

SCHOOL BULLYING AND ADOLESCENTS' DEPRESSIVE SYMPTOMS: THE MEDIATION ROLE OF PERCEIVED STRESS

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Abstract

This study explores a mediation effect of perceived stress on the relationship between school bullying (with its two dimensions school aggression and school victimisation) and depressive symptoms among Romanian teenagers. The sample comprised 120 students with ages between 14 and 15, who completed the questionnaires referring to perceived school aggression, perceived school victimisation, perceived stress and depressive symptoms. The results evidenced a significant mediation role of perceived stress on the relationship between school aggression and depressive symptoms meaning that those students who are aggressive experienced also depressive symptoms when they perceived school environment as being stressful. This result has an important impact on practice because can improve the existing anti-bullying programs by explaining why aggressive students develop depressive symptoms.

Keywords: school bullying, school aggression, school victimisation, perceived stress, depressive symptoms

Introduction

About 10%-20% of children and adolescents are regularly involved in school bullying as either victims, bullies, or both (Kaltiala-Heino & Frojd, 2011). A growing body of research highlights the range of adverse consequences affecting individuals involved in school bullying (Kaltiala-Heino

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& Frojd, 2011). Adolescents involved in school bullying are at a significant risk of experiencing psychiatric symptoms, alcohol and drug abuse, suicidal ideation (Nansel, Overpeck, Pilla, Ruan, Simons-Martin, & Scheidt, 2001; Brunstein Klomek, Marroco, Kleinman, Schonfeld, & Gould, 2007; Liang, Flisher, & Lombard, 2007; Carlyle & Steinman, 2007).

Depression is one of the most prevalent mental health problems of adolescence, studies estimating that 4%-8% of adolescents are experiencing depressive symptoms (Slee, 1995; Solber & Olweus, 2003; Juvonen, Graham, & Schuster, 2003).

The present study investigates the relationship between school bullying with its two dimensions: school aggression and school victimisation and depressive symptoms taking into account the potential mediation role of perceived stress.

Depression

In literature “depression” is used to refer to depressive affect; to depressive symptoms measured by symptoms scales or self-reported depression; and to depressive disorders that fulfil the criteria in diagnostic classifications (Kaltiala-Heino & Frojd, 2011).

In adolescence, mood changes are common (Lewinsohn, Rohde, & Seelev, 1998). A depressive affect as a normative reaction to losses and failures can often be relieved by focusing on others aspects of life, and does not include impaired functioning (Kaltiala-Heino & Frojd, 2011). For the present study, depressive symptoms were measured rather than a clinical depression.

School bullying

School bullying is a subcategory of aggressive behaviour. Aggressive behaviour can be categorized according to its nature into overt/direct aggression (physical and verbal) and relational/indirect aggression (hostile manipulation of relationships by spreading rumours); and according to the motivation, into reactive (angry response to provocation or threat) and proactive (unprovoked, used for instrumental gain or dominance over others) aggression (Marsee, Weems, & Taylor, 2008).

All the definitions provided in the school bullying literature share some features: bullying is considered repetitive, intentional, negative behaviour that can manifest in many ways. A core element is that bullying involves also a perceived power imbalance between the victim and the perpetrator.

The literature identifies physical, verbal, and relational bullying. Verbal bullying is more common than physical bullying among adolescents of both sexes (Scheitbauer, Hayer, Petermann, & Jugert, 2009). This phenomenon does not concern only the victim and the bully but also other pupils present may either support the perpetrator by their behaviour, try to defend the victim, or withdraw (Salmivalli, Kaukiainen, Kaistaniemi, & Lagerspetz, 1999).

School victimization and depressive symptoms

Public debate frequently associates victimization from bullying with depressive affect and disorders, assuming a causal relationship between being bullied and becoming depressed (Kaltiala-Heino & Frojd, 2011). The recurrence of depressive disorders may be moderated or mediated by losses, abuse, traumatic events, high levels of perceived stress, ongoing conflicts or frustrations and predispose children to depression (Laugharne, Lillie, & Janca, 2010). Particularly during adolescent development, when peer relationships are of utmost importance (Larson & Richards, 1991), traumatic events such as being bullied, could cause trauma severe enough to lead to depression (Kaltiala-Heino & Frojd, 2011) and depression in adolescence is known to impair social skills (Lewinsohn et al., 1998) so that the victims of bullying have been characterized as submissive and showing signs of helplessness, being less popular among peers, and displaying lowered self-esteem (Turner, Finkelhor, & Ormrod, 2010). All these characteristics may predispose adolescents to victimization (Kaltiala-Heino & Frojd, 2011).

Many cross-sectional surveys in adolescent population from different countries and different phases of adolescent development have demonstrated an association between victimization from bullying and self-reported depression (Brunstein Klomek et al., 2007; Carlyle et al., 2007; Kaltiala-Heino, Rimpela, Marttunen, Rimpela, & Rantanen, 1999; Fekkes, Pijpers, & Verloova-Vanhorick, 2004; Kim, Koh, & Leventhal, 2005; Pittet, Berchtold, & Akre, 2010; Fitzpatrick, Dulin, & Piko, 2010).

In a population study among 10-17 years-old-adolescents, victimization from bullying increased the risk of depression (Turner, Finkelhor, & Ormrod, 2010). Due, Damsgaard, Lund and Hostein (2009) reported that victimization from bullying in adolescence predicted depression among socio-economically-deprived adolescents than among those with affluent backgrounds. However, some longitudinal studies have shown no associations between victimization from bullying and depression. Kim, Leventhal, Koh, Hubbard and Boyce (2006) found no associations between victimization from bullying and depressive symptoms.

These contradictions in previous research results determined the present research to investigate the association between victimization from bullying and depressive symptoms taking into account other possible mediators such as perceived stress.

School aggression and depressive symptoms

Most studies addressing associations of school aggression (i.e. bully role) and depression focus on the depressive symptoms of the victims (Kaltiala-Heino & Frojd, 2011). The present research shows an increased concern on depressive symptoms of the bullies.

So far, previous cross-sectional surveys have found elevated levels of depressive symptoms among school aged youth who report bullying their peers (Brunstein Klomek et al., 2007; Kaltiala-Heino et al., 1999; Kaltiala-Heino, Rimpela, Rantanen, & Rimpela, 2000; Saluja, Iachan, Scheidt, Overpeck, Sun, & Giedd, 2004; Fitzpatrick et al., 2010; van der Wal, Wit, & Hirasing, 2003). Studies using self-reported bullying evidenced significant associations between the bully role and depressive symptoms (Kaltiala-Heino & Frojd, 2011).

Girls who report bullying others frequently may be at a high risk for depression than comparable with boys (Brunstein Klomek et al., 2007; Saluja et al., 2004). Furthermore, follow-up studies have suggested that reporting frequent bullying predicts subsequent depressive symptoms among males (Sourander, Jensen, & Ronning, 2007; Kaltiala-Heino, Frojd, & Marttunen, 2010; Brunstein Klomek, Sourander, Kumpulainen et al., 2008).

Literature on the effect of bullying others and depressive symptoms is scarce and controversial. Adolescents identifying themselves as bullies seem to be at risk for depressive symptoms (Kaltiala-Heino & Frojd, 2011) but further

studies should investigate potential mediators that may influence this relationship.

Perceived stress in a school bullying framework

Research on perceived stress in a school bullying framework have shown a direct relationship between school aggression and perceived stress in that high levels of perceived stress determined students to perform bullying acts (Murray-Harvey & Slee, 2007; Leung & To, 2009).

Furthermore, there are positive associations between perceived stress, victimisation and aggression (Cetin, Eroglu, Peker, Akbaba, & Pepsay, 2012).

The relationship between perceived stress, school aggression, school victimization and depressive symptoms was explored by Estevez, Murgui and Musitu (2009). Their results showed that bullies perceived the highest level of stress comparing to victims and victims had higher levels of depressive symptoms.

The role of perceived stress was evidenced by Kuiper, Olinger and Lyons (1986) on the relationship between negative life events and depression. Their results showed that those people who perceived a high level of stress during their negative life events had also higher levels of depressive symptoms comparing to those people who didn't perceived high levels of stress during their negative life events.

The present research studies the mediation role of perceived stress on the relationship between school bullying with its two dimensions (i.e. school aggression and school victimization) and depressive symptoms.

Perceived stress and depressive symptoms

The Transactional Model of Stress defines stress as an imbalance between a person's perception of change in their environment and their inability to create an appropriate coping response to deal with that change (Folkman and Lazarus, 1985). An individual perceives a situation as being stressful when he or she believes that there is a discrepancy between the demands of that situation and the available psychosocial resources and competences (Kadzikowska, 2012). Threatening life events, such as major changes, failures, losses, painful experiences cause the appearance of negative

emotional states like anxiety, worry, sadness and depression (Kadzikowska, 2012).

While stress is a common health-related concept suffered by every person, previous research indicates that college-aged students experience higher levels of stress and depressive symptoms than their non-student peers (Ross, Neibling, & Heckert, 1999). This heightened level of stress can be attributed to numerous academic, financial, and social stressors that may negatively affect their mental health.

In a study conducted in the Fall of 2008, female students in a mid-size university were found to exhibit qualities strongly associated with typical gender roles such as embracing the role of nurturer and caretaker. Due to the finding that females reported higher levels of stress, the results of the study suggest that females may need to spend more time for themselves in both recreational and relaxation activities (Ying & Lindsey, 2013).

Previous research showed that there are positive associations between perceived stress and depressive symptoms (Aldwin & Greenberger, 1987; Rawson, Bloomer, & Kendall, 1994; Dinh Do, 2007; Combs, 2011; Ramenzankhani, Zabiholla, Gharli, Heydarabadi, Tavasolli et al., 2013; Mateo, 2014).

Ramenzankhani and colleagues (2013) showed that there is a significant relationship between perceived stress and depression, that is, students with depression, reported higher levels of stress. In contrast, Skipworth (2011) in his doctoral thesis showed that perceived stress is not an effect of previous high levels of depressive symptoms but a predictor of high levels of depressive symptoms.

In his study interested in the relationship between age, gender, perceived stress and perceived depression, Mateo (2014) found that more female than men reported higher levels of stress, more female having higher levels of depressive symptoms reported more stress but there were not found age differences in reported perceived stress. Furthermore, Dinh Do (2007) in his doctoral thesis found that depressive symptoms among college students were predicted by perceived stress factors such as accommodation to campus life, satisfaction of relationships with parents and friends, and satisfaction with own financial status. Thus, quality of relationship and stressors as decline in personal health and fight with a friend increased the risk of depression; in

contrast, living with family, practice exercise and working with un-acquainted people reduced the risk for depression.

Estevez Lopez, Olaizola, Martinez Ferrer and Musitu Ochoa (2006) found some differences among aggressive rejected children and non-aggressive rejected ones in that the former reported higher levels of perceived stress in their school environment. More over, Kadzikowska (2012) in his study on 11-16 aged students showed that students who perceived lower levels of stress had significantly lower indexes of mental health problems than students who perceived higher levels of stress. Higher levels of perceived stress were associated with significantly higher indexes of somatic symptoms, anxiety and insomnia, social dysfunction and depression.

Kaur and Sharma (2014) found that depression was significantly and positively correlated with academic stress and its dimensions (i.e. academic frustration, academic conflict, academic pressure and academic anxiety). This positive relationship demonstrates that as the academic stress increases among adolescents, depression also increases among them. No significant gender differences were observed on depression.

While Kaur and Sharma (2014) found no gender differences in depressive symptoms among young students, Skipworth (2011) evidenced the contrary. According to those researchers, perceived stress had the strongest association with the depression score in both genders. But whereas females had higher perceived stress scores on average, the impact of perceived stress on depressive symptoms was stronger for males. Gender differences in depressive symptoms increased from preadolescence to young adulthood, evolving around the age of 14 years (Wade, Cairney, & Pevalin, 2002) and reaching a maximum about 16-18 years of age (Hankin, Abramson, Moffitt, Silva, McGee, & Angell, 1998).

Objectives

Previous research interested in the relationship between perceived stress and depressive symptoms showed contradictory results. While there were studies showing that prior depression is a predictor of perceived stress

(Ramenzankhani et al., 2013) there were studies showing the reversed relationship (Skipworth, 2011, Kaur & Sharma, 2014; Mateo, 2014). Furthermore, Estevez Lopez and colleagues (2006) found some differences among rejected aggressive children and rejected non-aggressive children referring to their levels of perceived stress. According to these researchers, rejected aggressive children perceived higher levels of perceived stress than their non-aggressive children.

The present research investigates the relationship between school bullying with its two dimensions (i.e. school aggression and school victimization), perceived stress and depressive symptoms among 13 to 15 years old students taking into account possible age and gender differences. Furthermore, the mediation role of perceived stress on the relationship between school bullying with its two dimensions (i.e. school aggression and school victimization) and depressive symptoms is analysed.

Hypotheses

1. Boys will engage more frequently than girls in bullying activities;
2. Older adolescents will more frequently engage in bullying acts than their younger peers;
3. Adolescents who perceived higher levels of stress in school contexts present higher levels of depressive symptoms than adolescents who didn't perceived higher levels of stress in schools;
4. Adolescents who perceived higher levels of stress in their school context will have higher levels of aggressive behaviours than adolescents who didn't perceived higher levels stress in the school context;
5. Adolescents who perceived higher levels of stress will have higher levels of victimisation than adolescents who haven't perceived high levels of stress;
6. There are significant correlations among school bullying with its two dimensions (i.e. school aggression and school victimization) and depressive symptoms;
7. Perceived stress mediates the relationship between school bullying (with its two dimensions school aggression and school victimization) and depressive symptoms.

Method

Participants

A total of 120 students (66 girls) enrolled in urban public schools from North-Eastern counties of Romania participated at the present study. Their mean age was 13.74 (SD=.61) range from 13 to 15 years.

Children filled in questionnaires during their school classes in second semester of the school year and all the information about the real aim of the study was hidden in order to reduce all the desirable responses. The participants were assured of the confidentiality of the data collected via this study. The time needed for completing the questionnaires was, in general, six minutes.

Measures

School bullying questionnaire. School bullying was assessed with the Aggression Scale (Orpinas & Frankowski, 2001) which consisted of 26 items measuring both emotional involvement in bullying acts (13 items, e.g. ‘*I teased students to make them angry*’) and specific situations from which one can label a peer as being a bullying victim (13 items, e.g. ‘*I was called names referring to the way I look, dress, walk or talk*’). Thus the aggression scale has two subscales measuring the bully role and the victim role. Children rated their responses on a five-point Likert scale depending on the way these behaviours suits their situations, from 1-never to 5-always. The total score for each subscale was obtained through an average of all responses given for each subscale. The school aggression (i.e. bully role) subscale had an alpha Cronbach of .76 and the school victimization (i.e. victim role) subscale had an alpha Cronbach of .78.

The perceived stress questionnaire. This questionnaire contains 30 items referring to perceived stress measured on a four-point Likert scale in which 1-almost never and 4-usually (*The Perceived Stress Questionnaire*; Levenstein, Prantera, Varvo et al., 1993). All these items reflect cognitive, emotional and behavioural symptoms of perceived stressful events (i.e. *You find yourself in situations of conflict*). The total score for this scale is obtained by calculating an average score for all the 30 items. The alpha Cronbach for this scale is .92.

Beck's Depression Inventory. Children's levels of depression was assessed with Beck Depression Inventory (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961). This instrument consists of 21 groups of statements (i.e. 0- I do not feel sad. 1 -I feel sad 2- I am sad all the time and I can't snap out of it. 3- I am so sad and unhappy that I can't stand it.) symbolic entitled with a letter and each of these letter groups contain four statements referring to different levels of the same affective or psychosomatic state. Each statement has a score from 0 to 3. The total score is composed of all the scores to the 21 groups of affirmations. Scores between one and ten reflect ups and downs which are normal, scores between eleven and sixteen reflect a mild mood disturbance, scores between 17-20 reflect a borderline clinical depression, scores between 21-30 reflect a moderate level of clinical depression, scores between 31-40 reflect a severe level of clinical depression and scores over 40 reflect an extreme level of clinical depression. The alpha's Cronbach coefficient for this scale is .85

Presentation and interpretation of the results

For testing the first five hypotheses there was computed the Multivariate Analysis of Covariance (MANCOVA) to test if there are any differences in school aggression, school victimization and depression taking into account perceived stress, age and student's gender. For testing the sixth hypothesis correlations and regression analyses were computed. To test the mediation role of perceived stress on the relationship between school bullying (with its two dimensions school aggression and school victimization) and depressive symptoms Baron and Kenny's (1986) method was used.

To statistically analysing the data, SPSS 17.00 was used.

Multivariate analyses of variance

Table 1. Multivariate Analysis of Covariance (MANCOVA) for differences between high and low students' levels of stress groups in school aggression, school victimization and depressive symptoms (N=120)

Variable	Perceive stress group	M	SD	F	p	Partial n2
<i>School aggression</i>	Low	1.91	.54	2.873	.093	.024
	High	2.05	.52			

Table 1. Multivariate Analysis of Covariance (MANCOVA) for differences between high and low students' levels of stress groups in school aggression, school victimization and depressive symptoms (N=120) - *continued*

<i>Variable</i>	Perceive stress group	M	SD	F	p	Partial n2
<i>School victimization</i>	Low	2.06	.59	.635	.427	.005
	High	2.11	.63			
<i>Depression</i>	Low	.80	.409	.274**	.003	.074
	High	1.04	.52			

We found significant differences between low and high perceived stress groups in their depressive symptoms, partial $n^2=.074$, Pillai's Trace=.086, $F(1,119)=.274$, $p<.003$ (Table 1).

First and second hypothesis

Results showed that gender wasn't a significant covariate for school aggression (Pillai's Trace=.032, $F(1,116)=2.663$, $p=.105$, partial $n^2=.022$), for school victimization (Pillai's Trace=.032, $F(1,116)=2.663$, $p=.093$, partial $n^2=.016$), (Pillai's Trace=.032, $F(1,116)=1.906$, $p=.170$, partial $n^2=.016$) and for depressive symptoms (Pillai's Trace=.032, $F(1,116)=.731$, $p=.394$, partial $n^2=.006$).

Furthermore, results evidenced that age wasn't a significant covariate for school aggression (Pillai's Trace=.017, $F(1,116)=.432$, $p=.512$, partial $n^2=.004$), for school victimization (Pillai's Trace=.017, $F(1,116)=1.375$, $p=.243$, partial $n^2=.012$) and for depressive symptoms Pillai's Trace=.017, $F(1,116)=.717$, $p=.399$, partial $n^2=.006$).

Boys don't engage in bullying acts more frequently than girls, boys didn't experienced higher levels of victimisation than girls and boys didn't experienced higher levels of depression than girls.

Older students didn't engage more frequently in bullying acts than younger students, didn't felt more victimization than younger students and didn't experienced higher levels of depression than younger students.

Third and fourth hypotheses

There weren't obtained any significant differences among aggressors with higher levels of perceived stress in their depressive symptoms compared to aggressors with lower levels of perceived stress. Moreover, there weren't any

significant differences between victims with higher levels of perceived stress and victims with lower levels of perceived stress in their depressive symptoms.

The fifth hypothesis

The fifth hypothesis was confirmed. Students with higher levels of perceived stress had experienced also higher levels of depressive symptoms than comparing to students with lower levels of perceived stress.

Correlation analyses

For the sixth hypothesis we computed correlations and regression among variables (i.e. school aggression, school victimization and depressive symptoms).

Table 2. Correlations between school aggression, school victimization, perceived stress and depressive symptoms (N=120)

Variables	M	SD	1	2	3	4
1. school aggression	1,98	.53	1			
2. school victimization	2,09	.61	.341**	1		
3. perceived stress	2,30	.42	.205*	.062	1	
4. depressive symptoms	.92	.48	.177*	.123	.331*	1

Note: * $p < .05$; ** $p < .01$

The correlation between school aggression (i.e. bully role) and depression is marginal ($r = .177$, for $p = .053$).

As can be seen in the table 2, there are significant correlations among school aggression, perceived stress and depressive symptoms. The correlation between school aggression (i.e. bully role) and depressive symptoms is $.177$ ($p = .053$) which is a marginal significant correlation. The correlation between perceived stress and depressive symptoms is $.331$ for a significance level of $.05$ and the correlation between school aggression (i.e. bully role) and perceived stress is $.205$ for a significance level of $.05$ (Table 2).

Regression analyses

Table 3. Regression analysis of bullying dimensions as predictor of perceived stress

Predictor variables	Perceived stress							
	B	SE	β	t	p	R2	F(df)	$\Delta R2$
1. School aggression (i.e. bully role)	.163	.076	.208	2.162	.033	.042	5.180 ($p = .025$)	.034
2. School victimization (i.e. victim role)	-.006	.066	-.009	-.094	.925	.004	.456 ($p = .501$)	-.005

As can be seen in the table, school aggression is a significant predictor for perceived stress ($\Delta R^2=.034$, $F(1,119)=5.180$, $p<.025$) meaning that 3.4% of perceived stress' variance is predicted by school aggression (i.e. bully role).

Furthermore, school victimization isn't a significant predictor for perceived stress ($\Delta R^2=-.005$, $F(1,119) =.456$, $p=.501$) (Table 3).

Table 4. Regression analysis of bullying dimensions (i.e. school aggression and school victimization) and perceived stress as predictors of depressive symptoms

	B	SE	β	t	p	R2	F(df)	ΔR^2
Model 1								
<i>School aggression</i>	.161	.082	.177	1.954	.05	.031	3.817	.023
Model2								
<i>Perceived stress</i>	.383	.101	.331	3.809	.001	.110	14.511	.102
Model 3								
<i>School Aggression</i>	.104	.080	.114	1.287	.20			
<i>Perceived Stress</i>	.356	.103	.308	3.475	.001	.122	8.125	.107
Model 1								
<i>School victimization</i>	.098	.073	.123	1.342	.182	.015	1.801	.007
Model 2								
<i>Perceived stress</i>	.383	.101	.331	3.809	.000	.110	14.511	.102
Model 3								
<i>School Victimization</i>	.082	.069	.102	1.179	.241			
<i>Perceived Stress</i>	.376	.101	.325	3.375	.000	.120	7.975	.105

School aggression is a marginal significant predictor for depressive symptoms ($\Delta R^2=.023$, $F(1,119)=3.817$, $p<.053$), meaning that having a bully role predicts 2.3% of depressive symptoms' variance.

Perceived stress is a significant predictor for depressive symptoms ($\Delta R^2=.102$, $F(1,119)=14.511$, $p<.000$) meaning that having a high perceived stress explains 10.2% of depressive symptoms' variance.

The model containing school aggression (i.e. bully role) and perceived stress as predictors of depressive symptoms explains 10.7% of depressive symptoms variance ($\Delta R^2=.105$, $F(1,119)=8.125$, $p<.001$).

School victimization isn't a significant predictor for depressive symptoms ($F(1,119)=1.801$; $p=.182$).

The mediation model proposed

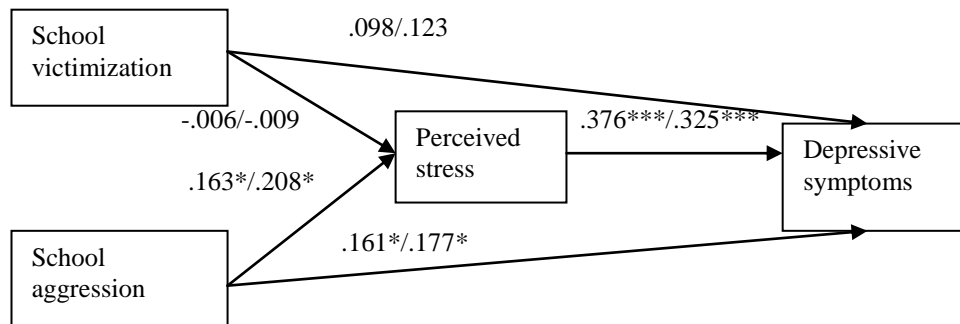


Figure 1. The mediation model

The mediation model proposed is partially validated. Perceived stress has a partial mediation role on the relationship between school aggression and depressive symptoms. The indirect effect is significant ($B=.163 / \beta=.208^*$, $p<.05$) and bigger than the direct effect ($B=.161 / \beta=.208$, $p<.05$) meaning that the relationship between school aggression and depressive symptoms can be explained by students' levels of perceived stress (Fig. 1). Moreover, the Sobel T test is significant ($Z=1.73$, $p=.08$) meaning that the indirect effect of aggression on depressive symptoms is statistically significant bigger than the direct effect. Those students having higher levels of perceived stress will have a higher tendency to engage in school aggression and will have higher levels of depressive symptoms than those students whose levels of perceived stress are lower.

Conclusions

The present research investigated the mediation role of perceived stress on the relationship between school bullying with its two dimensions (i.e. school aggression and school victimization) and depressive symptoms.

Previous research (Kaltiala-Heino et al., 1999; Kaltiala-Heino et al., 2000; Kaltiala-Heino & Frojd, 2011) have shown that there is a direct relationship between victimization and depressive symptoms. Despite the fact that the correlation among victimization and depressive symptoms is significant,

the results showed no direct effect from victimization to depressive symptoms. This result is concordant with the results of Kim et al. (2006) longitudinal study which evidenced that the fact of experiencing victimization from bullying doesn't lead directly to depressive symptoms. There are probably other factors which can moderate and mediate the relationship.

Laugharne and colleagues (2010) stated that the recurrence of depressive symptoms may be moderated or mediated by factors such as losses, abuse, traumatic events or potential external perceived stressors. Thus the present study investigated also the indirect relationship between victimization from school bullying and depressive symptoms taking into account perceived stress as a mediator. Previous research (Dinh Do, 2007; Combs, 2011; Ramenzankhani et al., 2013; Kaur & Sharma, 2014; Mateo, 2014) have evidenced that there is a significant positive association between perceived stress and depressive symptoms. The results of the present research are congruent with the previous ones in that it showed a significant relationship between perceived stress and depressive symptoms. Furthermore the indirect relationship between victimization from bullying and depressive symptoms can be better explain through perceived stress but the mediator model isn't statistically significant. The relationship between victimization and perceived stress isn't statistically significant either.

Even though the mediation model between victimization from bullying and depressive symptoms having perceived stress as a mediator isn't statistically significant, the indirect effect is bigger than the direct effect suggesting that perceived stress may act as a mediator on the relationship between victimization from bullying and depressive symptoms.

Furthermore, previous research (Kaltiala-Heino et al., 1999; Brunstein Klomek et al, 2007; Kaltiala-Heino et al., 2000; Kaltiala-Heino et al., 2010; Kaltiala-Heino & Frojd, 2011) have shown that there is a positive association between school aggression (i.e. bully role) and depressive symptoms meaning that higher levels of aggressiveness are associated with higher levels of depressive symptoms. More over, previous studies have evidenced that there are positive statistically significant associations between school aggression and perceived stress (Murray-Harvey & Slee, 2007; Leung & To, 2009) and there are positive associations between perceived stress and depressive symptoms

(Din Do, 2007; Combs, 2011; Ramenzankhani et al., 2013; Mateo, 2014; Kaur & Sharma, 2014).

The results of the present research have confirmed the results of the previous studies in that it evidenced significant associations not only between school aggression and perceived stress but also between perceived stress and depressive symptoms. Moreover, the mediation model proposed was significant. Perceived stress is a mediator between school aggression and depressive symptoms. The fact of perceiving high levels of stress in the environment increased the depressive symptoms felt by aggressive children.

The results of the present study reveal new ways to understand and address school bullying phenomenon by showing that aggressive children have higher levels of depressive symptoms and if these children perceive their school environment as being stressful their levels of depressive symptoms will increase even more.

The results of the present study can stand to the basis of anti-bullying training programs and can help aggressive children overcome their depressive symptoms by employing new efficiently coping strategies.

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