

Factors associated with school bullying of fourth' graders in five European countries (IEA PIRLS 2016)

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What is PIRLS?

PIRLS, the Progress in International Reading Literacy Study, is one of the IEA' comparative large-scale student assessments. PIRLS provides internationally comparative data on how well children read and offers policy-relevant information for improving learning and teaching. The study is administered at a key transition stage in children's reading development: the change from learning to read to reading to learn. Assessing reading achievement at this crucial stage provides educators and policy makers with key insights into the effectiveness of their education system and helps to identify areas for improvement. In addition to reading assessment, the PIRLS school, teacher, student and home questionnaires gather extensive information about the contextual factors at home and school which are associated with the teaching and learning of reading (IEA, 2019). Many of the variables collected in PIRLS 2016 are also used in monitoring Unesco' SDG target 4 (Unesco, n.d.). PIRLS 2016 was conducted in more than 60 educational systems around the world.

Main Theoretical/Conceptual Framework of the secondary study

Our secondary study is focused especially on indicator 4.a.2 (Unesco, 2018), although several other SDGs are addressing prevention of bullying. On average across the PIRLS 2016 countries, the majority of fourth grade students (57%) reported almost never being bullied (Mullis, Martin, Foy, and Hooper, 2017). However, 29 percent reported them were bullied on a monthly basis, and 14 percent on a weekly basis (ibid.). There is a number of countries where 20 percent or more of the students reported being bullied weekly (ibid.).

Bullying has been a matter of concern for a long time, one of the first authors writing about that issue was Olweus (1997, p. 496), who exposed three main criteria for bullying. The first criteria characterizing bullying is "aggressive behavior or intentional harm doing", secondly, bullying is "repeatedly and over time" and third, "in an interpersonal relationship characterized by an imbalance of power". There are different divisions of peer violence among researchers. Olweus (1993, in Pečjak, 2014) distinguishes between direct peer violence (overt assault on a person) and indirect bullying (social isolation and exclusion). Sullivan (2011) divides bullying into physical (beat with injury, deliberate kicking, stripping, lashing, restraining, biting, overthrowing, pushing, deliberately damaging an individual's property or destroying his or her personal objects) and psychological violence (assaulting an individual's interior). Mental violence is further divided into verbal and non-verbal violence (direct non-verbal, indirect non-verbal and/or relational violence). Authors in literature argue, that students who were bullied and also bully, "reported low academic achievement, loneliness, and psychosocial maladjustment" (Nansel et al. 2001; in Dorio et al., 2019). Bullying affects the climate in classroom and school and it has an impact on relationships among students, the relationship between bullying and the school climate is actually reciprocal (Brandyopathay et al., 2009; Golstein et al., 2008, in Pečjak and Pirc, 2017, p. 76). There are different factors that can influence bullying at school, they called them "risk factors" and divided them into three groups, which can be family-based (lack of supervision, lack of clearly established boundaries, social circumstances), school-based (level of tolerance, random staff), dependence on the local community (the degree of crime, dangerous neighborhoods, social imbalance) or they can be of a wider social nature (violence in the media). Tippett and Wolke (2014) conducted a systematic literature review about bullying in connection with socioeconomic status and they found 28 studies that reported the association of socioeconomic status and school bullying. For example, Due et al. (2009) conducted a study that has shown that students with lower socioeconomic status are more frequently bullied than adolescents from families with higher socioeconomic status.

The main goal of this study is to find the association of different background and contextual variables with students being bullied at school. The study uses data from the Progress in International Reading Literacy Study (PIRLS) 2016. The analysis are done in comparative manner across five European educational systems and find important differences in the strength of the association of certain background and contextual variables while controlling for other.

Methods, research design, data

In our secondary study we used data for five European countries with the following student sample sizes – Bulgaria (4,281), Slovenia (4,499), Italy (3,940), Spain (14,595), and Malta (3,647) for which the average scale score for student bullying is similar - ranging from 9.9 to 9.8 (Mullis, Martin, Foy, and Hooper, 2017). However, data from our secondary study will be not only from student questionnaire, but also from others (teachers', principals' – schools, and parents' questionnaires). Fourth grade students' reports on being bullied are directly related to their average reading achievement, with each successive category of increased bullying being related to a decrease in average reading achievement (521 average for almost never, 507 for monthly, and 482 for weekly, i.e. a decrease of 39 points overall) (ibid.), as international average result. The preliminary analysis for one country (Slovenia) have shown that relationship between bullying and student reading achievement is very weak (although statistically significant), therefore the original analysis plan changed and uses regression model where the association between student being bullied at school (dependent variable) and student achievement as its predictor (reading) when controlling for multiple other variables like SES, school environment safety, and student behavioural issues among other background and contextual variables from the student, home, teacher and school variables was changed to multiple linear regression analysis (Klemenčič, Mirazchijski, and Javornik, 2019).

The analysis focuses on testing the association between student being bullied and variables at student, teacher, home and school levels. That is, finding which predictors are related to school bullying while controlling for all other predictors at the same time. It is expected that some of the predictors will lose their predicting power (i.e. their regression coefficients will become insignificant) while other will remain statistically significant. This way, we will be able to identify the most strongly related with the bullying variables after controlling for all other in the model. The analysis uses PIRLS 2016 data for five European countries separately and then the results are compared.

Results

Variable	Bulgaria		Italy		Malta		Slovenia		Spain	
	Standardized regression coefficients (SE)	Sig.	Standardized regression coefficients (SE)	Sig.	Standardized regression coefficients (SE)	Sig.	Standardized regression coefficients (SE)	Sig.	Standardized regression coefficients (SE)	Sig.
Parental perception of child's school	0.02 (0.02)		0.04 (0.02)		0.02 (0.02)		0.02 (0.02)		0.05 (0.01)	*
Student sense of school belonging	0.24 (0.02)	*	0.24 (0.02)	*	0.28 (0.02)	*	0.18 (0.02)	*	0.21 (0.02)	*
Safe and orderly school	-0.01 (0.03)		-0.03 (0.03)		-0.03 (0.02)		-0.03 (0.02)		-0.03 (0.02)	
Parental involvement in school activities	-0.04 (0.04)		0.03 (0.03)		-0.02 (0.02)		0.00 (0.03)		-0.04 (0.03)	
Parental commitment to ensure that students are ready to learn	0.08 (0.05)		-0.04 (0.04)		0.01 (0.02)		0.02 (0.03)		0.01 (0.02)	
Problem in school - student absenteeism	-0.09 (0.05)		0.00 (0.04)		0.04 (0.02)	*	0.02 (0.03)		0.02 (0.03)	
Problem in school - student vandalism	-0.06 (0.05)		-0.04 (0.05)		0.05 (0.02)	*	0.00 (0.03)		-0.08 (0.05)	
How many people live in the area (school location and environment)	-0.02 (0.03)		-0.03 (0.03)		0.06 (0.02)	*	-0.04 (0.02)		0.00 (0.02)	
Problem in school - teachers arriving late or leaving early	0.00 (0.07)		-0.05 (0.05)		0.02 (0.02)		-0.02 (0.03)		0.03 (0.04)	
Problem in school - teacher absenteeism	0.09 (0.07)		0.09 (0.05)		-0.10 (0.02)	*	0.01 (0.03)		0.01 (0.03)	

* Statistically significant (p<0.05)

The results from the regression analysis (standardized coefficients) are presented in the table. Due to the reversed metric of the scale on students being bullied at school (lower values mean being bullied more often and vice versa), the positive standardized coefficients mean negative effect and negative coefficients mean positive effect.

In all countries the student sense of school belonging have positive and statistically significant standardized coefficients. That is, the higher the student sense of belonging to school is, the less often they tend to be bullied. The coefficients for this variable range between 0.18 (Slovenia) and 0.28 (Malta). Malta is the only country where the student absenteeism, student vandalism and the number of people living in the school area are related to the student experience with bullying at school with a rather surprising trend – the more of a problem each one of these is, the less often students tend to be bullied at school. Although the coefficients for these variables are rather low (between 0.04 and 0.06) they are statistically significant (p < 0.05). Malta is also the only country where the teacher absenteeism is related with the student bullying, again, with the same surprising trend – more this is a problem at schools, the less often students tend to experience bullying at school (p < 0.05).

Parental perception on their child's school is related to student bullying only in Spain. The coefficient is low and positive, meaning that the better perception parents have on their child's school, the less often the students tend to be bullied. In all countries the model explains less than 10% of variance in students being bullied scale (lowest in Slovenia, highest in Malta): Bulgaria – 7%, Italy – 7%, Malta – 9%, Slovenia – 4%, Spain – 6%.

Discussion, conclusions and recommendations

The results from the multivariate analyses show that although all separate variables of interest are strongly and significantly related with student bullying at school, most of them lose their strength in predicting the outcome. However, in all five countries the student sense of belonging to school remains strongly and significantly related to being bullied at school. The probable explanation for this is that in schools where students have higher sense of school belonging the acts of bullying are more rare and this could be related with the overall school climate and the student relations. Measures at school which can increase student attitudes towards their own school positively could promote decline in student bullying. The data, however, does not contain variables which could prove this hypothesis and is subject to further research.

In just one country (Spain) the parental perception on their child's school is related with being bullied at school after controlling for all other predictors. Apparently, in Spain promoting better work the school does, as seen by the parents, can be used as a leverage to decrease the acts of bullying students experience.

As of now, we cannot find an explanation on the negative relationship between teacher absenteeism and student bullying in Malta. Probably this is due to cultural factors.

