

Investigating the Association between School Bullying and Specific Stressors in Children and Adolescents

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Abstract

Bullying is a stressful phenomenon with many effects on the mental and social health of a child. This study examined the association of bullying and stress in children and adolescents. The participants were 574 students from the 5th and 6th grades of the primary school and from the three grades of junior high school. The Olweus Bully Victim Questionnaire was used as a measurement of bullying and the Adolescent Stress Questionnaire (ASQ) and Stress in Children (SiC) were used as a measurement of stress in junior high school and primary school children respectively. 26.3% of children reported being victims of bullying, 7.8% reported engaging in bullying behaviour and 34.7% had been both victims of bullying and had engaged in bullying behavior. 31.2% had no role in the phenomenon. Verbal bullying was the most frequent form of bullying (22%) followed by hidden manipulation of social relationships to hurt or socially exclude the victim (19%). Bullying frequency was the most potent determinant of victims' stress. Higher distress in bullies was associated with a higher frequency of bullying behavior and more stopping behaviors by adults especially if bullies reported less social support or had many adult-type responsibilities in their lives. Stress management programs to reduce bullying should be the central axis of intervention as stress not only constitutes a mediating factor in bullying but it is also associated with the phenomenon.

Keywords

Bullying, Bullies, Victims, Stress, Distress, Social Support, School, Children, Adolescents

1. Introduction

Bullying has been recognized as a cardinal problem for public health in terms of childhood with its undoubted stressful nature (APA, 2004; National Institute of Child Health and Human Development, 2001). Bullying is characterized by a) the intention of the bully to hurt and be ahead of his/her victim without an obvious excuse for his/her action, while the comparative relationship of power is missing, b) the repetition of behavior which establishes the bully's dominance over the victim and c) the satisfaction that the bully gets from the provoked damage and the psychological distress towards the victim (Lamb, Pepler, & Craig, 2009; Suckling & Temple, 2001). Bullying can be categorized into direct and indirect types. Direct bullying is an obvious expression of power and can include physical and verbal aggression, while indirect bullying is the hidden manipulation of social relationships to hurt or socially exclude the victim (Arsenault, Bowes, & Shakoor, 2010; Pateraki & Houndoumadi, 2001).

Victimization is predisposed by personality traits and familial factors and more importantly it has been associated with major physical, cognitive (*i.e.* learning issues) and mental disturbances (e.g. distress, feelings of loneliness, dysthemia etc.) (Flannery, Singer, Van Dulmen, Kretschmar, & Belliston, 2009). These consequences can be ongoing, lasting for several years, even into adolescence (Arsenault et al., 2010). Moreover, prolonged or intense mental adversities have been showed to lead to psychosomatic symptoms and psychiatric disorders (*i.e.* depression, anxiety), PTSD, substance use, and suicidal behavior during adulthood (Dobry, Braquehais, & Sher, 2013; Fekkes, Pijpers, & Verloove-Vanhorick, 2004; Gini & Pozzoli, 2013; Hawker & Boulton, 2000; Kaltia-na-Heino, Rimpela, Rimpela, & Rantanen, 2000; Kim-Cohen et al., 2003). According to Stapinski, Araya, Heron, Montgomery, & Stallard (2015), peer victimization has the potential for long-lasting effects on the well-being of victims. Acceptance and relationships in adolescence are crucial. Thus, adolescent peer victimization has been associated with immediate and delayed elevations in anxiety and depression and the stress level of victims is enhanced.

Three mediating mechanisms have been postulated to contribute to the manifestations of bullying-related psychopathology; physiological response to stress, cognitive distortion and emotion processing [for a review see Arsenault et al. (2010)]. Hawker and Boulton (2000) in a meta-analytic review of 5000 children investigated the relationship between victimization and indicators of psychosocial adjustment difficulties. Interestingly, in a meta-analysis of longitudinal studies by Reijntjes, Kamphuid, Prinzie, & Telch (2010), the relationship between victimization and the expressions of internalizing problems has been examined over time. More specifically, this study sought to examine whether internalizing problems are evident prior to victimization, post victimization, or both. It would appear that internalizing problems function both as a cause and as an effect of the phenomenon of victimization. These reciprocal influences demonstrate the vicious cycle that sustains the increased manifestation of the phenomenon (Reijntjes et al., 2010; Smith, 2000). As such, social isolation could

play a moderating role in the victimization and future psychopathology relationship. However, recent meta-analysis observed a strong association between victimization and psychosomatic manifestations (Gini & Pozzoli, 2013). According to Andersen, Labriola, Andersen, Lund, & Hansen (2015), the strongest risk factor for being bullied was having been bullied previously.

Stress refers to an integrative process of environmental, psychological and neuroendocrinological processes leading, if overactivated, to maladaptive behaviors and physical or mental disorders (Charmandari, Tsigos, & Chrousos, 2005; Chrousos, 2009). Notably stress is implicated in behaviors and attitudes both for the victim and for the individual engaging in bullying behaviour. More specifically, victims experience either an increased or a blunted stress response that has been associated with mental health disorders (Arsenault et al., 2010). The behavioral counterparts of an increased neurohormonal stress response (i.e. cortisol, norepinephrine, epinephrine), are social isolation and lack of social support depriving the child of the ability to cope with immense stress leading to reduced wellbeing (Peters, Riksen-Walraven, Cillessen, & De Weerth, 2011). In support of the buffering effect of social support on the bullying-related psychopathology, Cohen and Wills (1985) have showed that children who are isolated from their peers experience great stress (i.e. social isolation) which is also indicated by the higher levels of cortisol among those children (Peters et al., 2011).

Interestingly, there is evidence attesting that chronic stress exposure in bullying can lead to the exhaustion of the hormonal stress response, heralding the further diminution of resilience to social adversity (Vaillancourt et al., 2008). Involvement in bullying as a stressful life event for both children who bully others and those who are victimized themselves, is a significant factor for a diathesis-stress connection between bullying, victimization, and psychosocial difficulties (Swearer & Hymel, 2015).

The aim of this cross-sectional study was to investigate the phenomenon of bullying in primary and secondary education and its association with stress. To our knowledge, this is the first study to systematically examine this association, particularly in Greece. Moreover, this study examined the role of stress in those engaging in bullying behavior which is scarcely mentioned in the published literature.

2. Research Procedures

This is a cross-sectional study in Greece and more specifically in the Western Attica region. The study protocol was approved by the Education Policy Institute under the Ministry of Education, Research and Religion since it was found consistent with the Declaration of Helsinki. Within the aforementioned region, 19 schools were eligible for participation in the study, according to the official records. GDK, first, visited the directors of all the schools and presented the study's procedure and goals. Three schools were excluded due to practical issues raised by the schools' administration staff. The main reason of exclusion was the

lack of available school time. Our final sample consisted of 16 schools (11 primary schools and 5 secondary) and our final sample consisted of 574 students.

The inclusion criterion for age range was 9 - 15 years old, which represents adequately both pre-pubescence and early pubescence. The reason why we chose to enroll children attending both primary and secondary schools was to increase representativeness of our sample and increase the generalizability of the study's conclusions. Each child was provided with an anonymous questionnaire that he/she was invited to complete in the presence of the researcher and the teacher, within sixty minutes. Questionnaire completion took place in the morning during the indicated by the directors available time. All queries raised by the children were answered by the attending researcher in a way that answers could not be inferred or biased. The completion rate was 100%. Written informed consent provided by the parents was mandatory for the children's participation.

3. Research Instruments

Sociodemographic variables included age, gender, ethnicity and the level of parents' education.

Olweus Bullying Questionnaire-Revised version (OBQR): This is a self-administered questionnaire consisting of 39 items rated on a Likert type scale (Psalti, Kassapi, & Deligianni-Kouimtzi, 2012). For the purpose of this research, we used five subscales with respect to the victim: 1) "bullying frequency" (questions 4 - 13) (range of values from 10 - 40), with greater scores indicating increased incidence of bullying behavior, 2) "bullying intensity" (question 17 × "bullying frequency") relating to the period of bullying, 3) "bullying places" (18a - 18j) referred to the places where bullying occurs, 4) "report on bullying" (questions 19a - 19f) referring to those children with whom the victim has communicated the phenomenon, 5) "stop bullying behavior" (questions 20 - 22) referring to the involvement of adults and peers in an attempt to stop the phenomenon. In terms of bullying behavior, three factors were identified 1) "bully" (question 24) which refers to whether the participant has victimized another child, 2) "frequency of bullying behavior" (questions 25 - 33) indicating the ways and forms that the perpetrator has used to bully another child and 3) "stop bullying behavior of the bully" (questions 34, 35, 39) referring to the involvement of adults (teachers and parents) to stop the victimization behavior of the bully. The OBQR has been validated for use within the Greek population.

Adolescent Stress Questionnaire (ASQ): This was constructed by Byrne, Davenport and Mazanov (2007) and is a self-report questionnaire consisting of 58 questions covering a wide range of perceived stressors of adolescents (13 - 19 years) over the last 12 months. Questions are assessed on a five-point Likert scale. Questions consist of 10 factors relating to stressful experiences during adolescence: "stress of home life, stress of school performance, stress of school attendance, stress of romantic relationships (this scale is not included in the present investigation), stress of peer pressure, stress of teacher interaction, stress

of future uncertainty, stress of school/leisure conflict, stress of financial pressure, stress of emerging adult responsibilities” (Byrne et al., 2007). Total scores were utilized for the purpose of this study. Higher scores indicate higher levels of adolescent stress.

Stress in Children questionnaire (SiC): This measure consists of 21 questions which examine the stress that children may encounter in many aspects of their life. The questionnaire was designed by Osika, Friberg and Wahrborg (2007) and has been used with children aged between 9 - 12 years. It is a brief self-reporting questionnaire. SiC consists of three factors: “distress”, “lack of well-being” and “lack of social support”. Questions are rated on a Likert-type scale with four possible answers (Osika et al., 2007). The total scores were utilized for the purpose of this study. Higher scores indicate higher levels of child stress.

4. Results

Descriptive statistics were performed for sample description and bullying identification. Gender, age, and the previous years graduation grade were tested as determinants of bully identity using chi-square tests and student’s t-test. Separate linear regression models were performed for victims and bullies. For the former, determinants of total stress were sought among OBQR indices. Since stress was assessed differently for primary and secondary school children, a separate analysis was performed for each group.

For bullies, determinants of both the frequency of bullying and the stopping behavior by adults were investigated among the subscales of the stress measures. Identification of the putative predictors of the presented models was made by performing all possible univariate Pearson’s rho correlation tests between the dependent variable and the putative predictors. Gender and age were also considered putative predictors. Model summaries are presented in each instance. Level of significance was set at 0.05. Analyses were conducted using SPSS 21.0 (Chicago IL).

574 students participated in the study. 58% of the samples were girls, while 42% were boys. The mean age was 10.9 years old (median: 11, range: 9 - 15). 241 students were attending primary schools (42%), the remainder (333, 58%) were studying in secondary schools. 98% of the students were born in Greece.

26.3% of children reported being victims of bullying, 7.8% reported engaging in bullying behaviour and 34.7% had been both victims of bullying and had engaged in bullying behavior. 31.2% had no role in the phenomenon. Verbal bullying was the most frequent form of bullying (22%) followed by hidden manipulation of social relationships to hurt or socially exclude the victim (19%). Gender, age and the previous year’s grade of graduation did not alter the possibility for a child to be a victim or to engage in bullying behavior (data not showed).

Table 1 presents the determinants of stress in victims in primary schools. In sum, gender, school grade in the previous academic year, bullying frequency, places where bullying occurs, and reporting and stopping behavior explained

25.5% of the stress' variance. Out of these factors, bullying frequency and places where bullying occurs were significantly positively related with stress. In contrast, bullying stopping behavior was negatively correlated, indicating that when such a behavior was implemented children had felt less stressed. According to standardized beta coefficient bullying frequency and place where bullying occurs were the most potent determinants of children' stress (0.25 and 0.24, respectively), indicating that children had experienced more stress when bullying was exerted more frequently or in a greater number of places. With regards to victims in secondary schools bullying frequency was the most potent determinant of distress (**Table 2**).

According to **Table 3**, higher distress in primary school bullies was associated with a higher frequency of bullying behavior and less stopping behaviors by adults. Interestingly, in those engaging in bullying behavior and reporting stress due to lower social support, the stopping behaviors seemed to occur more often. Similarly, in secondary school bullies, higher total stress was associated with higher frequency of bullying (**Table 4**). Also of interest, was the finding that in those engaging in bullying behavior who were of a higher age and experiencing stress due to emerging adult responsibilities, stopping behavior was more frequent (**Table 4**).

The bar graph below (**Figure 1**) shows the stress of peer pressure concerning the identities of bullying. There are statistically significant relationships between: 1) the category "bullies and victims" with the category "others", 2) the category

Table 1. Determinants of stress in primary school victims of bullying.

Variable	B coefficients (standard error)	Standardized beta coefficients	p value
Constant	55.27 (7.49)		<0.001*
Gender (ref.: female)	1.2 (0.97)	0.07	0.22
School Grade in the previous academic year	-1.44 (0.78)	-0.11	0.07
Bullying Frequency	0.06 (0.02)	0.25	0.02*
Bullying Places	1.19 (0.45)	0.24	0.01*
Bullying Reporting	0.27 (0.33)	0.05	0.42
Bullying Stopping Behavior	-0.66 (0.2)	-0.2	0.001*
Model's summary: $F(6,225) = 14.17$, $p < 0.0001$, $R \text{ square} = 25.5\%$, $*p < 0.05$			

Table 2. Determinants of stress in secondary school victims of bullying.

Variable	B coefficients (standard error)	Standardized beta coefficients	p value
Constant	55.27 (7.49)		<0.001*
Bullying Frequency	0.41 (0.14)	0.25	0.003*
Bullying Places	2.75 (2.2)	0.11	0.22
Bullying Reporting	0.29 (1.85)	0.01	0.88
Model's summary: $F(3,324) = 14.1$, $p < 0.0001$, $R \text{ square} = 10.7\%$, $*p < 0.05$			

Table 3. Stress determinants of bullying behavior of primary school bullies.

Primary School-Frequency of bully behavior				
Variable	B coefficients (standard error)	Standardized beta coefficients	p value	Model's Summary
Constant	5.7 (1.43)		<0.001*	
Distress (SIC)	0.32 (0.08)	0.27	<0.001*	F(3,237) = 8.59, p < 0.0001, R square = 8.7%
Social Support (SIC)	0.011 (0.11)	0.01	0.92	
Wellbeing (SIC)	0.09 (0.08)	0.09	0.22	
Primary school-Stop bullying behavior				
	B (SE)	Beta	p value	Model's Summary
Constant	5.9 (0.72)		<0.001*	
Distress (SIC)	0.15 (0.04)	0.25	<0.001*	F(2,229) = 9.9, p < 0.0001, R square = 7.2%
Social Support (SIC)	-0.16 (0.05)	-0.24	0.001*	

*p < 0.05

Table 4. Stress determinants of bullying behavior of secondary school bullies.

Secondary School-Frequency of bully behavior				
Variable	B coefficients (standard error)	Standardized beta coefficients	p value	Model's Summary
Constant	4.7 (2.1)			
Gender (Ref: female)	0.44 (0.25)	0.12	0.08	F(3,322) = 7.92, p < 0.0001, R square = 6.0%
Age	0.4 (0.15)	0.12	0.03	
Stress (ASQ)	0.01 (0.03)	0.21	<0.001*	
Secondary School-Stop bullying behavior				
	B (SE)	Beta	p value	Model's Summary
Constant	4.7 (2.1)			
Age	0.24 (0.12)	0.11	0.04*	
Stress of Adult Responsibility	0.12 (0.1)	0.28	0.027*	F(5,322) = 3.41, p = 0.005, R square = 3.5%
Stress of Peer Pressure	0.001 (0.03)	0.002	0.99	
Stress of School Performance	0.03 (0.03)	0.074	0.36	
Stress of Future Uncertainty	-0.1 (0.06)	-0.19	0.13	

*p < 0.05

“victim” with the category “other” and 3) the category “bullies and victims” with the category “bully”. Only the “stress of peer pressure” seemed to differentiate the categories “bully and victim” and “bully”. Therefore, those who are too often both bullies and victims have increased stress associated with peer pressure on those who are just bullies. The category of “others” had the lower levels of stress than the other three categories.

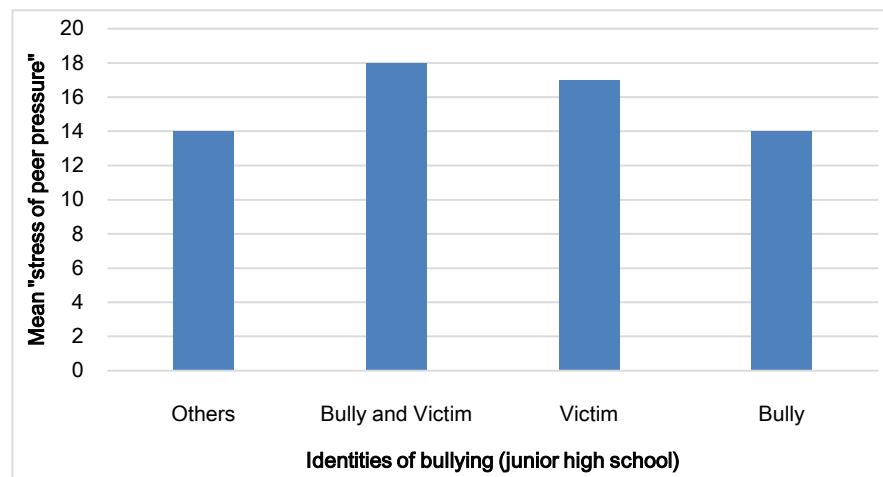


Figure 1. Stress among different categories of bully and victim categories.

5. Discussion

The number of studies which are observed in the bibliography are consumed in research relating to the relationship between bullying and occurrence of mental health problems—mainly disorders as depression, psychosomatic symptoms (sleep disturbances, headaches, abdominal pain) and PTSD (Hawker & Boulton, 2000; Idsoe, Dyregrov, & Idsoe, 2012; Rigby, 2007). However, the role of pure stress is not taken into account to the extent that it deserves to be, and stress as shown is the mediating factor between bullying and relationship of mental disorders. As such, bullying constitutes a stressful experience and because of the stress it causes, the person who suffers from it can be driven to the manifestation of mental health problems (Arsenault et al., 2010). Involvement in bullying as a stressful life event for both children who bully and those who are victimized, is a significant factor for a diathesis-stress connection between bullying, victimization, and psychosocial difficulties (Swearer & Hymel, 2015).

Regarding the forms of bullying, it was observed that the verbal (spreading rumors) and relational bullying (exclusion and neglect) were the most common forms of this phenomenon in both elementary and junior high schools. The primary school children readily accept hits from other peers compared to students of junior high school, something which is agreeable with the international literature (Khamis, 2015; Sapouna, 2008).

Research by Smith et al., has shown that there is a significant relationship between the aggressive behavior of children in school and physical punishment delivered by parents at home (Smith, Nika, & Papasideri, 2004). The factor “stress of home life” of the ASQ and the factor “distress” of the SiC had the highest mean scores for participants of this research. In other words, the stress caused in the house due to the interaction of parents and children and disagreements and fights that this may entail, may lead to aggressive behavior. And here an interactive relationship may be seen as it was found in this study that the more often a child falls a victim of bullying the higher the levels of “distress”, a fact that may

be linked with home life. According to [Stapinski et al. \(2015\)](#), adolescent peer victimization was associated with immediate and delayed elevations in anxiety and depression. In the same study also was showed that the stress of victims is elevated.

The findings of the present study have shown that all linear regression models, with few exceptions, converged consistently with the factor “bullying frequency”. It can therefore be concluded that the frequency of bullying constitutes a factor that plays the most crucial role for all the dependent variables presented above. The consistency with which this demonstrates the reliability and validity of the psychometric instruments. Likewise the international bibliography has demonstrated the importance of the frequency and duration of the phenomenon in the future occurrence of mental health problems ([Klomek et al., 2008](#)).

Stress caused by the experience of bullying can also lead to psychosomatic symptoms. In particular, such psychosomatic symptoms include headaches, sleep problems, abdominal pain, anxiety, feelings of unhappiness, decreased appetite and nocturnal enuresis. These are factors that are measured by the stress questionnaires used in this study (ASQ and SiC). More specifically, the factor of distress in SiC which also includes somatic complaints (headaches, abdominal pain etc.) was the factor with the most increased mean compared with the other two. As these symptoms are peculiar to those of depression, it could reasonably be argued that the appearance of psychotic symptoms may constitute a prodromal symptom of depression ([Fekkes et al., 2004](#)). A recent meta-analysis observed a strong association between victimization and psychosomatic complaints ([Gini & Pozzoli 2013](#)).

It is interesting that our initial hypothesis and thus a working basis, was the fact that there is an interactive relationship between stress and school victimization. As such it was considered that the victimization of a student leads to stress and stress can lead the student to adopt bullying behavior. This hypothesis was confirmed as the last bar graph of the mean stress of peer pressure and identity of junior high school students shows. The category of students who had the dual role of “bully and victim” had the highest levels of stress compared with the category of “victim” or “bully” separately. Moreover, from further observation of the last bar graph, it appears that the second column (category “bully and victim”) shows essentially the stress of the victim, as the bully who will become a victim will increase the levels of stress experienced while the victim who will become bully will show a smaller increase in stress levels.

Limitations of the study are the fact that it was a cross-sectional study and therefore it does not allow control of cause and effect. We cannot know what precedes and what follows the relationship of stress and bullying. Also, there have been no biological measures of stress, which would add greater reliability to the current study. However, the characteristic of the cross-sectional study was the fact that the sample was too large to entail increased costs for biological measures, thus rendering such measures unfeasible. A longitudinal study is

proposed in a Greek setting in order to observe the long-term consequences of bullying in relation to the stress levels and mental health of participants. The present study does not evaluate the mental health states by restricting the extent of the questionnaire proposed by the Ministry of Education and Religion. Also, any revelation of mental health disorders associated with bullying probably raised concerns about the future of their children.

6. Conclusion

Having identified that stress not only constitutes a mediating factor in bullying but also is associated with bullying, it is proposed that firstly the reduction of stress should be considered. In particular, the application of stress management programs as well as empathy programs, should be a central pillar of intervention. It is proposed that such an intervention should begin with the victims of the phenomenon as this group was found to have elevated levels of stress in comparison with those engaging in bullying behavior. Finally, as the findings of the research indicate that those children engaging in bullying behavior may come from minority populations, better integration of minority groups within the school environment is suggested.

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