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Psychological Correlates of School Bullying Victimization: Academic Self-Concept, Learning Motivation and Test Anxiety

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Psychological Correlates of School Bullying Victimization: Academic Self-Concept, Learning Motivation and Test Anxiety

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Abstract

The paper aims at detecting the association between students' bullying victimization at school and some psychological dimensions, referred to academic self-concept (for both Mathematics and Reading), learning motivation (intrinsic motivation, extrinsic motivation, commitment to study) and test anxiety. A questionnaire including these measures was completed by 3372 students (51.1% boys and 48.9% girls, mostly aged from 11 to 14 years) at grade 6 (n=1082), 7 (n=1113) and 8 (n=1177), coming from 54 middle schools of Southern Italy. T-tests are used for establishing differences in psychological dimensions between groups of students that experienced bullying and those who did not. In order to check the robustness of our findings and evaluate whether bullying victimization could be actually considered a determinant of these psychological measures, linear regression is used to predict each variable, also controlling for gender and grade level. Results confirm most of the research findings on the correlates of bullying victimization: being victim of peer bullying strongly reduces academic self-concept (both in Mathematics and Reading) and commitment to study, whilst tends to increase both extrinsic motivation and test anxiety rates, independently from gender and grade level. No impact, indeed, is revealed on both Math and Reading intrinsic motivation.

Keywords: bullying; school victimization; academic self-concept; learning motivation; test anxiety.

Correlaciones Psicológicas de la Victimización del Bullying Escolar: Auto-concepción Académica, Motivación para el Aprendizaje y Ansiedad en los Exámenes

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Abstract

Este artículo tiene como objetivo detectar la asociación entre la victimización por bullying en la escuela y algunas dimensiones psicológicas referidas al auto-concepto académico (en Matemáticas y Lectura), motivación para el aprendizaje (motivación intrínseca, extrínseca, compromiso con el estudio) y la ansiedad en los exámenes. Unos 3372 estudiantes completaron un cuestionario con esas medidas (51,1% chicos y 48,9% chicas, la mayoría entre 11 y 14 años) en 6º (n=1082), 7º (n=1113) y 8º grados (n=1177), provenientes de 54 escuelas medias del Sur de Italia. Se utilizaron T-Tests para establecer diferencias en las dimensiones psicológicas entre grupos de estudiantes que experimentaron victimización por bullying y aquellos que no. Para asegurar la robustez de nuestros resultados y evaluar si la victimización por bullying podría considerarse un determinante de las medidas psicológicas se utilizó la regresión lineal para predecir cada variable, controlando género y grado. Los resultados confirman muchos hallazgos sobre correlación con la victimización por bullying: ser víctima de bullying reduce fuertemente el auto-concepto académico (en Matemáticas y Lectura) y el compromiso con el estudio, mientras tiende a incrementar la motivación extrínseca y el grado de ansiedad en los exámenes, independientemente del género y del nivel de estudios. No existe impacto en la motivación intrínseca en Matemáticas y Lectura.

Keywords: bullying; victimización escolar; auto-concepto académico; motivación para el aprendizaje; ansiedad en los exámenes.

Bullying is a growing and significant problem which affects a substantial portion of school children around the world (Smith et al., 1999; Wang, Iannotti, & Nansel, 2009). Bullying can be defined as a deliberate act aimed to inflict physical and psychological harm, that is commonly characterized by frequency, intention to hurt, and an asymmetric relationship between the bully and the victim (Houbre, Traquinio, & Thuillier, 2006). Bullying refers to a wide range of aggressive behaviors, such as name calling, extortion, physical violence, slander, damage to property, verbal intimidation and peer exclusion too (Crick et al., 2001; Salmivalli, Kaukiainen, & Lagerspetz, 2000).

Most of the scientific literature highlights that students exposed to systematic victimization by their peers suffer from adjustment problems, such as depression, loneliness, social anxiety, psychosomatic complaints, high suicidal ideation, diminishing self-esteem, school avoidance, poor academic achievement, low academic self-concept and lack of school enjoyment (Kumpulainen et al., 1998; Hawker & Boulton, 2000; Perše, Kozina, & Leban, 2011). In addition, bullying victimization shows several interpersonal correlates such as rejection, having few friends and low friendship quality that can persist into adolescence and beyond (Ladd & Troop-Gordon, 2003; Kochenderfer & Ladd, 1996; Rudolph & Clark, 2001; Kaltiala-Heino, Rimpelä, Marttunen, Rimpelä, & Rantanen, 1999; Rigby & Slee, 1999). However, many of the correlates of victimization seem to be both antecedents and consequences of bullying, suggesting a vicious cycle by which children who are victims during school often continue to be bullied in the workplace (Sharp, 1995; Schafer, Korn, Smith, Hunter, Mora-Merchan, Singer, & Van der Meulen., 2004; Card, 2003).

Recent studies have confirmed the existence of bullying also in the Italian schools (Gini, 2004; Genta, Menesini, Fonzi, Costabile, & Smith, 1996), considering that about one-half of pupils in primary (from 1st to 5th grade) school and one-third in middle (from 6th to 8th grade) school claimed to have been victims of peer violence (Fonzi, 1997; Baldry & Farrington, 1999). Comparative research reports that the incidence of bullying victimization in Italy is higher than that which had been found in other European and Western countries (Menesini & Modiano, 2003). In this regard, although anti-bullying policies and strategies are more and more provided to guarantee a safe environment for students, ‘very little is known about the issue of bullying and victimization by peers in Italian schools and about the problems connected to it’ (Genta et al., 1996, p. 97).

The purpose of the present study is to test the association between students’ bullying victimization at school and some psychological dimensions, referred to as academic self-concept (for both Mathematics and Reading), learning motivation (intrinsic motivation, extrinsic motivation, commitment to study) and test anxiety, in a sample of middle school students of Southern Italy. In more detail, we aim at evaluating whether these psychological correlates, related to learning process, could be predicted on the ground of students’ bullying victimization, also controlling for both gender and grade level.

In this regard, the extant empirical literature has clearly and consistently documented an association between bullying victimization and the constructs we consider in the present study.

In relation to academic self-concept, it is demonstrated that being victim of bullying leads to a negative self-evaluation in scholastic and social skills (Neary & Joseph, 1994; Rigby & Cox, 1996; Stanley & Aurora, 1998; Marsh, Parada, Craven, & Finger, 2004; Marsh et al., 2011; Jenkins & Demaray, 2012) and to a maladaptive school functioning more in general (Nishina, Juvonen, & Witkow, 2005). In fact, the internalization of being continually harassed may lead targets to believe they are worthless and

failures and thus to have lower self-esteem. At the same time, certain negative levels of self-concept predict long-term bullying as well, suggesting that a negative academic self-concept and victimization are interdependent and that they reinforce one another (Houbre, Tarquinio, & Lanfranchi, 2010).

Bullying experiences can also have both direct and indirect effects on school and learning motivation (Nishina et al., 2005; Schwartz, Gorman, Nakamoto, & Toblin, 2005), such as decreases in school liking, developing negative attitudes towards school, and increases in school absenteeism (Boulton & Underwood, 1992; Kochenderfer-Ladd, 2004). The most frequently tested indirect (mediational) model presumes that emotional distress caused by negative peer encounters inhibits learning and performance (Graham, Bellmore, & Mize, 2006; Juvonen, Nishina, & Graham, 2000; Schwartz et al., 2005). In other words, victimization is likely to negatively affect cognitive engagement defined as a student's ability to self-regulate his/her investment in the learning process (Harris, 2008), since bullied students have difficulties in making friends and progressively tend to feel like they do not belong at school and are not involved in classroom activities (Houbre et al., 2006). In detail, student external regulation (i.e. considerateness to obtain rewards or avoid punishments) positively relates to self-reported bullying in class (Roth, Kanat-Maymon, & Bibi, 2011). In this sense, internal/external motivation and commitment to study may be assumed as valid indicators of behavioral school engagement, as this dimension pertains the feeling of being interested, cognitively aware, participating, and excited to get the most out of a learning experience (Fredricks, Blumenfeld, & Paris, 2004).

Then, bullied student also have reduced emotional engagement in school activities and show some negative emotions such as boredom, anxiety, sadness, and fear while at school (Fredricks et al., 2004). Personally experiencing victimization is associated with daily increases in feelings of humiliation, anxiety, and anger (Nishina & Juvonen, 2005) that are not

compatible with school liking or academic competence. In more detail, many researchers associate suffering violence at school to anxiety in its different forms (Ezpeleta, 2005; Hawker & Boulton, 2000), including also anxiety about school failure and evaluation (Martínez-Montegudo, Ingles, Triases, & Garcia-Fernandez, 2012). Bullying thus increases victims' school anxiety and lack of confidence through their internalization of the negative opinion of their tormentors (Houbre et al., 2010). In this regard, we specifically consider the relationship between bullying victimization and test anxiety - on which literature is mostly scarce - because this negative response is related to school activities and performances and is not conceived as a global measure or as a personality trait. Indeed, the general aim of this paper is not to provide a clinical viewpoint on bullying correlates from an individualistic perspective, but to explore the potential association between victimization and some psychological measures regarding student learning and achievement in the school context. As stated by Smith and colleagues (2004) "from an evaluation standpoint, it is incumbent upon us to measure outcomes that are relevant to the educational system as it now exists. Principals and teachers are pressed to ensure that their students meet academic standards. Those of us who work in the bullying field have no doubt that these negative interactions impact on academic performance" (p. 322).

Method

Participants

Our sample was composed of 3372 Italian students attending middle school cycle, corresponding to 6th (n=1082), 7th (n=1113) and 8th (n=1177) grade. In detail, boys were 51.1% while girls were 48.9%, mostly aged from 11 to 14 years. They came from 172 classes belonging to 54 different schools of four Regions of Southern Italy (Campania, Calabria, Apulia and Sicily).

This representative sample was built in the school year 2009/2010 as control group in occasion of the project Valutazione M@t.abel+¹ carried out by INVALSI (Italian acronym for National Institute for the Educational Evaluation of Instruction and Training). This ongoing 3-years study aims at evaluating the effectiveness of a training program in mathematics, addressed to middle school teachers of Southern Italy, on students' math competences and attitudes through a randomized control trial².

Material

Student data. Data are derived from the Student Questionnaire, validated by INVALSI and used for the annual national assessment of student achievement in the Italian context³. The questionnaire aimed to collect students' demographic and background characteristics, previous school experience and learning attitudes. The following variables were assessed and analyzed in the course of this study.

Measures

Bullying victimization. To determine the degree of bullying victimization at school, a question of the Student Questionnaire was used. Students were asked: 'In school, did any of these things happen during the last month?' in reference to four specific items, adapted from the Student Questionnaire used in the Trends in International Mathematics and Science Study (TIMSS) 2007:

- 'Something of mine was stolen' (item 1);
- 'I was hit or hurt by other students' (item 2);
- 'I was made to do things I didn't want to do by other students' (item 3);
- 'I was made to feel excluded by other students' (item 4).

Students could answer by yes or no. A binary variable was built which takes the value of one if at least one of the four aggressive episodes occurred and zero otherwise. The time of one month should be long enough to include all students who are affected by violence regularly and short enough that students can remember the situation and that it may still have an impact on their behavior.

Academic self-concept. The academic self-concept is defined as the student's perception of competencies at school in relation to specific subjects. This perception can be seen as a cognitive evaluation of the abilities to accomplish certain tasks. According to the hierarchical self-concept model of Marsh and Shavelson (1985), students' academic self-concept is a subcomponent in a model in which general self-concept is at the top of the hierarchy.

In this study, both Math and Reading academic self-concept were measured on two different 4-point Likert scales, ranging from 'strongly agree' to 'strongly disagree'. Each scale assessed three aspects referred to students' beliefs (performance, learning process and peer comparison), which are expressed with the following statements:

- 'I am good at Math/Reading' (item 1);
- 'I am able to learn Math/Reading quickly' (item 2);
- 'I perform Math/Reading tasks better than my other classmates' (item 3).

Learning motivation. Student motivation deals with students' desire to participate in the learning process. But it also concerns the reasons or goals that underlie their involvement or non-involvement in academic activities. Although students may be equally motivated to perform a task, the sources of their motivation may differ.

Intrinsic motivation. It refers to motivation that is driven by an interest or enjoyment in the task itself, and exists within the individual rather than relying on any external pressure (Lepper, 1988). It is based on taking pleasure in an activity rather working towards an external reward. In the present study, intrinsic motivation was measured for both Mathematics and Reading on a 4-point Likert scale, ranging from ‘strongly agree’ to ‘strongly disagree’, by means the two following statements:

- ‘I enjoy doing Math/Reading’ (item 1);
- ‘I would like to take more Math/Reading in school’ (item 2).

Extrinsic motivation. It pertains whenever an activity is done in order to attain some separable outcome, such as obtaining rewards or avoiding some punishment. Extrinsic motivation thus contrasts with intrinsic motivation, which refers to doing an activity simply for the enjoyment of the activity itself, rather than its instrumental value. For middle-school students, extrinsic motivation is often linked to get parents’ or teachers’ approval and to look good in front of classmates (Lepper, 1988). It was measured on a 4-point Likert scale, ranging from ‘strongly agree’ to ‘strongly disagree’, by means the following four items:

- ‘I study to please my parents’ (item 1);
- ‘I study to please my teachers’ (item 2);
- ‘I study to be given some presents at home’ (item 3);
- ‘I study not to make a bad impression with my classmates’ (item 4).

Commitment to study. It concerns long-term, quality involvement and effort in learning more in general (Ames, 1990), regardless of whether (or not) academic tasks are considered interesting. Commitment to study affects students’ success at school and is often linked to intrinsic motivation because, according to the Self-Regulated Learning Theory, it represents the

observable behavior through which motivation can be effectively realized. It was measured on a 4-point Likert scale, ranging from ‘strongly agree’ to ‘strongly disagree’, by means the following three items:

- ‘When a subject is difficult I quit it’ (item 1);
- ‘When I study a lot I get good results’ (item 2);
- ‘I commit myself to study even when the subject is boring’ (item 3).

Test anxiety. This hypothetical construct consists of the components worry and emotionality (Liebert & Morris, 1967), respectively related to cognitive concerns about one’s own performance and physiological reactions to the test situation. The students were given four statements concerning the level of test anxiety they experienced during the standardized assessment tests. They were requested to express their level of agreement with these statements on a 4-point Likert scale, adapted from the Motivated Strategies for Learning Questionnaire (MSLQ) by Pintrich and De Groot (1990) and then specifically validated in the Italian context (Poliandri, Cardone, Muzzioli, & Romiti, 2011). The four statements regarding students’ emotional reaction during the test are:

- ‘Even before we started I was worried about having to take a test’ (item 1);
- ‘I was so nervous that I couldn’t find the right answers’ (item 2);
- ‘While I was answering I felt I was doing poorly’ (item 3);
- ‘While I was answering I felt calm’ (item 4).

Procedure

To verify the construct validity of each psychological measure considered, we computed Cronbach's alpha to assess the internal consistency reliability across the items of each scale. In addition, exploratory factor analysis (Principal Component Analysis for Likert scales and Multiple

Correspondence Analysis for Bullying victimization scale with dichotomous items) was used to provide evidence that the scales in question were unidimensional.

In accordance with our research questions several statistical methods are used. A first insight into data is presented with descriptive statistics on bullying victimization and Chi-Square test is used to examine differences by gender and grade level. T-tests are used for establishing differences in psychological dimensions between groups of students that experienced bullying and those who did not. Since these dimensions are measured on a 4-point Likert scale, mean scores are calculated that range from 0 ('strongly disagree') to 3 ('strongly agree'). In order to check the robustness of our findings and evaluate whether bullying victimization could be actually considered a determinant of these psychological measures, we used a linear regression model to predict each variable, also controlling for gender and grade level by selecting enter method.

Results

The psychometric properties of the scales used in the present study confirm the construct validity of each psychological measure as each of them has an acceptable internal consistency (Cronbach's $\alpha > 0.60$). Besides, the scales are unidimensional with a one-factor solution explaining a good percentage of the overall variance.

Table 1
Psychometric properties of the scales for the psychological measures used in the analysis

<i>Scale</i>	<i>Number of items</i>	<i>Reliability (Cronbach's alpha)</i>	<i>Unidimensionality</i>	<i>Variance explained by one-factor solution (%)</i>
<i>Bullying victimization</i>				
Bullying victimization	4	0.92	Yes	91.67
<i>Academic Self-Concept</i>				
Math Self-Concept	3	0.69	Yes	62.08
Reading Self-Concept	3	0.73	Yes	64.89
<i>Learning motivation</i>				
Math Intrinsic motivation	2	0.78	-	-
Reading Intrinsic motivation	2	0.80	-	-
Extrinsic motivation	4	0.72	Yes	54.05
Commitment to study	3	0.63	Yes	57.37
<i>Test Anxiety</i>				
Test Anxiety	4	0.86	Yes	70.05

Note. In reference to Math and Reading intrinsic motivation no factor analysis was carried out to assess unidimensionality because the scales were composed of only two items.

In Table 2 descriptive statistics are shown which refer to the differences by gender and grade level between students who experienced (at least once in the prior month) school bullying episodes and students who did not.

Table 2

Cross-Tabulation of bullying victimization by gender and grade level

		<i>Grade level</i>			
		6	7	8	Total
<i>Not Bullied</i>	Female	349	411	480	1240
		49.02%	48.41%	51.45%	49.72%
	Male	363	438	453	1254
		50.98%	51.59%	48.55%	50.28%
	Subtotals	712	849	933	2494
		70.50%	78.10%	81.34%	76.88%
<i>Bullied</i>	Female	135	121	85	341
		45.30%	50.84%	39.72%	45.47%
	Male	163	117	129	409
		54.70%	49.16%	60.28%	54.53%
	Subtotals	298	238	214	750
		29.50%	21.90%	18.66%	23.12%
Total		1010	1087	1147	3244

Results show some differences among different grade levels, $\chi^2(1, N = 3244) = 36.83, p < .01$ which confirm that school bullying victimization is significantly present at grade 6 (29.50%) and then tends to decrease to grade

8 (18.66%). The significance level is maintained independently from gender influences in each grade level.

Besides, boys are generally more bullied than girls (54.53% *versus* 45.47%), $\chi^2 (2, N = 3244) = 4.17, p < .05$. However, controlling for grade level, gender differences are evident only at grade 8 where 60.28% of bullied students are male, $\chi^2 (1, N = 1147) = 9.58, p < .01$.

Grouping students on the ground of their bullying victimization status, we evaluated differences in mean scores referred to the psychological measures we considered in the present study. In this regard, Table 3 shows the statistically significant differences in psychological dimensions resulting from Independent Sample Test.

Table 3

Descriptive statistics and T-tests for Independent Samples comparing Bullied and Not Bullied students on academic self-concept, learning motivation and test anxiety

<i>Measures</i>	<i>Not bullied students (N=2505)</i>		<i>Bullied students (N=756)</i>		<i>Mean difference (SE)</i>	<i>t-test</i>
	<i>Mean</i>	<i>SD</i>	<i>Mean</i>	<i>SD</i>		
<i>Academic Self-Concept</i>						
Math Self-Concept	1.85	0.72	1.75	0.75	0.10 (0.03)	3.17 **
Reading Self-Concept	2.16	0.61	2.05	0.68	0.11 (0.03)	4.06 ***
<i>Learning Motivation</i>						
Math Intrinsic motivation	1.38	0.97	1.40	1.05	-0.03 (0.04)	-0.65
Reading Intrinsic motivation	1.64	0.91	1.63	0.95	0.00 (0.04)	0.04
Extrinsic motivation	0.80	0.66	1.01	0.73	-0.22 (0.03)	-7.66 ***
Commitment to study	2.30	0.58	2.21	0.61	0.09 (0.02)	3.80 ***
<i>Test Anxiety</i>						

Test Anxiety	1.33	0.74	1.49	0.78	-0.16 (0.03)	-5.14	***
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Note. **Significant at 0.01 level; ***significant at 0.001 level

Students who are victims of school bullying have a lower academic self-concept, both in Mathematics and Reading, than their peers who are not bullied. In relation to learning motivation, they also show a higher extrinsic orientation and a poorer commitment to study. However, both Math and Reading intrinsic motivation are not significantly different in the two groups. Then, bullied students experience higher test anxiety, thus indicating greater concerns about their own performance and affective response to test situations.

Linear regression analyses are also carried out to test the predictive relationship between bullying victimization and the psychological dimensions, controlling for both student’s gender and grade level (Table 4).

Table 4
Linear regression analyses of academic self-concept, learning motivation and test anxiety based on school bullying victimization

<i>Dependent variables</i>		<i>B</i>	<i>SE</i>	<i>β</i>	<i>R</i>	<i>R² (Adjusted)</i>
<i>Academic Self-Concept</i>						
Math Self-Concept		-0.10	0.03	-0.06 **	0.057	0.003
Math Self-Concept (with controls)		-0.13	0.03	-0.08 ***	0.187	0.034
<i>Gender</i>	Male	0.15	0.02	0.10 ***	–	–
<i>Grade (ref: grade 6)</i>	Grade 7	-0.16	0.03	-0.11 ***	–	–
	Grade 8	-0.25	0.03	-0.17 ***	–	–
Reading Self-Concept		-0.10	0.03	-0.07 ***	0.070	0.005
Reading Self-Concept (with controls)		-0.11	0.03	-0.07 ***	0.194	0.037
<i>Gender</i>	Male	-0.21	0.02	-0.17 ***	–	–

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<i>Grade (ref: grade 6)</i>	Grade 7	-0.10	0.03	-0.08 ***	–	–
	Grade 8	-0.10	0.03	-0.07 ***	–	–
<i>Learning motivation</i>						
Math Intrinsic motivation		0.02	0.04	0.01	0.010	0.000
Math Intrinsic motivation (with controls)		-0.03	0.04	-0.01	0.212	0.044
<i>Gender</i>	Male	0.23	0.03	0.11 ***	–	–
<i>Grade (ref: grade 6)</i>	Grade 7	-0.25	0.04	-0.12 ***	–	–
	Grade 8	-0.43	0.04	-0.21 ***	–	–
Reading Intrinsic motivation		0.00	0.04	0.00	0.001	0.000
Reading Intrinsic motivation (with controls)		-0.01	0.04	-0.01	0.211	0.044
<i>Gender</i>	Male	-0.31	0.04	-0.17 ***	–	–
<i>Grade (ref: grade 6)</i>	Grade 7	-0.22	0.04	-0.11 ***	–	–
	Grade 8	-0.27	0.04	-0.14 ***	–	–
Extrinsic motivation		0.22	0.03	0.13 ***	0.133	0.017
Extrinsic motivation (with controls)		0.19	0.03	0.11 ***	0.269	0.071
<i>Gender</i>	Male	0.28	0.02	0.20 ***	–	–
<i>Grade (ref: grade 6)</i>	Grade 7	-0.11	0.03	-0.07 ***	–	–
	Grade 8	-0.19	0.03	-0.13 ***	–	–
Commitment to study		-0.09	0.02	-0.07 ***	0.066	0.040
Commitment to study (with controls)		-0.10	0.02	-0.08 ***	0.197	0.038
<i>Gender</i>	Male	-0.15	0.02	-0.12 ***	–	–
<i>Grade (ref: grade 6)</i>	Grade 7	-0.10	0.02	-0.08 ***	–	–
	Grade 8	-0.20	0.02	-0.16 ***	–	–

		<i>Test Anxiety</i>				
Test Anxiety		0.16	0.03	0.09 ***	0.093	0.008
Test Anxiety (with						
controls)		0.19	0.03	0.11 ***	0.244	0.058
<i>Gender</i>	Male	-0.31	0.03	-0.21 ***	–	–
<i>Grade (ref: grade 6)</i>	Grade 7	0.04	0.03	0.03	–	–
	Grade 8	0.15	0.03	0.10 ***	–	–

** Significant at 0.01 level; *** Significant at 0.001 level

Regression analyses results show that students’ psychological variables are predicted by bullying victimization at school, with the exception of Math and Reading intrinsic motivation, thus confirming our previous findings. Bullying victimization determines a higher extrinsic learning motivation and test anxiety and is also likely to reduce academic self-concept and commitment to study. Besides, the causal relationships between bullying and academic self-concept (in both Mathematics and Reading), extrinsic motivation, commitment to study and test anxiety are valid also controlling for students’ gender and grade level, without any relevant change in the magnitude of the coefficient on bullying victimization. In more detail, looking at the standardized regression coefficients, the strongest predictive relationships are detected for extrinsic motivation and test anxiety.

The effects of control variables can be summarized as follows: males show higher Math self-concept, Math intrinsic motivation and also extrinsic motivation; on the contrary, females are characterized by greater Reading self-concept, Reading intrinsic motivation, commitment to study and test anxiety. In reference to grade level, Math self-concept, Math intrinsic motivation, Reading intrinsic motivation, extrinsic motivation and commitment to study progressively tend to decrease from grade 6 to 8. Reading self-concept is equally lower in both grade 7 and 8 than in grade 6.

Instead, test anxiety is significantly higher in grade 8 compared to other grade levels.

Discussion

Bullying victimization seems to be a phenomenon which mostly affects male students, consistently with already indicated in previous research (Houbre et al, 2006), and is present at the beginning of middle school cycle (Menesini & Fonzi, 1997). In this regard, Nishina and Juvonen (2005) found that half of students encounter at least one incident of bullying during their first year in middle school. It may depend on the difficult transition from elementary to middle school, because students loose a bond to their single classroom teacher; their class sizes balloon, such that establishing individual relationships with subject matter teachers grow more difficult. Besides, the pedagogy become more lecture and test-based and less interactive, and more time is spent in hallways and other unsupervised places. Thus, the opportunities for isolation, alienation, and disengagement increase mightily, and any school-based havens from being bullied seem to fall away (Seeley, Tombari, Bennett, & Dunkle, 2009).

In relation to academic self-concept, results confirm the consistent negative correlation with being bullied that has been found in other several studies (Houbre et al., 2006; Lodge & Feldman, 2007; Yang et al., 2006; Houbre et al., 2010). Bullying victimization seems thus leading to a negative self-view regarding the extent that students see themselves as being competent in school tasks, probably not depending on specific learning subjects since it is detected for both Mathematics and Reading. In this sense, it might be linked to other negative psychological effects of bullying that are more general, such as low self-esteem, depression and dysfunctional coping strategies, which reduce students' personal sense of power in learning process because of the lack of peer reinforcement. However, we do not

exclude that also a low academic self-concept may contribute to being victims of bullying behaviors by peers over time.

Besides, results show that learning motivation is also affected by bullying which determines poorer involvement in school activities and commitment to study. In fact, bullied students tend to be more extrinsically-oriented, although their intrinsic motivation in Mathematics and Reading is not significantly reduced. This probably suggests a relational dynamics according to which, independently from their interest or enjoyment in specific learning subjects or tasks, bullied students perceive a greater external pressure in accomplishing certain school results or outcomes. In this sense, they might behave so to get approval and be well accepted by their peers (Callaghan & Stephen, 1995; Hawker & Boulton, 2000), because they are likely to be more exposed to intimidation and social exclusion.

Then, although the relationship between bullying victimization and test anxiety is poorly investigated, findings on this theoretical construct seem to be consistent with wider scientific literature, according to which bullied students are more likely than their peers to report anxiety (Fekkes, Pijpers, & Verloove-Vanhorick, 2004; Hawker & Boulton, 2000; Juvonem, Graham, & Schuster, 2003). Since test anxiety is triggered by an imbalance between perceived capabilities and academic demands, we can hypothesize that for bullied students feeling anxious in front of test situation may be mostly caused also by lower academic self-concept and commitment to study, thus perceiving poorer abilities to accomplish certain tasks.

Although the negative impact of bullying victimization persists independently on gender and grade level, the effects of these control variables show some minor differences. Boys tend to have a worse academic self-concept and intrinsic motivation in Reading than girls, for whom these dimensions are lower in Mathematics instead. These data reflect the gender gap in school achievement suggested by international comparative research (OECD, 2010) (according to which girls outperform boys in Reading, whilst boys outperform girls in Mathematics), thus remarking the negative impact

of bullying on students' previous learning difficulties. Besides, whilst boys are characterized by higher extrinsic motivation and lower commitment to study, girls are mostly affected by test anxiety. It seems to indicate different effects of victimization on learning regulation and strategies: boys tend to be more external-oriented in order to get approval and look good, differently from girls who are likely to internalize negative consequences of bullying and to have higher concern about their abilities and performances. Then, students coming from grade 8 are the ones which show lower measures compared to other grades (poorer academic self-concept and learning motivation, and higher test anxiety) thus highlighting worst consequences of bullying victimization when it is present (and probably lasts) up to the end of middle school cycle.

Conclusions

In sum, the present study confirms most of the research findings on the correlates of bullying victimization also in the Italian context, where scientific literature on the issue seems to be almost scarce. Being victim of peer bullying strongly reduces academic self-concept (both in Mathematics and Reading) and commitment to study, whilst tends to increase both extrinsic motivation and test anxiety rates, independently from gender and grade level. No impact, indeed, is revealed on both Math and Reading intrinsic motivation.

In regard with the implications of this research for anti-bullying intervention in the Italian context, we underline the importance of recognizing and intervening in school bullying in the early grades of middle school cycle, when (as shown by results) bullying episodes seem to occur more frequently, also because of higher negative impact that bullying has on students at a later time.

Besides, since it is often difficult to distinguish between bullying and just horsing around at this early stage, teacher and administrator training is

needed in how to recognize the difference and how to handle incidents when they occur. In relation to this issue, the strong incidence of self-reported bullying at 6th grade also suggests the development of transition programs so as better to acclimate students to the abrupt and unhelpful shift from elementary to middle school in their educational environments and thus to prevent peer violence.

Looking at the specific psychological correlates of bullying in the school context, we recommend that schools adopt intentional student engagement strategies to create positive learning environments that produce academic achievement, in order to overcome the power of victimization to distance students from learning. For this purpose, some studies with young adults and teachers indicated that challenging academics, school-based extra-curricular activities, involved and understanding teachers and coaches, and a focus on the future possibilities ensuing from staying in school combined to keep victimized children engaged in their education (Seeley, Tombari, Bennett, & Dunkle, 2009).

Then, since extrinsic motivation and test anxiety are likely to be the main dimensions affected by bullying (whilst intrinsic motivation is not), we should pay a careful attention to student relationships inside the classroom and emotional distress (more than the cognitive one). The key-element highlighted by analyses we carried out is, in fact, the tendency of bullied students to avoid punishments, deriving from the internalization of the negative opinion of classmates and (probably as a consequence) also of teachers in evaluative situations. For this reason, we also recommend the use of cooperative learning programs, based on a mentoring approach, so that students are given opportunities to mentor and lead other students. Bullies could thus learn using their power in caring, productive and enriching ways, while victim could be allowed to be in a position of strength and feel more competent.

There are some limitations that need to be acknowledged regarding the present study, that may represent interesting recommendations for further

investigation. A limitation, that is common to many other studies, concerns the specific instrument used to assess bullying victimization. In fact, self-report measures might underestimate the actual incidence and also variety of bullying episodes occurring at school, since students who are bullied might deny their status as victims so to avoid stigma and might be afraid to report aggressive acts by their peers. Besides, the lack of measures on teacher and school support in providing a comfortable environment in which students feel free to denounce being bullied, does not allow to differentiate further among victims.

Another limitation concerns the causal relationship between school bullying victimization and the psychological dimensions analyzed. In this regard, academic self-concept, learning motivation and test anxiety might also be considered as moderating factors that can protect (or not) students from becoming victims. In this sense, they might in turn contribute over time to being bullied (or not) by peers, supporting a downward spiral which may perpetuate victimization. However, longitudinal data would be required to disentangle the pattern of these causal effects.

Despite these limitations, the specific contribution of the paper is manifold. At first, the analysis of psychological correlates of school bullying may allow teachers to detect some warning signals (i.e. lower math and reading self concept, poorer commitment to study, higher extrinsic motivation and test anxiety) which could suggest potential situations of victimization among students. This is particularly important when considering the underestimation of the phenomenon, mainly due to the tendency of bullied students to deny their status as victims because they are generally afraid to report peer aggression. In addition, this study highlights some interesting information with regard to the potential impact of school bullying on students' characteristics which could contribute to the future research. Indeed, our findings provide two relevant key-points which need to be further investigated: the lack of correlation between student victimization and intrinsic motivation, on the one side; and the different gender patterns

with regard to the potential psychological effects of school victimization, on the other side.

In relation to the first key-point, we found that bullied students tend to be scarcely committed in school activities and show poor efforts in learning, despite they can be interested in school tasks. This seems to suggest that victimization might mostly affect students' ability to effectively express and guide their learning motivation to pursue particular activities, rather than students' motivation in itself. This clue could thus help to differentiate low performing or disengaged students from bullied ones. Indeed, as stated by Wright and colleagues (2012), some students may get mislabeled as low achievers because they do not want to speak up in class for fear of getting bullied, while teachers can misinterpret their silence and scarce participation, thinking that these students are not motivated to learn.

With regard to the second key-point, we found that bullying affects male and female students to varying degrees: boys mainly show higher extrinsic motivation and lower commitment to study, whilst girls report a greater extent of test anxiety. As discussed above, this could relate to different regulation strategies in terms of externalization or internalization of victimization consequences, according to which boys are more concerned about their exposure to the judgment of others while girls are more anxious to perform well. In this sense, the two-faceted focus on the learning environment or task could suggest different attitudinal and motivational dynamics of bullied students, respectively based on affiliation (for boys) or achievement (for girls). Anti-bullying interventions should thus take into account also these different gender patterns in order to handle the maladaptive school functioning resulting from student victimization.

Notes

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² The basic evaluation design sees schools and teachers within schools enrolling at a math training program (called M@t.abel) for the 2009/10 school year. The schools are randomised into two groups: one group receives the specialised training beginning in year 2009-10, the other group is delayed admission for one year, then released into treatment.

³ For the official validation of the questionnaire, see INVALSI (2010). Rapporto tecnico: Validazione del Questionario Studente per il Servizio Nazionale di Valutazione [Technical Report: Validation of the Student Questionnaire for the National Evaluation Service]. Rome: INVALSI.

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