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Source / Izvornik: **International Journal of Arts & Sciences, 2012, 5, 89 - 112**

Journal article, Published version

Rad u časopisu, Objavljena verzija rada (izdavačev PDF)

Permanent link / Trajna poveznica: <https://urn.nsk.hr/urn:nbn:hr:141:752775>

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Download date / Datum preuzimanja: **2024-07-25**



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A COMPARISON OF INDIVIDUAL CHARACTERISTICS AND THE MULTIPLE CONTEXTS FOR CHILDREN WITH DIFFERENT BULLYING STATUS: AN ECOLOGICAL PERSPECTIVE

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Bullying is commonly defined as repeated aggressive behavior in which there is an imbalance of power or strength between the two parties (Nansel et al., 2001; Olweus, 1993). Bullying behaviors may be direct or overt (e.g., hitting, kicking, name-calling, or taunting) or more subtle or indirect in nature (e.g., rumor-spreading, social exclusion, friendship manipulation, or cyberbullying; Espelage & Swearer, 2004; Olweus, 1993; Rigby, 2002). In the last 10 years, studies on bullying have focused on different integrative approaches of this complex problem. One of the most investigated approaches is the social-ecological perspective which takes account of reciprocal interplay between individuals involved in the bully/victim continuum and his complex contexts (Bronfenbrenner, 1979; Espelage & Swearer, 2004; Olweus, 1993). Bullying does not occur in isolation. This phenomenon is encouraged and/or inhibited as a result of the complex relationships between the individual, family, peer group, school, community, and culture. This study examined an ecological perspective on bullying behaviors. The aim of this study was to investigate differences between individual characteristics, family, peer, school and neighborhood contexts of victims, bullies and noninvolved children. A total of 880 primary school children (10 to 16 years old) participated in the investigation during one school semester. For testing the differences between groups we used the one way ANOVA for independent samples. Overall, the results of this study suggested statistically significant differences between bullies, victims and noninvolved children for individual characteristics and all aforementioned contexts. On individual characteristics there were statistically significant differences in empathy level, where bullies had lower levels of empathy than victims and noninvolved children, impulsivity, where bullies had higher levels of impulsivity than victims and noninvolved children, and time spent on media, where bullies had more time spent on media than victims and noninvolved children. However, there were no statistically significant differences in sex and age between these three groups. In family context, especially on parents' behavior, we also found statistically significant differences. Bullies and victims had parents who used more negative discipline and psychological control in raising their children and showed less acceptance of their children than parents of noninvolved children. Bullies also had parents who gave them less autonomy and less supervision than parents of victims and noninvolved children. The parents' positive discipline and permissiveness were not statistically significant. In peer context, there was only one statistically significant variable; peer acceptance where noninvolved children were the most accepted by peers, bullies were a little less accepted and victims were the least accepted by peers. The difference in the number of friends was not statistically significant. In the school context, all measured variables were statistically significant. Noninvolved children have better school grades than victims and they also feel more safety in school than victims and bullies. For bullies, the school climate was perceived as the most negative, for victims it was less negative, and for noninvolved children it was positive. For the last investigated context,

neighborhood, we found statistically significant differences. The bullies perceived the neighborhood as the most dangerous; by the victims it was perceived as less dangerous, and for noninvolved children as the least dangerous. We can conclude that there are major differences in individual characteristics as well as in multiple contexts between children with a different bullying status. Knowing these differences, we can direct our efforts at developing focused intervention programs for all children involved in bullying behavior.

Keywords: Bullying, ecological perspective, Individual characteristics, Multiple contexts.

Introduction

Bullying is commonly defined as repeated aggressive behavior in which there is an imbalance of power or strength between the two parties where bullies have more power (Nansel et al., 2001; Olweus, 1993). Bullying behaviors may be direct or overt (e.g., hitting, kicking, name-calling, or taunting) or more subtle or indirect in nature (e.g., rumor-spreading, social exclusion, social manipulation, or cyberbullying; Espelage & Swearer, 2004; Olweus, 1993; Rigby, 2002). In the last 10 years, studies on bullying have focused on different integrative approaches of this complex problem. One of the most investigated approaches is the social-ecological perspective which takes account of reciprocal interplay between individuals involved in the bully/victim continuum and his complex contexts (Bronfenbrenner, 1979; Espelage & Swearer, 2004; Olweus, 1993). In the center of Bronfenbrenner's ecological model is the child (individual), with his own psychological, biological and behavioral characteristics, which represent the infrasystem. Individual factors influence in which way the child will be involved in bullying: as a bully, provocative victim, passive victim or bystander (Espelage & Swearer, 2004). The child is surrounded by different contexts with which he interacts. Microsystem is the closest context and has a direct influence on the child's development. The microsystem usually consists of the child's interaction with family, peers and school. Relations in microsystem or interaction between different microsystems (e.g. interaction of family and school system) make a mesosystem. The exosystem has a distal influence on the child's development which refers to the indirect environmental influence on the child (e.g. community and neighborhood). The most distal context is the macrosystem which refers to broader social context like culture and country politics (Slee & Shute, 2003).

Sex is probably one of the most researched individual characteristics associated with violent behavior. Almost all studies have shown that boys are more physically violent (Espelage, Bosworth & Simon, 2000; Hyde, 1986; McDermott, 1996), while the results of recent studies of sex differences have shown that boys are more physically and verbally violent, and in terms of relational and indirect forms of bullying, the boys are equally, if not even more violent than the girls (Olweus, 2010). The same studies have shown that boys are also more often the victims of bullying. The Bergen study has clearly shown that bullies are mostly older boys, and that 50% of child victims from the lower grades of elementary school have pointed out kids older than them as the bullies (Olweus, 1993). Similar results were obtained by other authors and they showed that the amount of overall aggression increases with age. The greatest amount of violent behavior was displayed by the students of final grades of elementary schools, and the victims were more frequently younger children (Buljan Flander, Ćorić Špoljarić, Durman & Marijanović, 2007; Eron, Huesmann, Brice, Fischer & Mermelstein, 1983; Clare, 2002). Studies related to bullying have shown that bullies lack empathy, but the correlation between the lack of empathy and bullying differed in boys and girls (Cohen & Strayer, 1996; Espelage, Mebane & Swearer, 2004;

Feshbach, 1997). Results have shown that girls generally report higher levels of empathy, including an emotional and a cognitive component (Espelage et al., 2004; Gina, Albiero, Benelli & Alto, 2007). In addition, children with a higher level of emphatic care (affective component), viewed bullying as something negative and they themselves were less violent. Provocative victims have also shown less caring behavior and less sensitivity towards the emotions of others, just like the bullies, which suggests a deficit in the affective component of empathy (Espelage et al., 2004). Generally, studies have shown that hyperactive children, especially those with a pronounced impulsivity, are often involved in bullying (Aleude, Adeleke, Omoike & Afen-Akpaidda, 2008; Craig, 1998). Impulsive children have a low threshold for frustration, and therefore often react inappropriately to neutral situations, usually with aggression (Olweus, 1994). Violence in the media increases the likelihood of occurrence of violent behavior. Studies have shown that children are exposed to huge amounts of violence through daily TV viewing (Donnerstein, Slabý & Eron, 1995; Price, Clause & Merrill, 1992). Violence in the media sends the message that the application of aggressive behavior is appropriate in many situations. Besides the violence in the media, in recent times more attention is paid to the violence in computer games. Computer games are mostly played by children of elementary school age and older (Woodward & Gridina, 2000). Studies have shown that violence occurs in 89% of computer games, and that serious violence is present in more than 50% of computer games. Playing violent computer games increases the likelihood that students will be more often involved in physical clashes with others and that they will quarrel more frequently with the teachers (Barboza et al., 2009; Genito & Walsh, 2002). In recent times all the more common form of violence among children is over the Internet (cyberbullying), and therefore the use of the Internet also represents a risk factor for the development of violent behavior among children, and also victimization (Dooley, Pyzalski & Cross, 2009).

The family has a primary role in the upbringing of the child, and not surprisingly, it proved crucial in the development of bullying among children. Olweus (1993) in his studies stated that the lack of warmth and attention, especially at the earliest age, increases the likelihood of later occurrence of bullying and hostility toward others, especially in boys. Children who feel rejected by their parents or whose parents are cold and emotionally detached and prone to psychological control in their upbringing, show a higher degree of hostility and aggression (Kuterovac Jagodić & Keresteš 1990; Palmer & Hollin, 2001). Research by Veenstra et al. (2005) showed that provocative victims and bullies had parents who were low on the dimension of warmth and that they were often rejected, as opposed to victims and noninvolved children. The parents of the victims often apply an indifferent parental style in their upbringing, i.e. they neglect their children and apply an inconsistent discipline (Bowers, Binney & Smith, 1994). Also, the parents who are unable to set clear boundaries to their children about violent behavior towards their peers, siblings, and also adults, i.e. who are permissive to the expression of aggression, have children that are more violent. Such parental behavior will affect the child's increasing aggressiveness and the subsequent occurrence of violent behavior in children, especially boys (Smith, Twemlow & Hoover, 1999). In addition, studies have shown that provocative victims have parents with the most negative parenting behavior, followed by the parents of bullies (Baldry & Farrington, 2000). In the families of bullies, physical punishment and excessive use of power were found to be the most common way of establishing discipline (Schwartz, Dodge, Pettit & Bates, 1997; Shields & Cicchetti, 2001). Unlike them, the families of the victims are often too protective, but they also neglect the children, and especially significant is the hostility of the mother. Such behavior forms an inconsistent system of disciplining, where the child is

unable to predict parental reactions (Bowers et al., 1994; Schwartz et al., 1997). Also often times, a too severe and rigid discipline in the upbringing can develop into child abuse.

Belonging to peer groups is very important in late childhood and early adolescence (Eccles, Wigfield & Schiefele, 1998; Espelage & Swearer, 2004). Children are more likely to socialize with peers who have similar interests and a reputation as themselves (Haselager, Hartup, van Lieshout & Riksen-Walraven, 1998; Pellegrini, Bartini & Brooks, 1999). Studies have shown that aggressive children have more friends who like to break the rules (Bagwell & Coie, 2004; Dijkstra, Lindenberg & Veenstra, 2007). What bullies have in common are aggressive behavior and a positive attitude towards violence, so they socialize and accept each other, which is true for both sexes (Pellegrini et al., 1999). Although initial studies have shown that bullies are rejected by peers, it turned out later that bullies are not socially isolated, but that they find friends with similar traits and behaviors, from whom they receive support for their violent behavior (Vasta, Haitham & Miller, 2005). Bullies have more friends than the victims, because they are usually accepted into the group of children of the same behavior. However the number of friends of the bullies is somewhat lower than that of the noninvolved children (Snyder, Horsch & Childs, 1997). Generally, bullies experience less rejection by their peers and are better accepted, while the victims on the other hand are less accepted, i.e. are more rejected by their peers (Perren & Hornung, 2005).

Failure in school is shown as a strong risk factor for the development of bullying (Busch, Zagar, Hughes, Arbit & Bussell, 1990; Farrington, 1997; Orpinas & Horne, 2006). Teachers give bullies a more negative and less stable feedback which indirectly leads to a poorer school achievement (Orpinas & Horne, 2006). Those who are frequently absent because of the failure and eventually drop out of school are more prone to violence and delinquency later in life. Studies (Dake, Price & Telljohann, 2003; Juvonen, Nishina & Graham, 2000; Mynard & Joseph, 1997; Nansel et al., 2001) have clearly shown a negative correlation between students involved in violence (either as victims or bullies) and school competence. The victims of bullying had the lowest school competence, while the bullies and the provocative victims had a similarly low academic competence and success (Dake et al., 2003; Schwartz, Dodge & Coie, 1993). The school environment plays an important role in the child's development. Right after the family, the school is a place where the child spends most of the time and where his upbringing is continued. Negative school climate as measured by students' perception of belonging and comfort at school is associated with violence among children (Barbaroza et al., 2009). Generally, bullies have a negative perception of school (Harel, 1999; Kasen, Berenson, Cohen & Johnson, 2004), a poor relationship with the teachers, poor school performance, they cut classes more often, do not have a sense of belonging to the school and do not respect the school rules (Harel-Fisch et al., 2010; Haynie et al., 2001; Juvonen et al., 2000; Laufer & Harel, 2003; Rigby & Slee, 1992; Schwartz, 2000). Provocative victims have similar characteristics as the bullies. For them the school is considered a nuisance, they have the worst adaptation to the school and are the least associated with the school, while the victims also have a negative perception of the school climate, although not as much as the bullies and the provocative victims (Ahmed & Braithwaite, 2004; Harel-Fisch et al., 2010; Natvig, Albrektsen & Qvarnstorm, 2001). The feeling of safety in the school environment has proven to be an important factor of bullying. Bullying most often occurs in locations where teachers are not present, e.g. toilets, corridors, school playgrounds, dining-halls, etc. and the children do not feel safe and protected in these places (Buljan Flander et al.; 2007; Espelage & Swearer, 2004; Velki, 2010). Bullying generally occurs in places that are not under adult supervision during non-academic activities. The victims estimate that they feel most unsafe at school, then the bullies, while the noninvolved children estimate that they

feel safe in the school environment (Astor, Meyer & Behre, 1999; Card & Hodges, 2008; Craig, Pepler & Atlas, 2000; Olweus, 1994).

Life in an unsafe community with a high level of aggression gives the child an opportunity to learn new aggressive behaviors both by confirming the already existing negative behaviors as well as by the possibility of joining a delinquent peer group (Marini, Dane & Bosacki, 2006; Pettit, Bates, Dodge & Meece, 1999). Several U.S. studies have shown that exposure to violence in the community is a potential risk factor for the development of aggressive behavior in school (Bradshaw, Rodgers, Ghandour & Garbarino, 2009; Lambert, Jalongo, Boyd & Cooley, 2005; Tolan, Gorman-Smith & Henry, 2003). In such neighborhoods the children are more likely to become bullies, and also victims of daily violence, that they then spread into the school environment. One of the most important characteristics of a neighborhood, which negatively affects the development of aggression, is a violent, dangerous neighborhood with a high crime rate (Leventhal & Brooks-Gunn, 2000; Trentacosta, Hyde, Shaw & Cheong, 2009). Exposure to such violence is a strong predictor of adolescent violence and victimization (Ng-Mak, Salzinger, Feldman & Stueve, 2004; Trentacosta et al., 2009).

In the last decade studies were begun in Croatia dealing with this issue. The majority of the studies that were done in Croatia have dealt with the prevalence of bullying among children, and in testing of various characteristics of children involved in bullying, most frequently only one level of the ecological model was taken into account. Compared to developed countries we could say that in Croatia research in this field is some 20-odd years behind and that the studies are still in the phase of researching prevalence, the individual factors of bullying and the implementation of intervention programs, while there are no systematic studies that would encompass the complexity of the problems described. Taking into account previous research, this study examines an ecological perspective on bullying behaviors in Croatian students. The aim of this study was to investigate differences between individual characteristics, family, peer, school and neighborhood contexts of victims, bullies and noninvolved children.

Method

Participants

Participants of this study were 880 students of 5th through 8th grades of elementary school (48% boys and 52% girls). Students were between 10 and 16 years old ($M=12.81$, $SD=1.15$). Table 1 shows characteristics of the participants.

Table 1. Characteristics of participants.

Grade	Sex	f	%
5. grade	boys	96	10.90
	girls	108	12.28
	total	204	23.18
6. grade	boys	92	10.45
	girls	97	11.02
	total	189	21.47
7. grade	boys	138	15.68
	girls	146	16.59
	total	284	32.27
8. grade	boys	97	10.02
	girls	106	12.05
	total	203	23.07

Instruments

Questionnaire on bullying among school children (UNŠD; Upitnik o nasilju među školskom djecom)

For the purposes of this research we have created the *Questionnaire on bullying among school children*. Validation was done as part of the pilot research. The questionnaire covers some of the demographic characteristics of the child (age, gender, class, grades), then questions related to the sense of acceptance and rejection by peers and with the sense of safety in the school environment. The incidence of perpetrated and experienced bullying towards other children was encompassed in a more detailed manner. The bullying scale and the victimization scale consist of 19 items each, and refer to behaviors that represent different forms of bullying behavior at school. The participants need to mark with an “X” the frequency of experienced / perpetrated individual forms of bullying. The scoring system that was applied for the frequency of experienced / perpetrated violence was the following: “never” brought 1 point, “rarely (few times a year)” 2 points, “sometimes (once a month)” 3 points, “often (several times a month)” 4 points and “always (almost every day)” brought 5 points. Reliability for the bullying scale (Cronbach α) was $\alpha = 0.83$, and $\alpha = 0.87$ for the victimization scale.

Peer nomination of bullies

For the purposes of our research, peers from the class were to nominate classmates who exhibited bullying more often than other students in the classroom. Each student received a name list of all the students in the class. A total of 3 definitions of bullying were given (verbal, physical and electronic bullying), and the students did the nomination by putting an “X” under the corresponding definition, and in the row where the name of the student is found, they indicated whether the student exhibited bullying. The range went from 0 (no nomination) to 3 (the student is nominated for all three forms of bullying). These data were collected for all students regardless of parental consent, and served to check the representativeness of the sample with respect to the incidence of perpetrated violence.

Empathy questionnaire (Ivanović & Buško, 2008)

The Empathy questionnaire measures the degree of empathy, which refers to the identifying with the emotional state of another person and understanding of their position on the basis of the perceived or imagined situation in which the person is. It is designed for elementary school children (5th to 8th grade). In this matter, the affective aspect of empathy is defined as experiencing of emotions as a reaction to the emotional state of another person, and the cognitive aspect as understanding of the condition of another person and the comprehension of how something that happens to another individual can also affect him. The Empathy questionnaire has a total of 20 items, and can be divided into two factors which can be interpreted in accordance with the initial assumptions about the affective and cognitive empathy. Correlations between these two components are high which allows us to use the total scale score of the 20 items. The reliability of the whole Empathy questionnaire was $\alpha = 0.70$, while for the affective empathy subscale reliability was high $\alpha = 0.79$, and cognitive empathy subscale reliability was low $\alpha = 0.43$. In further analysis of the data we decided to take only the subscale of affective empathy, while we excluded the cognitive empathy subscale due to low reliability.

Parent behavior questionnaire (URP-29; Upitnik roditeljskog ponašanja; Keresteš, Brković & Kuterovac Jagodić, 2008)

The Parent behavior questionnaire examines the most common parental behaviors of mother and father towards a child. There are three versions of the questionnaire, for the mother, the father and for the child. In our study we used a version of the parental behavior questionnaire for the child, which consists of two identical questionnaires, of which one relates to the mother and the other to the father. Each of these two questionnaires has 29 items. The task of the child was to indicate on the scale of one to four how accurately each item describes the behavior of his/her mother/father towards him/her (1-not at all accurate, 2-not very accurate, 3-quite correct, 4-completely accurate). The questionnaire has a total of 7 subscales: acceptance (4 items), autonomy (4 items), psychological control (4 items), supervision (4 items), permissiveness (3 items), positive discipline (5 items) and negative discipline (5 items). Reliability for the subscales (Cronbach α) ranged from 0.63 to 0.87.

Impulsivity scale (Vulić-Prtorić, 2006)

The Impulsivity scale is a part of a wider HIP scale (scale of hyperactivity-impulsivity-attention; Vulić-Prtorić, 2006) intended to assess hyperactive and impulsive behavior and problems of focusing attention. It consists of 19 items that describe the most common symptoms of the abovementioned problems in childhood and adolescence. HIP is a self-assessment scale on which the participant on a scale of 5 degrees (from "never" to "very often") evaluates the extent to which the behaviors described in the claims appeared to him in the last 6 months. It is intended for children of fifth through eighth grades of elementary school. For the purposes of our study we used only the impulsivity scale consisting of four items, and whose reliability was Cronbach $\alpha = 0.72$.

Scale of perception of neighborhood dangerousness (POS; Skala percepcije opasnosti susjedstva)

The Scale of perception of neighborhood dangerousness (POS) consists of six questions that measure different types of dangers to which children are potentially exposed in the neighborhood. The construction and validation of the scale was performed as a part of pilot research. It is intended for the fifth to eighth grade students of elementary school. Students should evaluate their agreement with the statement on a Likert-type scale, where "1" means "strongly disagree", "2 - I do not agree", "3 - neither agree nor disagree", "4 - I agree" and "5 - strongly agree." The reliability of the scale in our research was Cronbach $\alpha = 0.81$.

Scale of media impact (UM; Skala utjecaja medija)

The Scale of media impact consists of three questions related to the amount of time that the child spends with the media (television, Internet and computer games). The child needs to circle the number in front of the answer that applies to him. It is intended for students of fifth through eighth grades. Reliability of this scale in our study was Cronbach $\alpha = 0.66$.

School climate questionnaire - student version (Upitnik školske klime (UŠK) - verzija za učenike)

For research purposes we have created a School climate questionnaire – student version, which we had validated in the pilot research. The School climate questionnaire refers to the sense of security and belonging to the school, the relationship between teachers and students, the atmosphere of learning, parental involvement in school and predicting the future based on education. It consists of 15 claims and is intended for students in fifth through eighth grades of elementary school. The child needs to mark on a Likert-type scale with five degrees his/her agreement with the above statements, where 1 means "strongly agree" and 5 "strongly disagree". Reliability of the UŠK – student version in our study was Cronbach $\alpha = 0.92$.

Procedure

The study was conducted in elementary schools during one semester and a total of six elementary schools were included. At the parent teacher meetings, we explained the purpose of the planned research, provided information on the questionnaires filled out by their children and asked the parents to give consent for the child's participation in the study. The survey was not anonymous, but it was confidential. For parents who were not at a school meeting all of the materials were sent home by the child. After we have obtained the consent of the parents, we proceeded with the research on children. The study lasted for two lessons. It took younger children (fifth and sixth grade), on average, about 55 to 60 minutes to complete the questionnaires, while the older children (seventh and eighth grade) needed 45 minutes. The rest of the time (30 to 45 minutes) we held a workshop on how to improve school performance. The students were first explained in detail what the research involved. They were told that they will participate in a survey that takes 45-60 minutes and that the rest of the time will be used for a workshop. We explained to them that they will answer questions related to the experiences and opinions about the problem of bullying among students. They were made aware of the fact that the researchers were legally obliged to maintain the confidentiality of the data they obtained. They were instructed that participation was voluntary, and that they have the right to withdraw

from the research at any time, and feel free to ask a question if something was not clear. First the children gave some basic demographic information, completed the Empathy questionnaire (Ivanović & Buško, 2008), the Questionnaire on bullying among school children (UNŠD), the Parent behavior questionnaire (URP-29; Keresteš, Brković & Kuterovac Jagodić, 2008), the Impulsivity scale (Vulić-Prtorić, 2006), the School climate questionnaire (student version), the Scale of perception of neighborhood dangerousness (POS) and the Scale of media impact (UM). Upon completion of the testing the students were given leaflets with a list of persons and institutions and their contacts in case they wanted to talk to someone about their problems. During the questioning, we asked the homeroom teachers to organize activities for children whose parents have not consented to the participation in the study.

Results

In the data analysis, the descriptive statistics for variables included in the research (Table 2) was calculated first. The requirements for performing analysis of variance were calculated. Leven's test of homogeneity of variance have not been significant for most of the variables except for parental acceptance, parental autonomy, parental supervision, peer acceptance, school safety and neighborhood dangerousness ($p < 0.01$). The requirement for normal distribution for most variables was not met (Kolmogorov-Smirnov test was statistically significant). As this is a large sample ($N \geq 200$; according to Field, 2009), there is, however, a possibility that smaller variations from the norm point to a disturbed condition of distribution normality, i.e. that the results are not normally distributed. For that reason, we checked the coefficient of skewness and that of kurtosis, which indicated that the normality of distribution was not significantly disturbed in case of any variable, i.e. the results regarding skewness ranged from - 1.60 to + 0.39 and the results concerning kurtosis ranged from - 2.02 to + 2.30. According to Field (2009) and Sirkin (2006), skewness and kurtosis are considered to be very good if their value ranges from +1 to -1; and for applying most of the univariate parametric statistics, the value between +2 and -2 is accepted. Also ANOVA is known as a robust test so we decided to apply ANOVA in the further analysis (Table 2).

A student was identified as a bully if he/she marked at least one item on the bullying scale with “often” or “always” and as a victim if he/she marked at least one item on the victimization scale with “often” or “always”. Provocative victims marked at least one item on the bullying scale with “often” or “always” and at least one item on the victimization scale with “often” or “always”. In our research there was only 2% of provocative victims ($N = 18$), which is too small a group for comparison, so we decided to exclude this group from further analysis. Noninvolved children did not perpetrate or experience bullying behavior neither “often” nor “always”.

Table 2. The main descriptive statistics and differences between children with different bullying status (ANOVA) for all examined variables (N=880).

		N	Mean	SD	Min	Max	F
sex	noninvolved	464	1.52	.500	1	2	0.36
	victims	259	1.53	.500	1	2	
	bullies	157	1.49	.502	1	2	
	Total	880	1.52	.500	1	2	
age	noninvolved	464	12.81	1.174	10	16	1.25
	victims	259	12.73	1.115	10	16	
	bullies	157	12.92	1.138	11	16	
	Total	880	12.81	1.151	10	16	
affective empathy	noninvolved	463	2.97	.667	.30	4.00	6.58**
	victims	259	3.04	.690	.20	4.00	
	bullies	157	2.79	.773	.30	3.90	
	Total	879	2.96	.698	.20	4.00	
time spent on media	noninvolved	462	2.79	.842	1.33	5.00	11.23**
	victims	256	2.74	.841	1.00	5.00	
	bullies	155	3.13	.935	1.00	5.00	
	Total	873	2.83	.869	1.00	5.00	
impulsivity	noninvolved	460	2.28	.718	1.00	5.00	38.33**
	victims	255	2.34	.762	1.00	5.00	
	bullies	154	2.88	.847	1.00	5.00	
	Total	869	2.40	.787	1.00	5.00	
positive parental discipline	noninvolved	461	3.16	.611	1.10	4.00	2.63
	victims	259	3.12	.652	1.20	4.00	
	bullies	157	3.02	.707	1.00	4.00	
	Total	877	3.12	.642	1.00	4.00	
negative parental discipline	noninvolved	460	2.01	.571	1.00	4.00	11.78**
	victims	258	2.22	.665	1.00	4.00	
	bullies	156	2.20	.683	1.00	3.90	
	Total	874	2.11	.629	1.00	4.00	
parental acceptance	noninvolved	460	3.62	.449	1.00	4.00	7.86**
	victims	258	3.49	.587	1.00	4.00	
	bullies	156	3.48	.576	1.00	4.00	
	Total	874	3.56	.521	1.00	4.00	
parental autonomy	noninvolved	459	3.58	.437	1.63	4.00	6.20**
	victims	257	3.50	.544	1.75	4.00	
	bullies	156	3.42	.571	1.00	4.00	
	Total	872	3.52	.499	1.00	4.00	
parental psychological control	noninvolved	459	2.07	.644	1.00	4.00	10.45**
	victims	256	2.29	.712	1.00	4.00	
	bullies	155	2.27	.744	1.00	4.00	
	Total	870	2.17	.690	1.00	4.00	
parental supervision	noninvolved	460	3.25	.605	1.25	4.00	17.32**
	victims	258	3.19	.623	1.13	4.00	
	bullies	156	2.91	.715	1.00	4.00	
	Total	874	3.17	.643	1.00	4.00	
parental permissiveness	noninvolved	461	2.39	.642	1.00	4.00	2.87
	victims	258	2.46	.662	1.00	4.00	
	bullies	156	2.53	.666	1.00	4.00	
	Total	875	2.43	.654	1.00	4.00	
number of friends	noninvolved	464	2.85	.857	1.00	5.00	0.74
	victims	259	2.85	.944	1.00	5.00	
	bullies	156	2.94	.896	1.00	5.00	

	Total	879	2.86	.890	1.00	5.00	
peer acceptance	noninvolved	464	2.78	.371	1.00	3.00	50.88**
	victims	259	2.42	.534	1.00	3.00	
	bullies	156	2.61	.525	1.00	3.00	
	Total	879	2.64	.478	1.00	3.00	
school grades	noninvolved	462	3.82	.876	1.17	5.00	3.83*
	victims	259	3.63	.901	1.67	5.00	
	bullies	155	3.75	.923	1.50	5.00	
	Total	876	3.75	.895	1.17	5.00	
school safety	noninvolved	464	2.72	.347	1.00	3.00	21.50**
	victims	258	2.53	.368	1.00	3.00	
	bullies	156	2.61	.414	1.00	3.00	
	Total	878	2.64	.374	1.00	3.00	
school climate	noninvolved	462	2.16	.726	1.00	4.87	27.29**
	victims	257	2.45	.766	1.00	5.00	
	bullies	153	2.63	.843	1.00	4.47	
	Total	872	2.33	.782	1.00	5.00	
neighborhood dangerousness	noninvolved	459	1.69	.686	1.00	5.00	16.85**
	victims	256	1.92	.714	1.00	4.67	
	bullies	155	2.05	.913	1.00	5.00	
	Total	870	1.82	.752	1.00	5.00	

** p < 0.01; * p < 0.05

The significance of the results was evaluated by one-way ANOVA followed by post hoc Gabriel's pairwise comparison test for unequal group size. Significance of the effects of different bullying status on individual characteristics and the multiple contexts is shown in Figures 1-18. Significant differences ($p < 0.05$) between groups compared to noninvolved children group are labeled by asterisks (*) and compared to bully group by at sign (@).

There were no statistically significant differences in sex and age between noninvolved children, victims and bullies (Fig. 1 and 2). On individual characteristics there were statistically significant differences in: empathy level (Fig. 3), where bullies had lower levels of empathy than victims and noninvolved children; impulsivity (Fig. 5), where bullies had higher levels of impulsivity than victims and noninvolved children; and time spent on media (Fig. 4), where bullies had more time spent on media than victims and noninvolved children. In family context we also found statistically significant differences. Bullies and victims had parents who used more negative discipline (Fig. 7) and psychological control (Fig. 10) in raising their children and showed less acceptance (Fig. 8) of their children than parents of noninvolved children. Bullies also had parents who gave them less autonomy (Fig. 9) and less supervision (Fig. 11) than parents of victims and noninvolved children. The parents' positive discipline (Fig. 6) and permissiveness (Fig. 12) were not statistically significant. In peer context, there was only one statistically significant variable, namely peer acceptance (Fig. 14) where noninvolved children were the most accepted by peers, bullies were a little less accepted and victims were the least accepted by peers. The difference in the number of friends (Fig. 13) was not statistically significant. In the school context, all measured variables were statistically significant. Noninvolved children have better school grades (Fig. 15) than victims and they also feel more safety in school (Fig 16) than victims and bullies. For bullies, the school climate (Fig. 17) was perceived as the most negative, for victims it was less negative, and for noninvolved children it was positive. For the last investigated context, neighborhood (Fig. 18), we found statistically significant differences. The bullies perceived the neighborhood as the most dangerous; by the victims it was perceived as less dangerous, and for noninvolved children as the least dangerous.

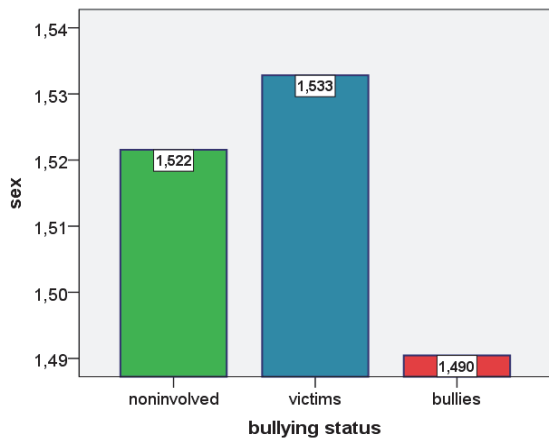


Figure 1. Sex differences between students with different bullying status.

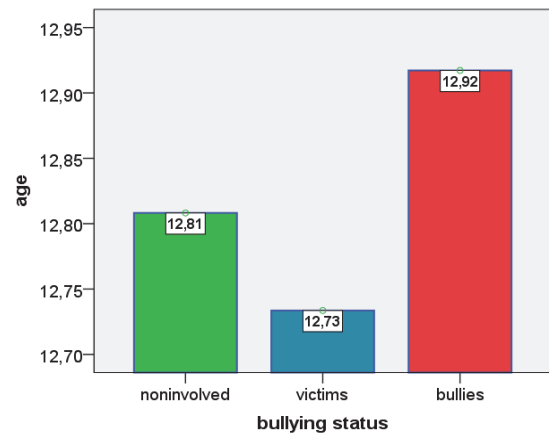


Figure 2. Age differences between students with different bullying status.

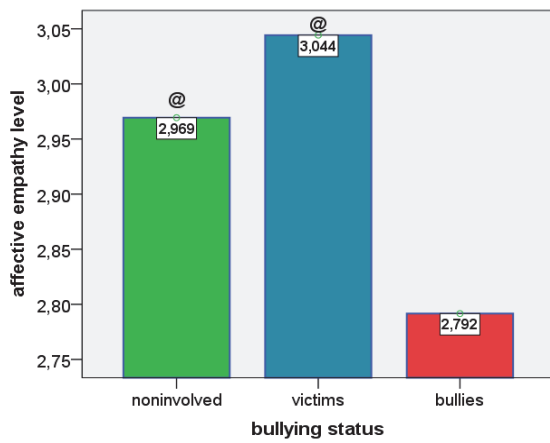


Figure 3. Differences in affective empathy level between students with different bullying status.

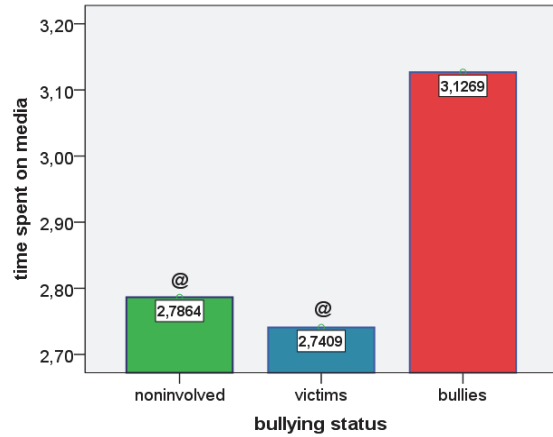


Figure 4. Differences in time spent on media between students with different bullying status.

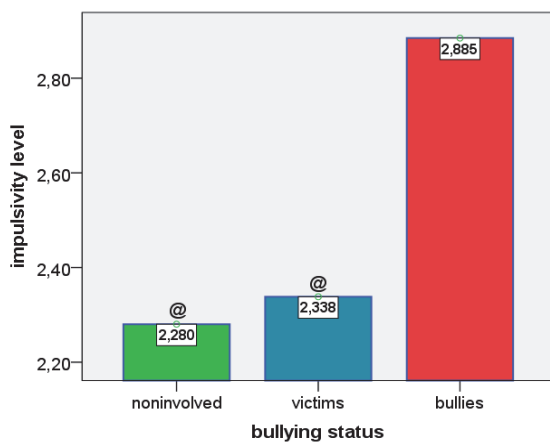


Figure 5. Differences in impulsivity level between students with different bullying status.

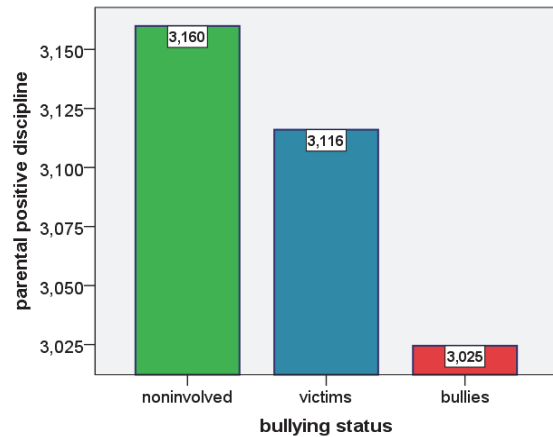


Figure 6. Differences in level of parental positive discipline between students with different bullying status.

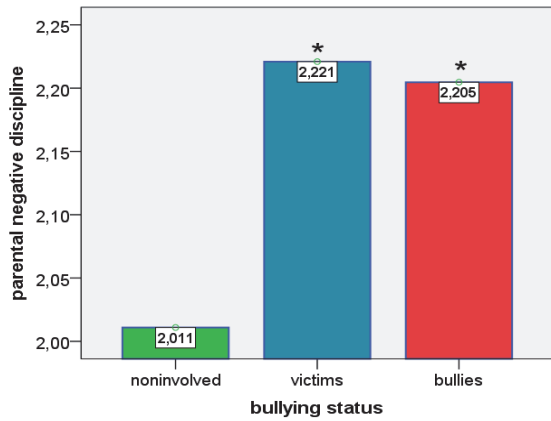


Figure 7. Differences in level of parental negative discipline between students with different bullying status.

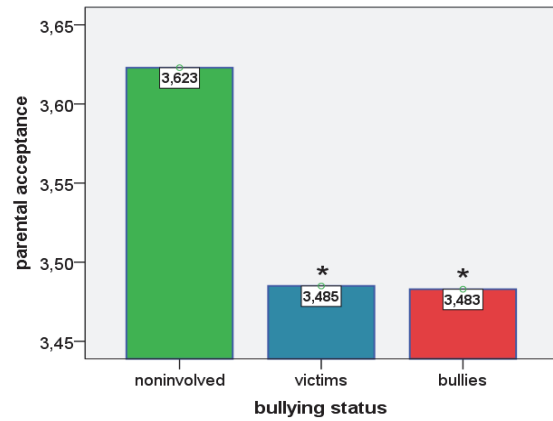


Figure 8. Differences in level of parental acceptance between students with different bullying status.

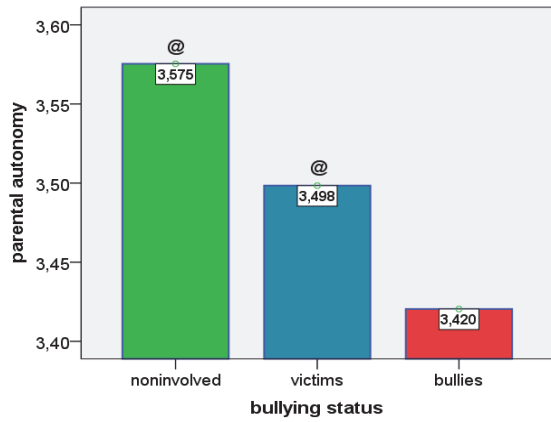


Figure 9. Differences in level of parental autonomy between students with different bullying status.

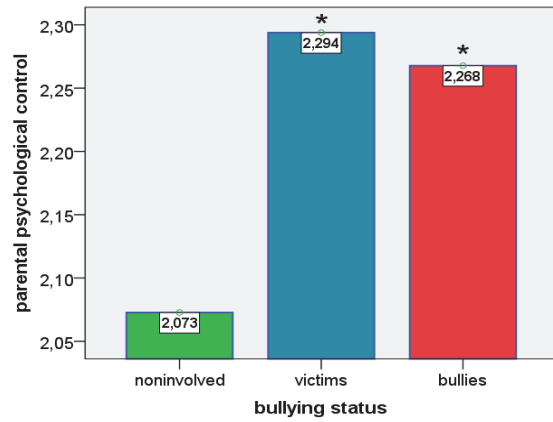


Figure 10. Differences in level of parental psychological control between students with different bullying status.

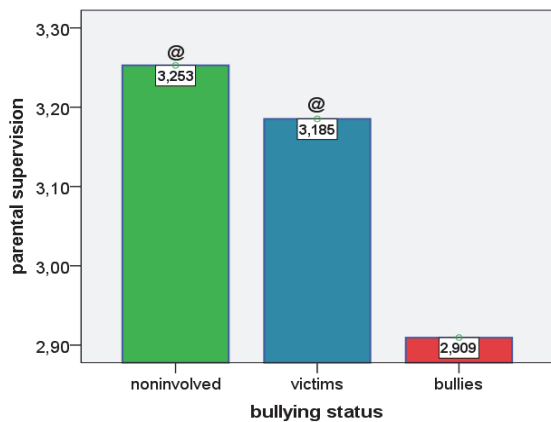


Figure 11. Differences in level of parental supervision between students with different bullying status.

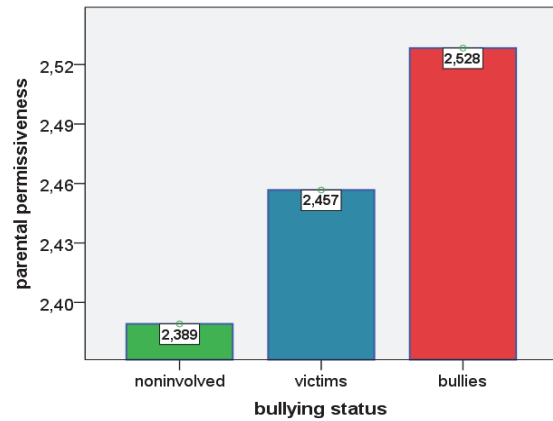


Figure 12. Differences in level of parental permissiveness between students with different bullying status.

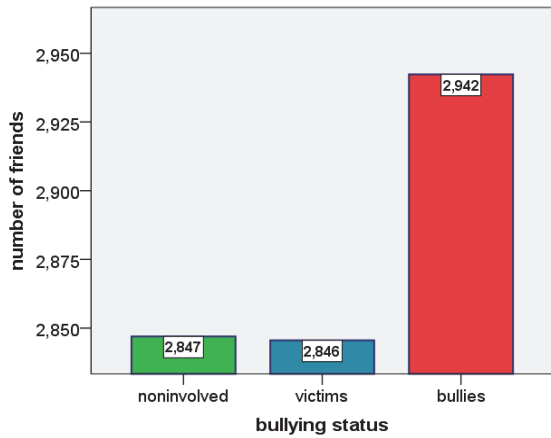


Figure 13. Differences in number of friends between students with different bullying status.

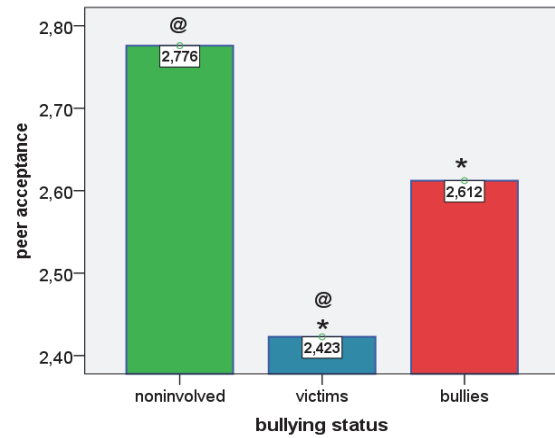


Figure 14. Differences in level of peer acceptance between students with different bullying status.

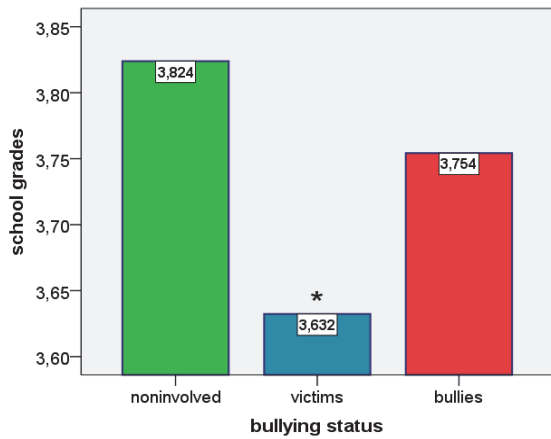


Figure 15. Differences in average school grades between students with different bullying status.

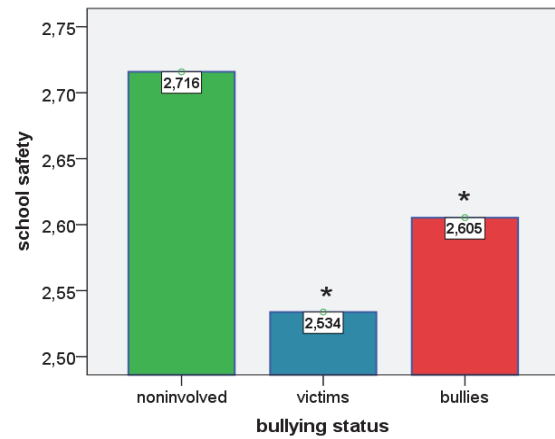


Figure 16. Differences in level of school safety between students with different bullying status.

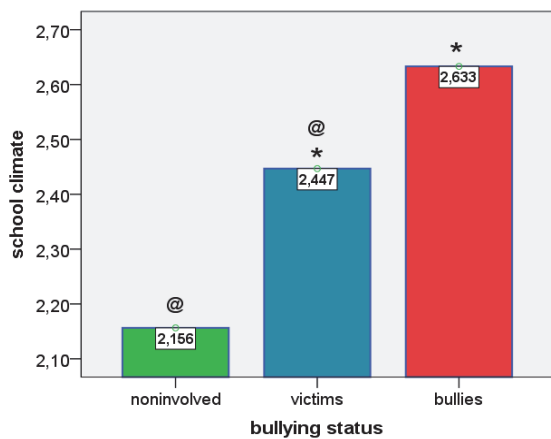


Figure 17. Differences in level of negative school climate between students with different bullying status.

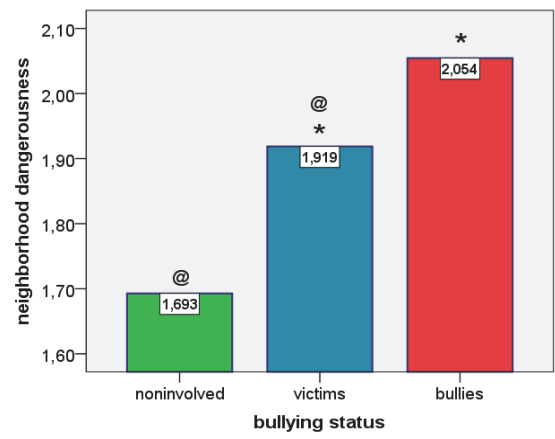


Figure 18. Differences in level of neighborhood dangerousness between students with different bullying status.

The study included a total of 880 students. Total number of students who were asked to participate in the study was 1281 students. Students who did not participate in the study were not given consent and parental permission for participation. The response of participants was 69%. However, as the students filled out nominations for the entire class, for those students who did not participate in the study we obtained data on bullying from other students in their classes who have taken part in the study. Therefore, we have checked using a t-test whether there are statistically significant differences in bullying between the students who participated and those who did not participate in the study. The results obtained showed statistically significant differences in bullying ($t(1,280) = 50.54, p < 0.01$), in the direction that students who did not participate in the study exhibited significantly more bullying behavior than the students who participated in the study.

Discussion

Previous studies have clearly shown that boys are more violent, but they are also more frequently victims of bullying (Espelage et al., 2000; Hyde, 1986; McDermott, 1996). In our study, no statistically significant sex differences concerning the status of involvement in bullying were obtained, meaning that boys and girls are about equally often both the victims and bullies. Also, numerous studies have clearly shown that the bullies are mostly older boys, that half of the children who are victims of bullying are bullied by children older than them, that the amount of overall aggression increases with age and that most violent behavior is exhibited by the final year students of elementary schools (Buljan Flander et al., 2007; Eron et al., 1983; Clare, 2000; Olweus, 1998). In our study we did not get statistically significant differences between students of different status of involvement in bullying, i.e. bullies, victims and noninvolved children do not differ with respect to age. However, it is possible that the gender differences in previous studies were obtained due to different operationalization of the construct of bullying, where researchers rely primarily on physical and verbal bullying toward peers (Cook et al., 2010a, 2010b). In our study, on the other hand, the measure of overall bullying included also items that are related to relational bullying (e.g. I intentionally excluded someone from the game), economic bullying (e.g., I stole something from someone), sexual bullying (e.g., I touched someone in an improper manner) and an entire subscale of electronic bullying (e.g. I have insulted someone on social networks - Facebook). In this way we have encompassed different types of bullying, so it is possible that girls are more often victims and bullies of one type of bullying (e.g., relational bullying), and the boys of the other type (e.g., physical bullying) which on average makes an equal number of victims and bullies in both genders. Also with age there is an increase in bullying, especially the verbal kind, while a mild decrease in physical bullying can be observed (Olweus, 1998, 2010; Smith, 2010). Therefore, it is possible, because we have included different types of bullying, that the total amount of violent behavior has not changed significantly, although it is possible that there were changes in the expression of different types of bullying with increasing age. Furthermore, a significant portion of violent children did not participate in the study (particularly violent boys), which could have affected the results. In our study, statistically significant differences were obtained in the degree of affective empathy and impulsivity between victims and noninvolved children relative to bullies. Compared to victims and noninvolved children, bullies have a significantly lower level of affective empathy, and a significantly higher level of impulsivity. Such results are in line with expectations. Previous studies related to bullying showed that bullies lack empathy, especially the affective component (e.g. empathic care) (Cohen & Strayer, 1996; Espelage et al., 2004; Feshbach, 1997; Gina et al., 2007). Children who have a lower level of affective

empathy hardly delve into the emotions of other children, are not able to sympathize with them and show no concern for the feelings of others. Such children do not understand that bullying towards other children could hurt their feelings, and also when they physically hurt someone they do not show remorse for that kind of behavior but instead they tease and pick on children who show pain (e.g., crying) even more. They justify and explain away their bullying as having fun and playing, not realizing the consequences that their violent behavior can cause. Furthermore impulsivity proved to be a strong predictor of overall bullying. Generally studies have shown that hyperactive children, especially those with a pronounced impulsivity, are often involved in bullying (Aleude et al., 2008; Craig, 1998). Impulsive children have a low threshold for frustration, and often inappropriately react to neutral situations. They tend to react violently, without giving themselves the time to reconsider their actions. A certain number of children (especially if they have a normal degree of empathy) showed remorse when they realized that their impulsive behavior had hurt a child, but unfortunately then it is too late. Sometimes these children are wrongly characterized as bullies because not all impulsive children have the intention to hurt or harm another child, but the violent outcome is the same as for bullies. Our results show that bullies, as opposed to victims and noninvolved children, spend more time watching television, playing computer games and using the Internet, which is consistent with previous studies. Constant exposure to aggressive behavior in the media can change the individual's attitudes toward violence and teach them aggressive behavior. Besides the violence in the media, research has shown that playing violent video games increases aggressive behavior, increases knowledge of aggression, increases aggressive feelings, increases psychological arousal and decreases prosocial behavior (Barboza et al., 2009; Genito & Walsh, 2002). Especially if children are without adult supervision, viewing inappropriate content on television and the Internet and playing violent computer games reduces the threshold of tolerance for violent behavior. Children do not understand that violent behavior has negative consequences, but through the media receive the message that through aggressive behavior they can easily achieve goals (even heroes, the "good guys" use extremely violent strategies to achieve a positive goal).

In family context, especially in parents' behavior, we also found statistically significant differences. Bullies and victims had parents who used more negative discipline and psychological control in raising their children and showed less acceptance of their children than parents of noninvolved children. The results of our research are in accordance with previous studies. Harsh disciplining, especially in families prone to physical punishment, often borders on abuse, and it proved to be a good predictor of bullying and victimization (Ahmed & Braithwaite, 2004; Baldry & Farrington, 2000; Finnegan, Hodges & Perry, 1998; Smokowski & Holland Kopasz, 2005). In particular, negative discipline that refers to punishing of children, including corporal punishment (e.g., Yells when I misbehave or strikes me when I misbehave) can shape a child's violent behavior. In families where the child goes through daily physical punishment, according to the social learning theory (Bandura, 1989), he learns that this is appropriate behavior that he will transfer to other situations. So that the child who is punished by parents with striking and yelling, reflects this form of physical and verbal violence in the school situation in relations with peers and uses the same method that was seen at home from the parents in order to obtain what he wants. However a certain number of children in these families learn to be submissive, i.e. through constant exposure to violence by their parents they are taught that nothing can be done to prevent this and develop a learned helplessness. Such children are often then victims of bullying. This learned helplessness is then transmitted to the situations in school, where they are not able to defend themselves from bullies, and they are an easy target. Furthermore, the results of our research show that victims and bullies have parents who are more likely to apply psychological control in their upbringing, which is consistent with previous findings. Parental psychological control,

which refers to the psychological and emotional control of a child's world, in previous studies proved to be associated with bullying, but more with victimization (Barber, Olsen & Shag, 1994). This kind of relationship with the child is actually a form of psychological and emotional child abuse because the child's parents are preventing a normal emotional development of the child. Children whose parents prevent their psychological independence use bullying behavior in school to try to compensate and achieve independence. There are also other children who because of excessive parental psychological control have learned to be passive in relationships with their parents and have transferred this pattern of behavior to their relationships with peers, which makes them susceptible to becoming victims of bullying.

Both the bullies and the victims do not have a close relationship with their parents and they claim that their parents do not sufficiently show them that they love them, and they also do not have common activities they enjoy with their parents. These results are consistent with previous studies (Loeber & Hay, 1997; Knezović & Buško, 2007; Yahav, 2006) where the lack of parental warmth and affection was shown as a good predictor of bullying and victimization. Children need a close and warm relationship with their parents so they can have a normal emotional development and in order to establish close relationships with other people. If children do not develop a relationship of acceptance with their parents they will not be able to develop any appropriate relationship with their peers. Instead, these children will show bullying behavior toward peers wishing thereby to gain their attention and acceptance. These children also use bullying behavior in order to express their anger because of peer rejection. On the other hand, these children, who are not accepted, can become victims of bullying because they will consider themselves unworthy of attention of others and will generally be passive in relations to their peers. Bullies also had parents who gave them less autonomy and less supervision than parents of victims, and noninvolved children which is consistent with previous research. Lack of autonomy within the family, where the parents are overly involved in the child's educational and extracurricular activities (Ladd & Ladd, 1998), can lead to increased expression of bullying (Barber, 1996, 2002). The child in his relationship with parents does not have the freedom in decision making, choosing activities that interest him and the like, which has a negative effect on the development of independence and assertiveness. In relationships with peers, the child tries to compensate for insufficient autonomy and excessively tries to gain independence. As the child within the family has not acquired the skills of assertiveness, he often tries to gain independence and autonomy within peer relationships through bullying. Previous research (Knezović & Buško, 2007; Loeber & Hay, 1997; Yahav, 2007) has clearly shown that parental control has a significant role in predicting bullying. Parental control refers to the extent to which parents supervise and monitor the child and to how familiar they are with their child's daily activities. In families where there is poor parental supervision the children are left to themselves, there is no control over their activities or correction of inappropriate behavior. Lack of parental control negatively affects bullying in two ways. First, the children who are not supervised by their parents are more likely to indulge in violent activities because they believe they will go unpunished. Besides that, they are more inclined to watch inappropriate content (e.g. the Internet) and indulge in other risky activities (e.g. alcohol abuse) because they are not supervised. Second, parents have no influence on the selection of peers with whom the children socialize, and are thus more likely to choose violent children and violent and delinquent peer groups that support them and further encourage them in committing bullying behavior. The parents' positive discipline and permissiveness were not statistically significant. Parental positive discipline was not proven to be a characteristic which differs in bullies, victims or noninvolved children, although Fig. 6 clearly shows a trend in which the most positive parental discipline is present in noninvolved children, then the victim, and the least is found in bullies but the difference was not significant. The reason for that may lie in the fact

that the parents of all three groups of children apply positive discipline in their upbringing and that it may not be associated with bullying, but with other behavioral problems. Although previous studies have shown that bullies have parents who show more permissiveness in their upbringing (Smith et al., 1999), we have not obtained such results in our study, i.e. in our research there is no difference in parental permissiveness among bullies, victims or noninvolved children, although we obtained in this example also the expected trend where the most parental permissiveness is found in the bullies, then the victims, and the least in noninvolved children. One possible reason that in these parental variables we did not get statistically significant differences might be in the fact that a significant portion of violent children was not included in the study. Exactly those parents who did not give consent for their child's participation in the research are the parents whose children commit most of the bullying, so it is possible that due to their own upbringing methods they did not want to participate in a study that was not anonymous so that their potential shortcomings in the way they raise their children might not be exposed.

In a peer context, there was only one statistically significant variable; peer acceptance where noninvolved children were the most accepted by peers, bullies were a little less accepted, and victims were the least accepted by peers, which is consistent with previous research (Perren & Hornung, 2005; Vasta et al. 2005). Bullies perceive making friends as easy, they socialize with peers of similar characteristics (e.g., bullies), and often due to the rising popularity of bullying in adolescence they also have friends who are not bullies. Unlike them, the victims are often isolated and have not developed a social network they could rely on. Because of that they are an easy target for bullies. Victims have no one to defend them, while the bullies have the support of other children for their violent behavior. Yet, noninvolved children are best accepted by their peers. Associated with peer acceptance is also the number of friends that the children have. In our research we did not get a statistically significant difference in the number of friends between bullies, victims and noninvolved children. The reason for this could be the manner in which the child understands friendship and the child's criterion by which he determines the number of friends. It does not have to necessarily mean that a child who has fewer friends will be a potential victim. What is important is the quality and reciprocity of friendship, or if the child can rely on a few friends in difficult situations, who will stand in defense of the child. That will protect him from becoming a victim of bullying while on the other hand, a child can have a perception that he has many friends, but that they are not really his true friends who will help him in a certain situation and he therefore remains an easy victim for the bullies.

In the school context, all measured variables were statistically significant. Noninvolved children have better school grades than victims and they also feel more safety in school than victims and bullies. These results are partially consistent with previous studies. Although we expected that the bullies would also have poorer school performance (Busch et al., 1990, Farrington, 1997; Orpinas & Horne, 2006) they did not differ from noninvolved children. Perhaps the reason for this could be the already mentioned non-participation of a significant number of bullies in the study. Also a certain number of bullies are popular and highly intelligent, especially when it comes to relational bullying in which a good manipulation of social relationships is necessary in order to achieve a goal, so that these highly intelligent bullies also do not have any problems with school achievement. For the victims, on the other hand, we have obtained the expected difference (Dake et al., 2003; Schwartz et al., 1993), i.e. poorer school performance, which perhaps is a consequence of the bullying that they endure.

The bullying that is being perpetrated on the victims every day, can lead to feelings of fear and trauma, and even to the development of anxiety and depression which directly affects their ability to concentrate in classes and it also generally affects the motivation for coming to school and learning. Additionally, children with poorer school achievements are not favored

by the teachers and are therefore less likely to confide in them when they are victims of bullying because they do not expect to get help from the teachers. As opposed to the bullies and victims, noninvolved children feel safer in school, which is in line with previous research (Astor, Meyer, & Behre, 1999; Card & Hodges, 2008; Craig et al., 2000; Olweus, 1994). Bullying occurs in places where adults are not present and where there is no adequate supervision, and therefore it is no wonder that the victims feel unsafe in these places. Besides that, the feeling of insecurity can be the impetus for bullying. Children who feel insecure are more likely to react defensively in such situation which often leads to them really reacting too violently. For bullies, the school climate was perceived as the most negative, for victims it was less negative, and for noninvolved children it was positive which is consistent with previous research (Ahmed & Braithwaite, 2004; Harel, 1999; Harel-Fisch et al., 2010; Kasen et al., 2004). In schools where a negative school climate is predominant, students do not have a sense of belonging to the school, they are not emotionally attached to the school, and moreover, school for them represents just an unpleasant obligation that they tend to avoid. In such schools teachers are not successful in resolving the problem of bullying, which leads to an increased number of bullies and victims. Most bullying occurs in classes where teachers are cold to the students, do not respond to the child's needs and do not have the same criteria for all students within a class (Newman, Murray & Lussier, 2001; Limber & Olweus, 1999). Such unhealthy atmosphere is just an additional incentive for bullying, and does not lead to its resolution.

For the last investigated context, namely the neighborhood, we found statistically significant differences. The bullies perceived the neighborhood as the most dangerous; by the victims it was perceived as less dangerous, and for noninvolved children as the least dangerous which is consistent with previous research (Bradshaw et al., 2009; Lambert et al., 2005; Tolan et al., 2003). In dangerous neighborhoods children observe conflicts every day and learn that violence is an appropriate way to solve a problem. In dangerous neighborhoods, children learn that they must constantly be on guard, that it is desirable to be strong and to secure for themselves a place in the community, which they do through violence. According to Bandura's social learning theory, such an aggressive and violent behavior is transferred also to school situations (although the school is a relatively safe place) so that even at the least sign of potential danger children tend to react too violently. Their bullying behavior is actually a survival strategy that they have learned in a violent and dangerous environment in which they are growing up. On the other hand, some children use the strategy of avoidance in dangerous neighborhoods, while overprotection by parents is also often present. Such children do not learn appropriate strategies to deal with violent behavior, but are prone to withdrawal, crying, and thus become an easy target for bullies.

Our research has shown similar characteristics of bullies, victims and noninvolved children in Croatian students as they have been shown in previous studies abroad. However, the research we conducted has several shortcomings that should be mentioned. First, the research was done on a convenience sample. Although the selection of schools that participated in the study was random, all the schools were from an area of one city. The response of the participants was 69%, and by doing a t-test analysis we found that students who did not participate in the study reported significantly more bullying behavior than the students who participated in the study. In addition, the research involved only the students in upper elementary school grades and thereby has not covered the entire age range of participants who in earlier studies were shown to be involved in bullying. Second, in this study self-assessment measures were exclusively used, while there were no other methods and data sources. Third, the research was not anonymous, which is perhaps the reason why some parents refused to give consent for the child's participation in the study. It is also possible that some of the children gave socially desirable answers for fear of possible punishment. Fourth,

previous studies have shown that some other variables, which were not included in this study, are important distinctive features that differentiate students with different status of involvement in violence. Fifth, our research has not examined the last level of the ecological model, the macrosystem. Research at this level was not carried out due to financial reasons and time constraints. For an examination of these variables it is necessary to at least include the different parts of Croatia which differ in their subculture, and it would also be desirable to include different states. Sixth, this was a transversal type of study so we cannot talk about causal relations.

Despite the abovementioned shortcomings, the results of this research are consistent with previous studies here and abroad. The results that were obtained are a good incentive for additional verifications of some other variables that were not part of this study. For example, some parental variables (parental permissiveness and positive parental discipline) which in previous studies were proven to be significant did not prove to be significant in our research, which should certainly be further checked. Some other variables which may enable us to explain the results should also be further checked, like for instance the quality of friendships, not just the number of friends, and anxiety and depression of children. Future research should be done on representative samples, and it would also be desirable to provide anonymity in order to obtain more honest answers. In order to investigate the impact of the macrosystem, future studies should examine the characteristics of different regions and subcultures, and it is also desirable that they be cross-cultural. It is also desirable in future research to apply different methods (e.g., assessments of parents and peers), and data sources (e.g., besides the students, they should include parents and teachers) in the examination of this issue. In addition, it is certainly desirable that future studies be longitudinal.

Conclusion

We can conclude that the research we have conducted clearly points to differences in individual and contextual characteristics between the bullies, victims and noninvolved children, giving us a starting point for the making of various intervention programs for targeted groups of children depending on the status of involvement in violence (victims, bullies and noninvolved children). Also this study is a good starting point for future research that should be on representative samples, anonymous, use different methods and data sources, and it is also desirable that they be longitudinal in their design.

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