

The Impact of Direct and Indirect Bullying on the Mental and Physical Health of Italian Youngsters

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The aim of the present study was to determine the extent to which direct and indirect bullying and victimization at school affects the mental and physical health of 661 Italian boys and girls, aged 11 to 15 years old. The impact of bullying and victimization is assessed by taking into account the relative buffering effect of a positive relationship with one or both parents. Internalizing symptoms such as withdrawn behaviors, somatic complaints, and anxiety and depression, measured with the self-administered Youth Form of the Achenbach's Child Behavioral Checklist, are indicators of maladjustment. Multiple regression analyses revealed that being a girl is a strong significant risk factor for all internalizing symptoms. Being a victim of indirect bullying is the strongest predictor of withdrawn behaviors, somatic complaints, and anxiety/depression, independent of direct victimization, which significantly predicts somatic complaints, anxiety, and depression, but not withdrawn behaviors. Bullying others directly by hitting, threatening, or calling names is not a significant predictor of the poor mental and somatic health of youngsters, whereas indirect bullying (spreading rumors or not talking to someone on purpose) does significantly predict anxiety and depression, as well as withdrawn behaviors. The negative impact of victimization and bullying is buffered by youngsters' positive relationship with one or both parents. Recommendations are provided with regard to possible intervention strategies underlying the importance of distinguishing between different forms of bullying and victimization and providing social support in each different case. *Aggr. Behav.* 30:343–355, 2004. © 2004 Wiley-Liss, Inc.

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Keywords: direct and indirect bullying; internalizing symptoms; adolescents; mother and father relationship

INTRODUCTION

Bullying in school is defined as a malicious repeated action inflicted by a more powerful person, or group of persons, over someone else perceived as weaker [Farrington, 1993]. Bullying can be direct: physical and verbal (e.g. kicking, punching, hitting, calling names), or indirect: psychological and relational (e.g. spreading rumors, excluding someone on

The research was partially supported by the National Research Council (CNR). Grant number: 203. 22.
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Received 5 March 2003; amended version accepted 9 June 2003.
Published online in Wiley InterScience (www.interscience.wiley.com).
DOI: 10.1002/ab.20043

purpose). Boys, overall, are more likely to be involved in bullying than girls, especially with regard to bullying others. Boys and girls report a similar proportion of victimization, though several studies are consistent in indicating that boys are more often victimized by their peers than girls [Kumpulainen et al., 1998; Whitney and Smith, 1993]. Gender differences show that girls are more involved in indirect bullying either as bullies, victims, or both, whereas boys are more likely to inflict direct physical pain [Baldry, 1998; Bjorkqvist et al., 1992; Owens et al., 2000; Roland and Idsøe, 2001]. Some other authors [Henington et al., 1998], however, report higher rates of boys being relationally aggressive.

Bullying others and being victimized has negative long- and short-term consequences on the general health and well being of the youngsters involved [Rigby, 2000]. A poor mental and psychological condition might be linked to experiences of victimization at school [Rigby, 1999]. Bullying others is an indicator of maladjustment and therefore it might also be related to poorer health because of the stress attached to it. Parents of bullies tend to be less supportive of their children than parents of children not involved in bullying. This leads to poorer parent-child relationships and greater feelings of insecurity and anxiety [Baldry and Farrington, 1998].

Previous studies have mainly focused on the mental and social-psychological adjustment problems of victims of bullying who develop more internalizing reactions and are more anxious, insecure, and report a lower level of self-esteem, compared to children not involved [Duncan, 1999; Olweus, 1978]. Research findings reported by Crick and Bigbee [1998] indicated that regardless of the type of victimization to which victimized children were exposed, they reported relatively high levels of internalizing problems. Victims of bullying, especially girls, are also more likely to report the worst mental health condition, with higher levels of depression and suicidal ideation [Kaltiala et al., 1999; Rigby and Slee, 1999]. Less is known about the mental health of bullies and of the so called 'bully/victims'; but Kumpulianine et al. [1998] showed that bully/victims especially report high levels of internalizing problems and a poor mental health [Forero et al., 1999]. Kaltiala et al. [2000] found that anxiety and depression were most frequently reported among male bully/victims and were equally common among only bullies and only victims, indicating that social-psychological maladjustment is also associated bullying others, though it is not clear whether these symptoms are the cause or the consequence of bullying others; longitudinal studies would be required. It is, however, of interest to determine if and how these symptoms are related to bullying in school. Not only being victimized but also acting in such a way is an index of maladjustment leading to a poorer mental health.

With reference to physical health, Rigby [1999, 2000] found that victims of persistent bullying develop a series of somatic complaints, including headaches and stomach aches, as a consequence of the physical pain and psychological stress inflicted at school, and often require medical attention [Williams et al., 1996]. Bully/victims have also worse physical health overall, compared to students not involved, with females reporting more problems than males [Junger et al., 2001; Kaltiala et al., 2000].

The negative impact that direct and indirect bullying others and being victimized has on the mental and physical health of youngsters can be buffered by a positive relationship with one or both parents, because of the support and help the parents can provide to their troubled children. As indicated by Rigby [2000], social support by teachers, peers, or parents can reduce the negative consequences of bullying, especially in those children most at risk: a positive relationship with one or both parents is expected to protect against victimization, reducing the risk of developing poor mental and physical health. Natvig et al. [2001] found

that social support has a mitigating positive effect on being victimized, decreasing its negative consequences; Flouri and Buchanan [2002] investigated the moderating role of the father’s involvement on life satisfaction in a sample of 1344 British adolescent boys and found that “low father involvement and peer victimization contributed significantly and independently to low levels of life satisfaction in adolescent boys” [Flouri and Buchanan; 2002: 126]. Clearly, having a positive and supportive family helps buffer the negative outcomes of victimization. As these authors acknowledge, however, it is also essential to determine any moderating role of the mother’s support on adjustment in victimized adolescents, including girls. In addition, because, as it has been suggested by Rigby [1999: 102–103], indirect victimization aiming “at subtly denigrating and isolating individuals may be expected to have more serious psychological” consequences, it is essential to establish the separate effects of direct and indirect victimization on the mental and physical health of youngsters involved.

Figure 1 summarizes the possible relationship between variables under investigation by showing how direct and indirect bullying others and being victimized might independently be associated with internalizing symptoms (i.e. withdrawn behaviors, anxiety and depression, and somatic complaints). Parental support might be independently negatively associated with internalizing symptoms but it might also moderate the negative impact of bullying and victimization. Socio-demographic variables also need to be controlled for, to determine whether they are independently associated with internalizing symptoms, or whether their variance is explained by the worsening parent-child relationship as the child ages. The same applies to the socio-economic status, meaning that low-income families might have more problems negatively affecting parental support, which in turn increases the risk of developing negative symptoms.

The present study aimed at investigating, with a cross-sectional study conducted with a sample of Italian adolescents, the separate effect of direct and indirect bullying and

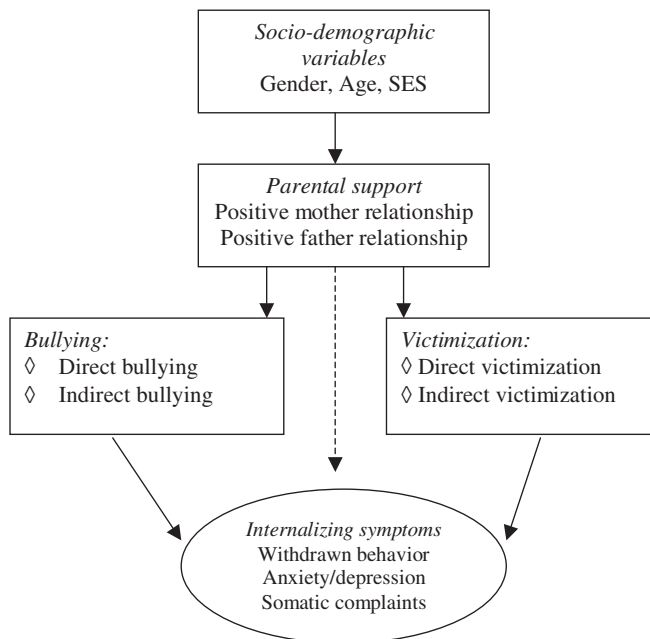


Fig. 1. Direct and indirect bullying effecting internalizing symptoms.

victimization on internalizing symptoms, moderated by having a positive relationship with the father and/or with the mother. The internalizing symptoms were classified as: withdrawn behaviors, somatic complaints, and anxiety/depression, according to the distinction provided by Achenbach et al. [1987]. It was hypothesized that (1) indirect victimization significantly contributes to the development of internalizing symptoms, independent of being directly victimized, and that (2) having a supportive father and/or mother protects against the negative impact of being victimized. No specific directional hypotheses were formulated with regard to the effect of direct and indirect bullying others.

METHOD

Participants

The study was conducted with 661 adolescents (54.2% boys and 45.8% girls) recruited from ten different middle schools in Rome and suburbs. Age ranged from 11 to 15 years, with an average of 12.1 years ($sd = 1.02$). The social-economic status of the family was determined according to the parents' occupations. Of all fathers, 29.5% were professionals or managers, 25.5% had white-collar jobs, 24.9% blue-collar jobs, 18.3% were merchants or craftsman, and 1.6% were unemployed, or pensioners; in 1.6% of all cases, the father was dead. Regarding the profession of mothers, 31.4% had white-collar jobs, 18.2% were unemployed or pensioner, 13.2% were professionals or managers, 11.7% were merchants or craftsman, 11.4% housekeepers, 9.8% had blue-collar jobs and finally, 4.2% were domestic workers. In one case the mother was dead.

According to the employment status of parents and the area of residence, the size of the house, and the number of people living in the same household, we classified 25.4% of all students as belonging to a low socio-economic class, 51.8% to a middle one, and the remaining 22.8% to a high socio-economic class.

Procedure

Schools were randomly selected from the register poll of middle schools provided by the local school authority ('Provveditorato'). Three classes from each of the ten schools selected were then randomly selected, for a total of 30 classes. Students were approached in their own class and were told about the purpose of the study; students were also given a no-consent form for their parents to sign if they did not wish their child to take part in the study. No student returned the form, so no one was excluded from the study.

Participants were assured of the anonymity and confidentiality of the answers provided; they were informed that all responses would be used for research purposes only.

Students were asked to sit separately so as to allow no conferring or talking when filling in the questionnaire. No time limit was imposed and the average time to complete the questionnaire was half-hour.

Measures

Internalizing Behavior. Internalizing behavior was measured with the 31 items subscale of the Italian version [Frigerio, 1998] of the original CBCL Scale for 11–18-year-old youths [Child Behavioral Check List, Youth Self-report for ages 11–18, Achenbach and Edelbrock, 1983]. The internalizing scale consists of three dimensions: *withdrawn behaviors* (7 items: $\alpha = .74$, examples: "I rather be alone than with others", "I feel underactive"), *somatic complaints*

(9 items: $\alpha = .67$, examples: “I am extremely tired”, “I suffer from stomach aches”), and *anxiety/depression* (16 items: $\alpha = .83$, examples: “I cry a lot”, “I worry a lot”). One item (‘I am unhappy, sad, and depressed’) is part of both the withdrawn behaviors and the anxiety/depression scales. Each item is scored 0, 1, or 2 in response to ‘not-true’, ‘somewhat true’, or ‘certainly true’, currently or in the previous six months. A total score is computed for each sub-dimension by summing up items in that subscale; higher values indicate more problems. These three dimensions were used as the criterion variables.

Victimization and Bullying Scale. Bullying and victimization were measured with the Italian version [Genta et al., 1996] of the original bullying questionnaire developed by Olweus [1993]. With regard to victimization, instead of using the single item asking how often the respondent has been bullied at school, which in the Italian context has proved to underestimate the prevalence rate of bullying, we made use of a new score created from the individual measures of the seven different types of victimization measured with items rated on a five-point scale. For each item, students had to indicate whether someone had behaved towards them in that specific way, ‘never’ (coded as ‘0’), ‘once or twice’ (1), ‘sometimes’ (2), ‘about once a week’ (3) or ‘several times a week’ (4) in the previous twelve months. The same procedure was used to measure bullying others, operationalized with six different types of behaviors. For the purpose of the present study, six new scores were then computed:

1) ‘Direct victimization’ obtained by adding together the four items measuring different types of direct victimization: called nasty names, physically hurt, belongings taken away, threatened ($\alpha = .61$; example item: “Has anyone at school ever called you nasty names?”).

2) ‘Indirect victimization’ consisted of three items: being rejected, rumors spread, and no one would talk to ($\alpha = .51$; example item: “Has someone at school ever prevented you from playing with him/her during recess time?”).

3) ‘Overall victimization’ was obtained by adding together the seven different items measuring the seven types of direct and indirect victimization ($\alpha = .71$).

4) ‘Direct bullying’ was measured by summing together the four items measuring different types of bullying: calling nasty names, physically hurting, taking belongings away, and threatening ($\alpha = .68$; example item: “Have you ever hit or kicked, or punched someone in your school?”).

5) ‘Indirect bullying’, consisted of two items: rejecting and rumors spreading ($\alpha = .56$; example item: “Have you ever told things about someone in your school which were not true?”).

6) ‘Overall bullying’ was obtained by adding together the six different items measuring the six types of direct and indirect bullying ($\alpha = .72$).

Positive Relationship With Mother and Father. A positive relationship with the mother and the father refers to the amount of support and agreement students have with either parent. Two different sub-scales, consisting of three items each, measured a positive relationship with the mother and father. With regard to the relationship with the mother, students had to indicate on a five-point Likert scale, ranging from 1 = ‘never’ to 5 = ‘always’, whether they ‘agreed with the mother,’ whether she was ‘nice to them,’ or ‘helped them when needed’ ($\alpha = .71$). The same three questions were asked with regard to the father ($\alpha = .70$); high values indicate a positive relationship.

Control Variables. Three socio-demographic variables were used as control variables: these were gender, age, and socio-economic status, with gender and SES measured on a categorical scale, and age on a continuous scale.

RESULTS

Bullying has been defined as an action repeated over time. Therefore students were classified as bullies or victims if they admitted these things happening at least sometimes in the previous 12 months; those reporting never bullying others or never being victimized, and those who reported it just once or twice, were classified as 'no bullies' or 'no victims.' With this procedure it emerged that 56.5% of all adolescents were victimized in the previous year and 49.5% admitted bullying others at least sometimes. Bullying and victimization are strongly associated: of all students victimized, 63.4% also bullied others; of students bullying others, 72.2% were also victimized ($\chi^2(1) = 64.68, p < .0001$). Table I shows gender differences overall and separately for direct and indirect types of bullying and victimization.

Boys are more likely than girls to bully others, especially with regard to direct bullying. Boys are almost three times more likely than girls to physically hurt, to spread rumors, to threaten, and to take belongings, and they are also more likely to call someone nasty names and to spread rumors. No gender differences occurred for 'not talking to someone on purpose.' Boys, overall, are more involved in victimization than girls, but mainly in direct forms of victimization, with the only exception of 'belongings taken away' evenly reported by boys and girls.

Direct and indirect bullying (and victimization) are associated, meaning that students can be involved both in direct and indirect bullying. To check the proportion of students directly victimized (or who directly bullied others), who were also indirectly victimized (or who

Table I. Prevalence (in percentages) of different types of bullying and victimisation overall and according to gender

Types of bullying and victimization	All students (N = 643)	Girls (N = 295)	Boys (N = 348)	χ^2 (1)
Overall bullying	49.5	35.6	61.2	41.90***
Direct bullying	38.4	21.7	52.6	64.40***
'I called someone nasty names'	30.8	20.0	39.9	29.79***
'I physically hurt, e.g. hit and kicked'	15.6	5.4	24.1	42.57***
'I threatened'	6.1	1.4	10.1	21.22***
'I stole or ruined belongings'	3.7	.7	6.3	14.15***
Indirect bullying	27.7	24.1	30.7	3.56
'I did not talk to someone on purpose'	23.2	22.4	23.9	.19
'I spread rumors about someone'	8.6	3.1	13.2	21.10***
Overall victimization	56.5	49.8	62.1	9.73**
Direct victimization	44.7	35.9	52.1	17.01***
'I was called nasty names'	35.7	29.2	41.3	10.21**
'I had my belongings taken away'	13.2	12.2	14.0	.47
'I was physically hurt (hit, kicked)'	11.8	8.5	14.6	5.79**
'I was threatened'	7.1	3.4	10.3	11.56***
Indirect victimization	33.4	31.2	35.3	1.24
'I had rumors spread about me'	21.0	20.7	21.3	.03
'No one would stay with me at recess time'	15.3	12.6	17.5	3.01
'No one would talk to me'	10.7	12.9	8.9	2.67

Notes. Comparisons are for boys and girls. 'Direct bullying' includes calling nasty names, physically hurting, taking belongings away, and threatening. 'Indirect bullying' includes spreading rumors, not talking to someone on purpose. 'Direct victimization' includes called nasty names, physically hurt, belongings taken away, threatened. 'Indirect victimization' includes being rejected, rumors spread, and no one would talk. Percentages exceed one hundred because students could check more than one type of bullying or victimization. * $p < .05$, ** $p < .01$, *** $p < .001$.

Table II. Intercorrelations of direct and indirect bullying and victimization, the control variables and internalizing symptoms

Variables	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.
1. Gender	–										
2. Age	–.02	–									
3. SES	–.01	–.18**	–								
4. Mother positive relationship	–.02	–.25**	.09*	–							
5. Father positive relationship	–.12**	–.20**	.06	.51**	–						
6. Direct victimization	–.15**	.01	–.04	–.12**	–.04	–					
7. Indirect victimization	–.01	.08*	–.07	–.10**	–.11**	.46**	–				
8. Direct bullying	–.32**	.15**	–.09*	–.24**	–.16**	.31**	.12**	–			
9. Indirect bullying	–.09*	.14**	–.05	–.15**	–.10**	.19**	.20**	.47**	–		
10. Withdrawn behaviors	.13**	.09*	–.09*	–.27**	–.26**	.20**	.34**	.08	.15**	–	
11. Somatic complaints	.16**	–.01	–.02	–.18**	–.24**	.20**	.24**	.04	.07	.46**	–
12. Anxiety/depression	.18**	.07	–.07	–.23**	–.22**	.28**	.36**	.11**	.20**	.75**	.58**

Note: Gender is coded 0 = male, 1 = female; SES is coded 1 = low, 2 = medium, 3 = high SES; * $p < .01$; ** $p < .001$. All significant correlations are Bonferroni corrected.

bullied others indirectly), we cross-tabulated frequencies. With regard to victimization, it emerged that direct and indirect victimization are strongly associated. Of all students reporting being directly victimized, 49.0% were also indirectly victimized, which is significantly different from the 21.0% of all students who were not directly, but rather indirectly, victimized. Of all students indirectly victimized, 65.8% were also directly victimized, compared to 34.7% of all students who were directly but not indirectly victimized ($\chi^2(1) = 57.40, p < .0001$).

With regard to bullying, it emerged that of all students reporting directly bullying others, 43.5% did it also in an indirect way. This is significantly different from the 18.1% of all students who did not bully others directly but who did it indirectly. Of all students indirectly bullying others, 60.3% did it also directly, compared to 30.3% of all students who bullied others directly but who did not do it indirectly ($\chi^2(1) = 50.35, p < .0001$).

Table II shows the linear relationship between direct and indirect bullying, victimization, and internalizing symptoms, assessed with two-tails intercorrelation, also computed with socio-demographic variables and with parental relationship.

All significant correlations were in the expected direction. Being victimized, rather than bullying others, is positively associated with internalizing symptoms. The mother and father's positive relationship with the child is negatively associated with all three subcategories of internalizing symptoms. As expected, adolescents who report lower level of internalizing symptoms are those who have the worst relationship with their mothers and fathers, especially with regard to feeling depressed and withdrawn. No significant age correlations occurred, whereas a positive association with gender emerged, with girls being more likely to report internalizing symptoms than boys.

Multiple Regressions

To establish the relative impact of direct and indirect bullying others and victimization on internalizing symptoms (withdrawn behaviors, anxiety and depression, and somatic

Table III. Hierarchical Multiple Regression of bullying and victimization predicting withdrawn behaviors (N = 579), somatic complaints (N = 573) and anxiety/depression (N = 561) [internalizing problems], controlling for socio-demographic variables and the buffering effect of parental relationship

Predicting variables	Withdrawn behaviors	Somatic complaints	Anxiety/depression
	β	β	β
Step 1			
Gender [†]	.140**	.173***	.209***
Age	.106*	.007	.104**
SES	-.070	-.027	-.044
R ²	.036	.030	.055
F Model (df)	7.29*** _(3,576)	5.96*** _(3,570)	11.17*** _(3,558)
Step 2			
Gender [†]	.109**	.139**	.190**
Age	.034	-.055	.047
SES	-.060	-.018	-.039
Mother positive relationship	-.151**	-.090	-.141**
Father positive relationship	-.158***	-.190**	-.098*
R ²	.100	.086	.095
ΔR^2	.064***	.056***	.040***
F Model (df)	12.87*** _(5,574)	10.77*** _(5,568)	11.86*** _(5,556)
Step 3			
Gender [†]	.117**	.160**	.218***
Age	.005	-.073	.012
SES	-.048	-.007	-.022
Mother positive relationship	-.142**	-.064	-.105*
Father positive relationship	-.135**	-.186***	-.079
Direct victimization	.048	.150**	.142**
Indirect victimization	.255***	.121**	.242***
Direct bullying	-.017	-.006	.001
Indirect bullying	.082*	.044	.115**
R ²	.192	.143	.232
ΔR^2	.091***	.057***	.137***
F Model (df)	15.02*** _(9,570)	10.55*** _(9,564)	18.53*** _(9,552)
Step 4			
Gender [†]	.102*	.134**	.218***
Age	.001	-.069	.006
SES	-.044	-.012	-.020
Mother positive relationship	-.128**	-.053	-.105*
Father positive relationship	-.147***	-.196***	-.079
Direct victimization	.051	.159**	.144**
Indirect victimization	.246***	.116**	.239***
Direct bullying	-.039	-.048	.000
Indirect bullying	.088*	.033	.119**
Direct victimization X gender	-.027	.018	.006
Indirect victimization X gender	.047	.015	.031
Direct bullying X gender	-.050	-.053	-.020
Indirect bullying X gender	.038	-.041	.025
Supportive mother X gender	-.036	-.053	-.003
Supportive father X gender	.006	.033	-.033
R ²	.200	.147	.235
ΔR^2	.008	.004	.003
F Model (df)	9.20*** _(15,564)	6.53*** _(15,558)	11.19*** _(15,546)

Note: All scores are standardized. [†]Positive β 's are in the direction of being a girl. Different N's are due to missing values. * $p < .05$, ** $p < .01$, *** $p < .001$.

complaints), over and beyond socio-demographic variables (age, gender, and socio-economic status), controlling for any moderating effect of a positive relationship with the mother and/or the father, three separate hierarchical regression analyses were conducted for each type of internalizing condition.

Hierarchical regression allows building different sets of variables into the three models according to the theoretical model presented in Figure 1. Six additional variables were computed to search for any significant interaction effect due to gender, because direct and indirect bullying and victimization involve boys and girls differently, with a possible different effect on their mental and physical well-being. These variables were: direct victimization by gender, indirect victimization by gender, direct bullying by gender, and indirect bullying by gender, relationship with the mother by gender and relationship with the father by gender. A four-step model, presented in Table III, was adopted for withdrawn behaviors, somatic complaints, and anxiety/depression, to control the separate predicting effect of each predictor over the criterion at each step of the analyses. The same variables were used as predicting variables in all three models. In the first step, three background variables were entered: gender (dummy-coded, male = 0, female = 1), age, and socio-economic status (SES, dummy-coded low = 1, middle = 2 and high = 3). In the second step, both the positive relationship with the mother and with the father were entered. In the third step, direct and indirect bullying and victimization were entered. Finally, in the fourth step, the four interactions of direct and indirect bullying and victimization with gender and the two interactions of the mother and father's positive relationship with gender were entered. All variables scores were standardized to draw comparisons between the different scales.

With regard to withdrawn behaviors, socio-demographic variables were entered in the model first, explaining 3.6% of the total variance, though only two were statistically significant: gender ($\beta = .140$, $t = 3.41$, $p < .0001$ — meaning being a girl), and age ($\beta = .106$, $t = 2.53$, $p < .01$ — meaning being older). In the second step, the relationship with the father and mother were entered, significantly improving the model fit ($\Delta R^2 = .064$, $\Delta F_{(2, 571)} = 20.34$, $p < .0001$), indicating that a positive relationship with the mother is negatively associated with withdrawn behaviors (i.e. a negative relationship with the mother is a significant risk-predicting factor for withdrawn behaviors, $\beta = -.151$, $t = -3.29$, $p < .001$). The same applies for the relationship with the father ($\beta = -.158$, $t = -3.44$, $p < .0001$). In the third step of the model, direct and indirect victimization and bullying were entered, significantly improving the model fit ($\Delta R^2 = .091$, $\Delta F_{(4, 567)} = 15.88$, $p < .0001$), though only indirect victimization ($\beta = .255$, $t = 5.86$, $p < .0001$) and indirect bullying ($\beta = .082$, $t = 1.97$, $p < .05$) were significant. In the last step, all six different interactions were entered in the model, though none were significant. The full model accounted for 20% of the total variance of withdrawn behaviors.

With regard to somatic complaints, in the first step socio-demographic variables were entered in the model, explaining 3% of the total variance, though only gender, meaning being a girl, was statistically significant ($\beta = .173$, $t = 4.18$, $p < .0001$). In the second step, relationship with the father and with the mother were added to the model, significantly improving the model fit ($\Delta R^2 = .056$, $\Delta F_{(2, 565)} = 17.25$, $p < .0001$), though only the relationship with the father was statistically significant (i.e. a negative relationship with the father is a significant risk-predicting factor for somatic complaints, $\beta = -.190$, $t = -3.99$, $p < .0001$). In the third step, direct and indirect victimization and bullying were entered in the model, significantly improving the model fit ($\Delta R^2 = .057$, $\Delta F_{(4, 561)} = 9.35$, $p < .0001$), though only direct victimization ($\beta = .150$, $t = 3.29$, $p < .001$) and indirect victimization

($\beta = .121$, $t = 2.71$, $p < .01$) were statistically significant. In the last step, all six different interactions were entered in the model, but again, none were statistically significant. The full model accounted for 14.7% of the total variance of somatic complaints.

The last hierarchical multiple regression was conducted for anxiety and depression. In the first step, socio-demographic variables were entered in the model, explaining 5.5% of the total variance, though only two were statistically significant: gender ($\beta = .209$, $t = 5.09$, $p < .0001$), meaning being a girl, and age ($\beta = .104$, $t = 2.47$, $p < .01$), meaning being older. In the second step, the relationship with the father and with the mother were added to the model, significantly improving the model fit of anxiety and depression ($\Delta R^2 = .040$, $\Delta F_{(2, 553)} = 12.19$, $p < .0001$), indicating that a positive relationship with the mother is negatively associated with anxiety and depression ($\beta = -.141$, $t = -3.01$, $p < .01$) and the same applies for the relationship with the father ($\beta = -.098$, $t = -2.09$, $p < .05$). In the third step of the model, direct and indirect victimization and bullying were entered in the model, significantly improving its fit ($\Delta R^2 = .137$, $\Delta F_{(4, 549)} = 24.43$, $p < .0001$). With only the exception of direct bullying, indirect victimization ($\beta = .242$, $t = 5.68$, $p < .0001$), direct victimization ($\beta = .142$, $t = 3.25$, $p < .001$), and indirect bullying ($\beta = .115$, $t = 2.71$, $p < .01$) were all statistically significant. In the last step of the model, all six different interactions were entered in the model, but none were significant. The full model accounted for 23.5% of the total variance of anxiety and depression.

DISCUSSION

Findings from the present study showed that the mental and physical health of middle school Italian students is associated with involvement in bullying and victimization in school. Bullying is by all means a form of abuse, creating long-lasting negative effects. In particular, the present study enabled the author to determine the separate effects of direct and indirect bullying and victimization on withdrawn behaviors, somatic complaints, and anxiety and depression, establishing that indirect victimization is the strongest risk factor for the development of a poor physical and mental condition.

Bullying was reported by a high proportion of students; almost half of the sample reported bullying others sometimes or more often in the previous year, either directly, indirectly, or both. This proportion is higher than the one reported in previous studies [Smith et al., 1999]; this could be due partly to the different time span taken into consideration (twelve months instead of the three used before). Consistent with previous studies, boys reported bullying others two to three times more often than girls [Baldry and Farrington, 1999; Whitney and Smith, 1993]. Gender differences emerged for direct bullying, confirming once more that boys are more likely to use overt means of 'proactive aggression', by physically hurting peers, ruining their belongings, and calling them names [Roland and Idsøe, 2001]. Previous study indicated that girls are more likely to inflict indirect forms of aggression by isolating their peers or by spreading rumors about them [Bjorkqvist et al., 1992; Lagerspetz and Bjorkqvist, 1994]. The present study revealed that, overall, indirect bullying was evenly reported by boys and girls. The only exception was 'spreading rumors' with boys reporting doing it almost four times more often than girls. With regard to victimization, more than half of all students reported being victimized in the previous year; gender differences occurred only for direct victimization, with boys reporting higher prevalence rates than girls. Boys and girls reported similar levels of indirect victimization for all types of behaviors.

The higher proportion of boys bullying others and being victimized should be associated with their actual higher involvement in such behaviors. As indicated by Kumpulainen et al., [1998] there is no reason why boys should be more prone than girls to disclose these behaviors. The higher proportion of boys directly victimized might be due to the fact that boys are more likely to bully other boys, both directly and indirectly, and girls to bully other girls; because boys bully more than girls, this might explain why there are more male victims.

The four-step hierarchical models tested in the present study revealed that bullying and victimization account for a significant proportion of internalizing problems, even after controlling for the impact of socio-demographic variables, and for any buffering effect due to a positive relationship youngsters might have with their parents. Withdrawn behaviors, anxiety/depression, and somatic complaints are differently predicted by direct and indirect bullying and victimization, even if they are all part of internalizing problems. Being a girl is a strong risk factor, despite the overall higher involvement of boys in bullying. As indicated by Rigby [1999], girls seem to be more vulnerable and negatively affected by bullying. Bond et al. [2001] found that being victimized has a significant negative impact on the future emotional well-being of young adolescent girls, independent of their social relations, but the same does not apply for boys. As with other forms of abuse, girls tend to react internally, and therefore feel more depressed and sad, whereas boys tend to overtly react to problems encountered at school [Duncan, 1999].

Indirect victimization predicted all forms of internalizing problems and it accounted for a high proportion of variance of withdrawn behaviors and anxiety/depression. Somatic complaints, such as aches, pains, feelings of tiredness and sickness, were also significantly predicted by both direct and indirect victimization, whereas bullying others was not associated with physical health. These results indicate that the development of a poor physical health might be a psychosomatic reaction for those youngsters (primarily females) who are constantly picked on at school [Williams et al., 1996].

Youngsters who are withdrawn are more likely to report indirect victimization, such as being excluded or having rumors spread about them, in line with previous studies [Olweus, 1978]. The present findings show, in addition, that these youngsters might be bullies themselves, indirectly inflicting pain and doing to peers what was done to them, belonging to the so called 'bully/victim' category [Forero et al., 1999]; anxious and depressed children, instead, are those both directly and indirectly victimized who also indirectly bullied others.

In all cases, the type of relationship youngsters have with their parents significantly and independently contributes to moderating the development of internalizing problems. A positive relationship with the father and with the mother significantly buffers the negative effects of bullying/victimization on withdrawn behaviors. In other words, children who have a poor relationship with their mothers and/or with their fathers are more likely to be withdrawn, independent of other risk factors. With regard to anxiety and depression this is true only for a positive relationship with the mother and the reverse applies in cases of somatic complaints; a positive relationship with the father helps reduce the risk of somatic complaints correlated with bullying. It is not clear why this is so. It could be that children reporting a poor relationship with their fathers are more at risk of being maltreated at home, and therefore develop somatic complaints [Black et al., 2001]. None of the interactions were significant, indicating that bullying and victimization affect the mental and physical health of children independent of gender; being a girl is per se associated with worse health conditions, but it does not vary in accordance with the different bullying and victimization experienced.

This study, like most, has some limitations. Measures of bullying and victimization, internalizing symptoms, and parental relationship, were based only on self-reported measures; information from additional informants would have been important in addressing the problem under investigation. Most studies, however, adopting other methods, indicated that self-reports are reliable, especially during the adolescent years, because at this stage of their lives, young people are less likely to disclose their personal experiences at school, especially if these are negative, socially undesirable ones, to adults (teachers or parents) [Junger et al. 2001]. Self-report measures are also more reliable for disclosing different forms of direct and indirect bullying and victimization; indirect types of bullying and victimization might go underreported because they are only known to those personally involved.

Longitudinal studies, following students for a prolonged period of time, should be adopted, to establish a direct causal effect of bullying and victimization on the mental and physical health of those involved. With the present study no conclusions on causal effects can be drawn, only correlational ones.

Future studies should look also at the different effects of direct and indirect bullying and victimization on externalizing problems. Intervention strategies should be adopted to prevent students who are victimized at school or who bully others from needing psychiatric intervention [Kumpulainen et al., 1998]. Poor mental and physical health prevents students from feeling happy at school and achieving good and satisfactory goals. Children with mental health problems tend to go to school less, lowering their school achievement; this might in turn make them feel even more isolated and withdrawn. General practitioners, pediatricians, school psychologists, counselors, teachers, and parents should seriously consider bullying, and screen out for any somatic complaints or other psychological problems to prevent the development of more serious consequences such as suicide attempts or involvement in deviant behaviors [Gould et al., 1996; Rigby and Slee, 1999]. In addition, to better understand these problems, comparative, cross-cultural studies on this topic are needed to better understand any cultural differences between countries.

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