2008), boys were found to be more likely to use direct forms of aggression, such as mocking and physical aggression. Girls, however, were more likely to spread negative gossip about their classmates. Although the dyadic relations were not taken into account in the analysis, the fact that boys were more likely to be nominated as both victims and perpetrators of direct forms of bullying suggest that this kind of harassment might more likely occur in same-gender relations than in cross-gender ones.

Similarly to previous findings (Faris and Felmlee, 2014; Hodges and Perry, 1996), students with fewer friends were more likely to be victimized than students having more friends, although this association was only found in the case of verbal forms of bullying such as mocking and gossip. These results suggest that social exclusion and victimization often co-occur with each other. In contrast, a U-shape relation was found between popularity and victimization in the case of verbal forms of bullying, in line with the argument that two types of bullying can be differentiated: normative targeting and instrumental targeting (Faris and Felmlee, 2014). Whereas unpopular students might be bullied because of the intention to maintain the group norms, instrumental bullying is targeted towards high status students with the intention of gaining higher status among peers.

The major limitation of the study is that reversed causality was not taken into account. Not only social exclusion can lead to being victimized, but victimized students might lose their friends over time. Similarly, while students with lower grades might be more likely to be victimized, it is also possible that victimized students get lower grades over time just because they are victimized (Juvonen et al., 2011). Longitudinal analysis of more waves of the data collection might gain further insights into the underlying causal mechanisms. The fact that victimization is negatively

associated with grades and not with test scores might however suggest that causality runs from grades to victimization and not from victimization to academic achievement.

Another limitation is that information on relevant factors contributing to bullying and victimization were not available in the dataset. Psychological characteristics, for instance, or victimization at home might also explain why certain students are more likely to bully others, or to be victimized in schools, than their classmates.

A third limitation is that the student population in the sample does not represent the Roma and non-Roma student population in Hungary. Schools with a high proportion of Roma students were overrepresented in the sample, and the characteristics of the Roma population living in other areas in Hungary might be different from those of Roma students included in the sample (Kemény et al., 2004). Thus, the association between ethnicity, bullying, and victimization might show different patterns in other areas in Hungary.

Moreover, bullying and victimization was measured with four different items in the questionnaire. Several forms of bullying, however, were not measured in the study. It was not asked, for instance, whether students are bullied specifically because of their ethnic background. Further research is needed to assess the robustness of the findings, focusing on different measures of bullying and victimization.

Despite these limitations, the findings of this study provide important contribution to the understanding of the associations between bullying, victimization, and students' characteristics. It has been shown that ethnicity has a stronger association with bullying and victimization among students with low socio-economic status than among high status students, and that gender, popularity, and academic achievement of students are significantly related to being a bully or a victim in various forms of bullying in the school.

References

Ainsworth-Darnell, J. W. and Downey, D. B. (1998) Assessing the Oppositional Culture Explanation for Racial/Ethnic Differences in School Performance. *American Sociological Review, 63*(4): 536–553. DOI: https://doi.org/10.2307/2657266

Archer, J. (2004) Sex Differences in Aggression in Real-World Settings: A Meta-Analytic Review. *Review of General Psychology, 8*(4): 291–322. DOI: https://doi.org/10.1037/1089-2680.8.4.291

Batsche, G. M. and Knoff, H. M. (1994) Bullies and Their Victims: Understanding a Pervasive Problem in the Schools. *School Psychology Review, 23*(2): 165. DOI: https://doi.org/10.1177/0143034301223011

Björkqvist, K., Lagerspetz, K. M. J. and Kaukiainen, A. (1992) Do Girls Manipulate and Boys Fight? Developmental Trends in Regard to Direct and Indirect Aggression. *Aggressive Behavior*, *18*(2): 117–127. DOI: https://doi.org/10.1002/1098-2337(1992)18:2<117::AID-AB2480180205>3.0.CO;2-3

Card, N. A., Stucky, B. D., Sawalani, G. M. and Little, T. D. (2008) Direct and Indirect Aggression During Childhood and Adolescence: A Meta-Analytic Review of Gender Differences, Intercorrelations, and Relations to Maladjustment. *Child Development*, 79(5): 1185–1229. DOI: https://doi.org/10.1111/j.1467-8624.2008.01184.x

Cillessen, A. H. N. and Mayeux, L. (2004) From Censure to Reinforcement: Developmental Changes in the Association Between Aggression and Social Status. *Child Development*, 75(1): 147–163. DOI: https://doi.org/10.1111/j.1467-8624.2004.00660.x

Coleman, J. S. (1961) *The Adolescent Society. The Social Life of the Teenager and its Impact on Education.* New York: Free Press.

Crick, N. R. (1995). Relational Aggression: The Role of Intent Attributions, Feelings of Distress, and Provocation Type. *Development and Psychopathology*, 7(2): 313–322. DOI: https://doi.org/10.1017/S0954579400006520

de Bruyn, E. H., Cillessen, A. H. N. and Wissink, I. B. (2010) Associations of Peer Acceptance and Perceived Popularity With Bullying and Victimization in Early Adolescence. *The Journal of Early Adolescence*, 30(4): 543–566. DOI: https://doi.org/10.1177/0272431609340517

De Vos, G. A. and Wagatsuma, H. (1966) *Japan's Invisible Race: Caste in Culture and Personality.* Berkeley: University of California Press.

Dijkstra, J. K., Lindenberg, S. and Veenstra, R. (2007) Same-Gender and Cross-Gender Peer Acceptance and Peer Rejection and Their Relation to Bullying and Helping Among Preadolescents: Comparing Predictions from Gender-Homophily and Goal-Framing Approaches. *Developmental Psychology*, 43(6): 1377–1389. DOI: https://doi.org/10.1037/0012-1649.43.6.1377

Dijkstra, J. K., Lindenberg, S. and Veenstra, R. (2008) Beyond the Class Norm: Bullying Behavior of Popular Adolescents and its Relation to Peer Acceptance and Rejection. *Journal of Abnormal Child Psychology*, 36(8): 1289–1299. DOI: https://doi.org/10.1007/s10802-008-9251-7

Eisenberg, M. E., Neumark-Sztainer, D. and Perry, C. L. (2003) Peer Harassment, School Connectedness, and Academic Achievement. *The Journal of School Health*, 73(8): 311–316. DOI: https://doi.org/10.1111/j.1746-1561.2003.tb06588.x

Eslea, M. and Mukhtar, K. (2000) Bullying and Racism Among Asian Schoolchildren in Britain. *Educational Research*, 42(2): 207–217. DOI: https://doi.org/10.1080/001318800363845

Espelage, D. L. and Swearer, S. M. (2003) Research on School Bullying and Victimization: What Have We Learned and Where Do We Go from Here? *School Psychology Review*, 32(3): 365–383.

Fandrem, H., Strohmeier, D. and Roland, E. (2009) Bullying and Victimization Among Native and Immigrant Adolescents in Norway: The Role of Proactive and Reactive Aggressiveness. *The Journal of Early Adolescence*, 29(6): 898–923. DOI: https://doi.org/10.1177/0272431609332935

Faris, R. and Ennett, S. (2012) Adolescent Aggression: The Role of Peer Group Status Motives, Peer Aggression, and Group Characteristics. *Social Networks*, 34(4): 371–378. DOI: https://doi.org/10.1016/j.socnet.2010.06.003

Faris, R. and Felmlee, D. (2011) Status Struggles: Network Centrality and Gender Segregation in Same- and Cross-Gender Aggression. *American Sociological Review*, 76(1): 48–73. DOI: https://doi.org/10.1177/0003122410396196

Faris, R. and Felmlee, D. (2014) Casualties of Social Combat School Networks of Peer Victimization and Their Consequences. *American Sociological Review*, 79(2): 228–257. DOI: https://doi.org/10.1177/0003122414524573

Farkas, G., Lleras, C. and Maczuga, S. (2002) Does Oppositional Culture Exist in Minority and Poverty Peer Groups? *American Sociological Review*, 67(1): 148–155. DOI: https://doi.org/10.2307/3088938

Fordham, S. and Ogbu, J. U. (1986) Black Students' School Success: Coping with the "Burden of 'Acting White'". *The Urban Review*, 18(3): 176–206. DOI: https://doi.org/10.1007/BF01112192

Fryer Jr., R. G. and Torelli, P. (2010) An Empirical Analysis of 'Acting White'. *Journal of Public Economics*, 94(5–6): 380–396. DOI: https://doi.org/10.1016/j.jpubeco.2009.10.011

Gans, H. J. (1962) *The Urban Villagers; Group and Class in the Life of Italian-Americans.* New York: Free Press of Glencoe.

Hajdu, T., Kertesi, G. and Kézdi, G. (2015) High-Achieving Minority Students Can Have More Friends and Fewer Adversaries: Evidence from Hungary. In: *Budapest Working Papers on the Labour Market BWP – 2015/7.* Budapest: Institute of Economics, Centre for Economic and Regional Studies, Hungarian Academy of Sciences Department of Human Resources, Corvinus University of Budapest. Available at: https://ias.ceu.edu/sites/ias.ceu.edu/files/attachment/basicpage/416/kertesi.pdf

Hanish, L. D. and Guerra, N. G. (2000) The Roles of Ethnicity and School Context in Predicting Children's Victimization by Peers. *American Journal of Community Psychology*, 28(2): 201–223. DOI: https://doi.org/10.1023/A:1005187201519

Harris, A. L. (2011) *Kids Don't Want to Fail: Oppositional Culture and the Black-White Achievement Gap.* London: Harvard University Press. DOI: https://doi.org/10.4159/harvard.9780674060999

Hodges, E. V. E. and Perry, D. G. (1996) Victims of Peer Abuse: An Overview. *Journal of Emotional and Behavioral Problems*, (5): 23–28.

Horvat, E. M. and Lewis, K. S. (2003) Reassessing the 'Burden of "Acting White"': The Importance of Peer Groups in Managing Academic Success. *Sociology of Education, 76*(4): 265–280. DOI: https://doi.org/10.2307/1519866

Houtzager, B. and Baerveldt, C. (1999) Just like Normal: A Social Network Study of the Relation between Petty Crime and the Intimacy of Adolescent Friendships. *Social Behavior and Personality: An International Journal*, 27(2): 177–192. DOI: https://doi.org/10.2224/sbp.1999.27.2.177

Huitsing, G., Snijders, T. A. B., Van Duijn, M. A. J. and Veenstra, R. (2014) Victims, Bullies, and Their Defenders: A Longitudinal Study of the Coevolution of Positive and Negative Networks. *Development and Psychopathology*, 26(3): 645–659. DOI: https://doi.org/10.1017/S0954579414000297

Janssen, I., Craig, W. M., Boyce, W. F. and Pickett, W. (2004) Associations Between Overweight and Obesity With Bullying Behaviors in School-Aged Children. *Pediatrics*, 113(5): 1187–1194. DOI: https://doi.org/10.1542/peds.113.5.1187

Juvonen, J., Graham, S. and Schuster, M. A. (2003. Bullying Among Young Adolescents: The Strong, the Weak, and the Troubled. *Pediatrics*, 112(6): 1231–1237. DOI: https://doi.org/10.1542/peds.112.6.1231

Juvonen, J., Wang, Y. and Espinoza, G. (2011). Bullying Experiences and Compromised Academic Performance Across Middle School Grades. *The Journal of Early Adolescence*, 31(1): 152–173. DOI: https://doi.org/10.1177/0272431610379415

Kemény, I. and Janky, B. (2006) Roma Population of Hungary 1971-2003. In: Kemény, I. (ed.) *Roma of Hungary*. New York: Columbia University Press. 70–225.

Kertesi, G. and Kézdi, G. (2011) The Roma/Non-Roma Test Score Gap in Hungary. *American Economic Review*, 101(3): 519–525. DOI: https://doi.org/10.1257/aer.101.3.519

Kisfalusi, D. (2016) *Interethnic Relations among Roma and Non-Roma Students in Hungary*. Budapest: Budapesti Corvinus Egyetem. Doctoral Dissertation. Available at: http://phd.lib.uni-corvinus.hu/909/

Knack, J. M., Tsar, V., Vaillancourt, T., Hymel, S. and McDougall, P. (2012) What Protects Rejected Adolescents From Also Being Bullied by Their Peers? The Moderating Role of Peer-Valued Characteristics. *Journal of Research on Adolescence*, 22(3): 467–479. DOI: https://doi.org/10.1111/j.1532-7795.2012.00792.x

Lafontana, K. M. and Cillessen, A. H. N. (1999) Children's Interpersonal Perceptions as a Function of Sociometric and Peer-Perceived Popularity. *The Journal of Genetic Psychology*, 160(2): 225–242. DOI: https://doi.org/10.1080/00221329909595394

Little, T. D., Henrich, C. C., Jones, S. M. and Hawley, P. H. (2003) Disentangling the 'Whys' from the 'Whats' of Aggressive Behaviour. *International Journal of Behavioral Development*, 27(2): 122. DOI: https://doi.org/10.1080/01650250244000128

McKenney, K. S., Pepler, D., Craig, W. and Connolly, J. (2006). Peer Victimization and Psychosocial Adjustment: The Experiences of Canadian Immigrant Youth. *Electronic Journal of Research in Educational Psychology*, 4: 1696–2095.

Messing, V., Neményi, M. and Szalai, J. (2010) *Ethnic Differences in Education in Hungary: Survey Report*. Budapest: Central European University, Center for Policy Studies. Available at: https://www.edumigrom.eu/sites/default/files/field_attachment/page/node-5387/edumigromsurveyreporthungary_1.pdf

Monks, C. P., Ortega-Ruiz, R. and Rodríguez-Hidalgo, A. J. (2008) Peer Victimization in Multicultural Schools in Spain and England. *European Journal of Developmental Psychology*, 5(4): 507–535. DOI: https://doi.org/10.1080/17405620701307316

Mood, C. (2010) Logistic Regression: Why We Cannot Do What We Think We Can Do, and What We Can Do About It. *European Sociological Review*, 26(1): 67–82. DOI: https://doi.org/10.1093/esr/jcp006

Newcomb, A. F., Bukowski, W. M. and Pattee, L. (1993) Children's Peer Relations: A Meta-Analytic Review of Popular, Rejected, Neglected, Controversial, and Average Sociometric Status. *Psychological Bulletin*, 113(1): 99–128. DOI: https://doi.org/10.1037/0033-2909.113.1.99

Ogbu, J. U. (1978) *Minority Education and Caste*. New York: Academic Press.

Olweus, D. (1993) *Bullying at School: What We Know and What We Can Do*. Oxford: Wiley.

Papke, L. E. and Wooldridge, J. M. (1996) Econometric Methods for Fractional Response Variables with an Application to 401(K) Plan Participation Rates. *Journal of Applied Econometrics*, 11(6): 619–632. DOI: https://doi.org/10.1002/(SICI)1099-1255(199611)11:6<619::AID-JAE418>3.0.CO;2-1

Pearson, M. and West, P. (2003) Drifting Smoke Rings: Social Network Analysis and Markov Processes in a Longitudinal Study of Friendship Groups and Risk Taking. *Connections: Bulletin of the International Network for Social Network Analysis*, 25(2): 59–76.

Price, J. M. and Dodge, K. A. (1989) Reactive and Proactive Aggression in Childhood: Relations to Peer Status and Social Context Dimensions. *Journal of Abnormal Child Psychology*, 17(4): 455–471. DOI: https://doi.org/10.1007/bf00915038

Prinstein, M. J. and Cillessen, A. H. (2003) Forms and Functions of Adolescent Peer Aggression Associated With High Levels of Peer Status. *Merrill-Palmer Quarterly*, 49(3): 310–342. DOI: https://doi.org/10.1353/mpq.2003.0015

Ramalho, E. A., Ramalho, J. J. S. and Murteira, J. M. R. (2011) Alternative Estimating and Testing Empirical Strategies for Fractional Regression Models. *Journal of Economic Surveys*, 25(1): 19–68. DOI: https://doi.org/10.1111/j.1467-6419.2009.00602.x

Rodkin, P. C. and Berger, C. (2008) Who Bullies Whom? Social Status Asymmetries by Victim Gender. *International Journal of Behavioral Development*, 32(6): 473–485. DOI: https://doi.org/10.1177/0165025408093667

Sainio, M., Veenstra, R., Huitsing, G. and Salmivalli, C. (2012) Same- and Other-Sex Victimization: Are the Risk Factors Similar? *Aggressive Behavior*, 38(6): 442–455. DOI: https://doi.org/10.1002/ab.21445

Salmivalli, C., Kaukiainen, A. and Lagerspetz, K. (2000) Aggression and Sociometric Status among Peers: Do Gender and Type of Aggression Matter? *Scandinavian Journal of Psychology*, 41(1): 17–24. DOI: https://doi.org/10.1111/1467-9450.00166

Sijtsema, J. J., Ojanen, T., Veenstra, R., Lindenberg, S., Hawley, P. H. and Little, T. D. (2010) Forms and Functions of Aggression in Adolescent Friendship Selection and Influence: A Longitudinal Social Network Analysis. *Social Development*, 19(3): 515–534. DOI: https://doi.org/10.1111/j.1467-9507.2009.00566.x

Sijtsema, J. J., Veenstra, R., Lindenberg, S. and Salmivalli, C. (2009) Empirical Test of Bullies' Status Goals: Assessing Direct Goals, Aggression, and Prestige. *Aggressive Behavior*, 35(1): 57–67. DOI: https://doi.org/10.1002/ab.20282

Simonovits, G. and Kézdi, G. (2014) *Poverty and the Formation of Roma Identity in Hungary: Evidence from a Representative Panel Survey of Adolescents* (SSRN Scholarly Paper No. ID 2428607). Rochester, NY: Social Science Research Network. Available at: http://papers.ssrn.com/abstract=2428607

Smith, P. K., Mahdavi, J., Carvalho, M., Fisher, S., Russell, S. and Tippett, N. (2008) Cyberbullying: Its Nature and Impact in Secondary School Pupils. *Journal of Child Psychology and Psychiatry*, 49(4): 376–385. DOI: https://doi.org/10.1111/j.1469-7610.2007.01846.x

Stark, T. H. and Flache, A. (2012) The Double Edge of Common Interest: Ethnic Segregation as an Unintended Byproduct of Opinion Homophily. *Sociology of Education*, 85(2): 179–199. DOI: https://doi.org/10.1177/0038040711427314

Stark, T. H., Flache, A. and Veenstra, R. (2013) Generalization of Positive and Negative Attitudes Toward Individuals to Outgroup Attitudes. *Personality & Social Psychology Bulletin*, 39(5): 608–622. DOI: https://doi.org/10.1177/0146167213480890

Strohmeier, D., Karna, A. and Salmivalli, C. (2011) Intrapersonal and Interpersonal Risk Factors for Peer Victimization in Immigrant Youth in Finland. *Developmental Psychology*, 47(1): 248–258. DOI: https://doi.org/10.1037/a0020785

Tippett, N. and Wolke, D. (2014) Socioeconomic Status and Bullying: A Meta-Analysis. *American Journal of Public Health*, 104(6): e48–e59. DOI: https://doi.org/10.2105/AJPH.2014.301960

Tolsma, J., van Deurzen, I., Stark, T. H. and Veenstra, R. (2013) Who is Bullying Whom in Ethnically Diverse Primary Schools? Exploring Links Between Bullying, Ethnicity, and Ethnic Diversity in Dutch Primary Schools. *Social Networks*, 35(1): 51–61. DOI: https://doi.org/10.1016/j.socnet.2012.12.002

Tyson, K., Darity, W. and Castellino, D. R. (2005) It's Not 'A Black Thing': Understanding the Burden of Acting White and Other Dilemmas of High Achievement. *American Sociological Review*, 70(4): 582–605. DOI: https://doi.org/10.1177/000312240507000403

van Lier, P. A. C., Vitaro, F., Barker, E. D., Brendgen, M., Tremblay, R. E. and Boivin, M. (2012) Peer Victimization, Poor Academic Achievement, and the Link Between Childhood Externalizing and Internalizing Problems. *Child Development*, 83(5): 1775–1788. DOI: https://doi.org/10.1111/j.1467-8624.2012.01802.x

Váradi, L. (2014) *Youths Trapped in Prejudice*. Wiesbaden: Springer Fachmedien Wiesbaden. Available at: http://link.springer.com/10.1007/978-3-658-05891-3

Veenstra, R., Lindenberg, S., De Winter, A. F., Zijlstra, B. J. H., Verhulst, F. C. and Ormel, J. (2007) The Dyadic Nature of Bullying and Victimization: Testing a Dual-Perspective Theory. *Child Development*, 78(6): 1843–1854. DOI: https://doi.org/10.1111/j.1467-8624.2007.01102.x

Veenstra, R., Lindenberg, S., Munniksma, A. and Dijkstra, J. K. (2010) The Complex Relation Between Bullying, Victimization, Acceptance, and Rejection: Giving Special Attention to Status, Affection, and Sex Differences. *Child Development*, 81(2): 480–486. DOI: https://doi.org/10.1111/j.1467-8624.2009.01411.x

Verkuyten, M. and Thijs, J. (2002) Racist victimization Among Children in The Netherlands: The Effect of Ethnic Group and School. *Ethnic and Racial Studies*, 25(2): 310–331. DOI: https://doi.org/10.1080/01419870120109502

Vervoort, M. H. M., Scholte, R. H. J. and Overbeek, G. (2010) Bullying and Victimization Among Adolescents: The Role of Ethnicity and Ethnic Composition of School Class. *Journal of Youth and Adolescence*, 39(1): 1–11. DOI: https://doi.org/10.1007/s10964-008-9355-y

Vitoroulis, I. and Vaillancourt, T. (2014) Meta-Analytic Results of Ethnic Group Differences in Peer Victimization. *Aggressive Behavior*, n/a-n/a. DOI: https://doi.org/10.1002/AB.21564

Wang, J., Iannotti, R. J. and Luk, J. W. (2010) Bullying Victimization Among Underweight and Overweight U.S. Youth: Differential Associations for Boys and Girls. *Journal of Adolescent Health, 47*(1): 99–101. DOI: https://doi.org/10.1016/j.jadohealth.2009.12.007

Wargo Aikins, J., Collibee, C. and Cunningham, J. (2015) Gossiping to the Top: Observed Differences in Popular Adolescents Gossip. *The Journal of Early Adolescence, 37*(5): 642-661. DOI: https://doi.org/10.1177/0272431615617291

Wegge, D., Vandebosch, H., Eggermont, S. and Walrave, M. (2015) The Strong, the Weak, and the Unbalanced: The Link Between Tie Strength and Cyberaggression on a Social Network Site. *Social Science Computer Review, 33*(3): 315–342. DOI: https://doi.org/10.1177/0894439314546729

Willis, P. E. (1977) *Learning to Labour: How Working Class Kids Get Working Class Jobs.* UK: Saxon House.

Wolke, D., Woods, S., Stanford, K. and Schulz, H. (2001) Bullying and Victimization of Primary School Children in England and Germany: Prevalence and School Factors. *British Journal of Psychology, 92*(4): 673. DOI: https://doi.org/10.1348/000712601162419

Wright, J. C., Giammarino, M. and Parad, H. W. (1986) Social Status in Small Groups: Individual–Group Similarity and the Social 'Misfit.' *Journal of Personality and Social Psychology, 50*(3): 523–536. DOI: https://doi.org/10.1037/0022-3514.50.3.523

Appendix: Description of the sampling procedure

As the research focused on social networks, the sampling procedure followed the tradition of other network studies such as the *Teenage Friends and Lifestyle Study* (Pearson and West, 2003), the *Dutch Social Behavior Data Set* (Houtzager and Baerveldt, 1999), or *The Arnhem School Study* (Stark and Flache, 2012; Stark et al., 2013). Instead of having a large representative sample of the Hungarian primary school students or classes, the main aim was to collect data on every student of the selected classes in order to get information on complete networks of the classrooms. Due to lack of financial resources, it was not possible to select a representative sample of school classes in Hungary. Therefore, a heterogeneous sample was selected with regard to certain characteristics to minimalize the costs of data collection.

As a first step of the sampling procedure, a database containing the characteristics of primary schools in the central part of Hungary (Budapest, Pest, Nógrád, Fejér, Komárom-Esztergom) was created based on the KIR-STAT database (http://www.kir.hu/kir_stat/). Secondary schools with six- and eight-grade training programmes and minority nationality schools were excluded. First, schools of those settlements were selected where the proportion of the Roma minority was higher than 5 per cent according to the 2011 Census, or the estimated proportion of Roma minority students were higher than 10 per cent according to the database of the National Assessments of Basic Competences. Second, schools of those districts of Budapest were selected where the proportion of Roma minority was higher than 1 per cent according to the 2011 Census. Then, schools were stratified according to the size of the settlement (Budapest, other town, village) and the proportion of students with disadvantaged socio-economic status (0–20 per cent, 21–40 per cent, higher than 41 per cent). The distribution of the target schools can be found in Table A1. Table A2 shows the expected number of classes in the sample according to the type of settlement and the proportion of students having disadvantaged socio-economic status.

Table A1. The distribution of the target schools (number of classes in parenthesis) according to the type of settlement and the proportion of students having disadvantaged socio-economic status.

	Budapest	Other town	Village	Total
< 20%	117 (239)	27 (69)	9 (9)	153 (317)
21–40%	7 (15)	7 (16)	14 (18)	28 (44)
> 40%	0 (0)	4 (8)	23 (25)	27 (33)
Total	124 (254)	38 (88)	46 (52)	208 (394)

Table A2. The expected number of the classes in the sample according to the type of settlement and the proportion of students having disadvantaged socio-economic status

	Budapest	Other town	Village	Total
< 20%	8	8	5	21
21–40%	7	9	7	23
> 40%	0	7	10	17
Total	15	24	22	61

Instead of using a probability sample, the following aims were taken into account in the process of the selection of schools:

- To reach the expected number of classes in each cell (presented in Table A2);
- To ensure the variability of schools in each cell according to the proportion of students having disadvantaged socio-economic status;
- To ensure the variability of settlements in each cell according to the proportion of the Roma minority;
- To ensure the comparability of schools by selecting schools from neighbouring settlements or in the same district in Budapest.
- Every fifth-grade class of the selected schools was included in the sample. If a school rejected to participate in the study, another school was selected based on the following criteria:
- the proportion of students with disadvantaged socio-economic status is similar;
- same type of settlement;
- same county (if possible);
- the proportion of the Roma minority in the settlement/district is similar.

Based on these selection criteria, the sample consisted of 63 classes from 35 schools in the first wave. After the second wave, one school from Budapest with four classes was dropped from the sample because of low response rate. The number of classes decreased to the fourth wave because in several schools, classes were merged after the second wave of the study.